JOURNAL OF EDUCATION AND RECREATION PATTERNS

2757-9344

2025

VOLUME 6
NUMBER 1

2757-9344
Journal of Education and Recreation Patterns
Volume 5 Number 2
December 2024
JERP
jerpatterns.com

Journal of Education and Recreation Patterns [JERP]
ISSN: 2757-9344

June, 2025
Volume 6, No 1
http://www.jerpatterns.com

The JERP is a refereed journal and has a double-blind review. Any manuscript submitted for consideration in publication in the JERP is reviewed by at least two international reviewers with expertise in the relevant subject area.

The JERP is published twice a year in the June and December months.

Publisher:
Dr. Yalçın TÜKEL
Necmettin Erbakan University
Konya, Türkiye
ytukel@erbakan.edu.tr

Journal of Education and Recreation Patterns [JERP] is indexed in ***SPORTDiscus with Full Text Database Coverage List, Education Full Text (H. W. Wilson) Database Coverage List, Google Scholar, İdealonline, Crossref, Road, Türk Eğitim İndeks, Proquest Exlibris, EBSCO, ASOS indeks, CAB Abstracts and Global Health Database***

Journal of Education and Recreation Patterns [JERP]
ISSN: 2757-9344

June, 2025
Volume 6, No 1
http://www.jerpatterns.com

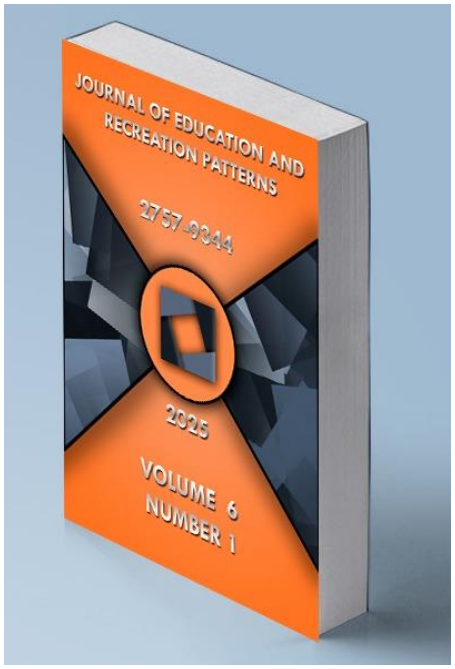
The JERP is a refereed journal and has a double-blind review. Any manuscript submitted for consideration in publication in the JERP is reviewed by at least two international reviewers with expertise in the relevant subject area.

The JERP is published twice a year in the June and December months.

Publisher:
Dr. Yalçın TÜKEL
Necmettin Erbakan University
Konya, Türkiye
ytukel@erbakan.edu.tr

Journal of Education and Recreation Patterns [JERP] is indexed in ***SPORTDiscus with Full Text Database Coverage List, Education Full Text (H. W. Wilson) Database Coverage List, Google Scholar, İdealonline, Crossref, Road, Türk Eğitim İndeks, Proquest Exlibris, EBSCO, ASOS indeks,, CAB Abstracts and Global Health Database***

Journal of Education and Recreation Patterns
Volume 6
Number 1
2757-9344
JERP
jerpatterns.com



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

The Moderating Role of Leisure Satisfaction in the Effect of Peer Relationships on Happiness in Adolescents

Cemal YALÇIN[1], Muhittin ALTINDÖKER[2]
Halil YILDIZ[3]

To cite this article:

Yalçın, C., Altındöker, M. & Yıldız, H. (2025). The moderating role of leisure satisfaction in the effect of peer relationships on happiness in adolescents. *Journal of Education and Recreation Patterns (JERP), 6 (1),* 1-16. DOI: https://doi.org/10.53016/jerp.v6i1.278

[1]Ankara University, Vocational School of Ayaş, Ankara, Türkiye, cemalyalcin@ankara.edu.tr, https://orcid.org/0000-0002-8635-2159
[2]Kütahya Dumlupınar University, Graduate Education Institute, Kütahya, Türkiye, muhittin.altindoker@ogr.dpu.edu.tr, https://orcid.org/0009-0004-8099-8751
[3]Isparta Sports High School, Isparta, Türkiye, halilyildiz1908@gmail.com, https://orcid.org/0009-0004-0592-6248

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

The Moderating Role of Leisure Satisfaction in the Effect of Peer Relationships on Happiness in Adolescents

Cemal Yalçın[1], Muhittin Altındöker[2], Halil Yıldız[3]

ARTICLE INFORMATION
Original Research Paper

Received 20.02. 2025
Accepted 30.05. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 01-16

ABSTRACT

The primary objective of this study is to investigate the moderating role of leisure satisfaction in the relationship between peer relationships and happiness levels. Employing a correlational research design, the study was conducted with a sample of 529 high school students, comprising 110 females (20.8%) and 419 males (79.2%). A structural equation model was constructed to test the hypotheses developed within the scope of the study, and the analyses were conducted using SPSS Process Macro (Model 1). According to the analysis results, it has been determined that peer relationships and leisure satisfaction have a positive and significant effect on happiness levels. Moreover, the moderating role of leisure satisfaction in the association between peer relationships and happiness was found to be statistically significant. Specifically, when leisure satisfaction is high, the positive effect of peer relationships on happiness is amplified. Therefore, interventions aimed at enhancing leisure activities could be implemented in schools and community programs to foster better social connections and happiness among youth.

Keywords: Adolescents, Happiness, Leisure Satisfaction, Moderating Role, Peer Relationships.

INTRODUCTION

Happiness not only contributes to individuals' psychological balance and satisfaction but also attracts considerable research attention as a fundamental pillar of social welfare and progress (Deci & Ryan, 2008; Leung ve ark., 2021). In this context, happiness has become a prominent area of study in disciplines such as sociology, psychology, economics, and education, given its impact on quality of life and social integration (Argyle, 2013; Diener & Ryan, 2009; Frey, 2010). Beyond being one of the critical indicators of social progress, happiness has also become a central focus in the policies of public institutions and organizations (World Happiness Report, 2024). In this context, happiness, as a key concept with interdisciplinary appeal, has become a prominent research area in positive psychology, particularly in studies involving adolescents (Choi et al., 2019; Freire & Ferreira, 2020). Previous studies have focused on various determinants of happiness in adolescents, highlighting the significant role of leisure activities among these factors (Roberts, 2019; Yuh, 2022). Numerous studies have identified leisure activities as one of the most important sources for enhancing happiness in adolescents (Asquith et al., 2022; Hakoköngäs & Puhakka, 2023). In adolescents, participation in leisure activities has been found not only to reduce stress, anxiety, and depression levels (Ma et al., 2020; Lee et al., 2012) but also to provide numerous developmental benefits by enhancing psychological factors, perceived control, social support, self-esteem, happiness, and the quality of peer relationships in social environments (Cassidy, 2005; Freire et al., 2016; Poulsen et al., 2008).

Globally, nearly 3 billion out of the 7.2 billion people are under the age of 25, representing 42% of the population. Of these, 1.2 billion are adolescents aged 10 to 19, and this number is anticipated to grow significantly in the coming years (WHO, 2024). Therefore, for the future of societies, fostering a psychologically and socially healthy generation of youth who can effectively communicate with their peers is a critical concern (Gibbons et al., 2012; Hall-Lande et al., 2007). Leisure activities are among the most significant factors contributing to the development of healthy peer relationships (Denault & Poulin, 2008; Zeijl et al., 2000). Adolescents who engage in leisure activities with their peers experience improved happiness levels and a healthier developmental process (Freire & Teixeira, 2018; Trainor et al., 2010). Although there is a substantial body of research addressing leisure satisfaction, peer relationships, and happiness individually, studies that explore these constructions within an integrated and interactive framework remain limited. In particular, the role of leisure experiences in the dynamics between young individuals' social relationships and their happiness has not been sufficiently examined. This study aims to evaluate these variables through a holistic approach and proposes a theoretical framework to understand how leisure satisfaction contributes to individuals' happiness through peer relationships. In doing so, it seeks to fill a significant gap in literature by elucidating the influence of social context on happiness and contributing to a deeper understanding of the social mechanisms that support the happiness of young individuals.

Literature Review

Happiness and Peer Relationships

Studies on adolescent happiness have increased significantly in recent years (Alam, 2022; Avedissian & Alayan, 2021). Within the domain of positive psychology, happiness is conceptualized through two perspectives: hedonic and eudaimonic (Deci & Ryan, 2008). The hedonic perspective focuses on subjective well-being, characterized by positive emotions and high life satisfaction, while the eudaimonic perspective emphasizes psychological well-being, defined as the pursuit of meaning in life (Diener et al., 1998; Huta & Waterman, 2014). Broadly, happiness can be described as "the cognitive and emotional evaluation of one's life" (Diener et al., 2002). Literature highlights various factors influencing happiness, including academic,

psychological, and sociological aspects, with peer relationships among adolescents being particularly significant (Bukowski et al., 2011; Leung et al., 2021).

Peer relationships play both a protective and developmental role during adolescence (Brown & Larson, 2009). Being part of a healthy peer group is crucial for safeguarding psychological health (Scholte & Van Aken, 2020). Such relationships positively impact self-esteem, academic success, social popularity, and overall happiness (McMahon et al., 2020; Scholte & Van Aken, 2020; Wu et al., 2022). Historical and contemporary research underscores the strong correlation between happiness and peer relationships (Cheng & Furnham, 2002; Chen et al., 2021; Demir et al., 2013). For instance, Cheng and Furnham (2002) found that extraverted adolescents in the UK exhibited higher happiness levels due to enhanced self-confidence and strong peer relationships. Similarly, Chen et al. (2021) reported that quality peer relationships among Chinese adolescents were strongly associated with elevated happiness levels. Therefore, it is evident that peer relationships have a direct and positive impact on adolescent happiness.

Happiness and Leisure Satisfaction

Leisure, which is closely linked to the concept of freedom (Gürbüz, 2017), is defined as activities that individuals voluntarily engage in based on their interests and abilities, typically providing satisfaction and personal fulfillment (Stebbins, 2017). Leisure satisfaction refers to the positive emotions individuals experience as a result of fulfilling their personal needs through participation in leisure activities (Beard & Ragheb, 1980). Research strongly supports the positive impact of participation in leisure activities on happiness levels (Nawijn & Veenhoven, 2012; Wang & Wong, 2014). Compared to other behaviors and experiences, leisure activities have been found to play a significantly greater role in enhancing individuals' quality of life (Brajša-Žganec et al., 2011; Iwasaki, 2007). Understanding how leisure satisfaction contributes to happiness is particularly important when examining the social and emotional development of adolescents, as their participation in leisure activities can have substantial effects on their well-being and peer relationships.

Research shows that studies conducted on adolescents indicate a positive relationship between happiness and participation in leisure (Burton ve Phipps, 2007; Freire vd., 2016; Hakokõngäs ve Puhakka, 2023). For instance, Yuh (2022) discovered that South Korean adolescents participating in leisure activities experienced higher levels of eudaimonic happiness. Similarly, Ito et al. (2019) explored cultural perspectives on happiness in Canadian, Chinese, and Japanese university students. Canadian students emphasized personal happiness derived from physical activities like exercising, while Chinese and Japanese students associated happiness with social activities. Burton and Phipps (2007) further revealed that in countries such as the UK, USA, Canada, Germany, and Sweden, children's happiness declined when parents prioritized material interests by increasing working hours, thereby reducing leisure allocation for their children. Findings from various studies demonstrate that participating in leisure activities strongly correlates with increased happiness levels among adolescents. Accordingly, leisure satisfaction can be expected to have a direct and positive effect on happiness (Iwasaki, 2007; Nawijn & Veenhoven, 2012; Yuh, 2022; Wang & Wong, 2014).

Peer Relationships and Leisure Satisfaction

Socialization is one of the most critical needs during adolescence. Adolescents who engage in social interactions tend to excel in building self-confidence and improving their communication skills (Smetana et al., 2015). Conversely, adolescents who struggle with socialization often face deficiencies in self-confidence, self-esteem, and communication skills (Tallman et al., 2014). Research indicates that socially isolated adolescents are more likely to exhibit aggressive behavior, encounter conflicts, and engage in risky activities such as

substance abuse and antisocial behaviors (Riquelme et al., 2018; Trucco, 2020). In this context, leisure activities play a crucial role not only in promoting socialization but also in enhancing the sense of belonging and reducing such negative outcomes (Akçakese & Demirel, 2024; Mannell & Kleiber, 2020; Santini et al., 2020).

Empirical findings indicate that leisure-based peer interactions are essential for fostering key aspects of adolescent development, particularly in the social, emotional, and psychological domains (Denault & Poulin, 2008; Zeijl et al., 2000). Cassidy (2005) highlighted that leisure activities serve as foundational tools for fostering social, family, school, and peer relationships. He also emphasized their connection to psychological factors, perceived control, and social support. Similarly, Poulsen et al. (2008) found that participation in physical leisure activities is crucial for addressing the psychosocial needs of adolescents with developmental coordination disorders, enhancing their self-esteem, and strengthening peer relationships. Considering these findings, it is evident that leisure satisfaction plays an essential role in fostering and regulating adolescents' peer relationships, contributing significantly to their overall development.

Happiness and Peer Relationships: The Moderating Role of Leisure Satisfaction

For adolescents, maintaining effective communication and socializing with peers through leisure activities is critically important. Such interactions not only foster happiness but also promote active social involvement in society (Roberts, 2005). For example, a study by Koçak and Gürbüz (2024) involving participants from five European countries, including Türkiye and Romania, found that social inclusion had a significant positive impact on life satisfaction. However, this effect diminished when leisure constraints were perceived as higher, suggesting that such constraints negatively moderate the relationship between social inclusion and life satisfaction. Similarly, Akçakese and Demirel (2025) reported that recreational awareness played a negative moderating role in the relationship between social exclusion and digital game addiction. As recreational awareness increased, the link between social exclusion and digital game addiction weakened. Furthermore, Argan et al. (2018) demonstrated that leisure satisfaction serves as a crucial moderator of happiness, particularly in its relationship with well-being and life satisfaction.

Building on this information, leisure is recognized as playing a significant moderating role across various constructs (Koçak & Gürbüz, 2024; Akçakese & Demirel, 2025). Moreover, numerous studies have demonstrated that leisure activities not only serve as an effective means to strengthen peer relationships but also have a direct positive impact on adolescents' happiness (Brajša-Žganec et al., 2011; Denault & Poulin, 2008; Poulsen et al., 2008; Yuh, 2022). Despite a growing body of literature emphasizing the benefits of leisure satisfaction, empirical investigations specifically exploring its moderating role in the nexus between peer relationships and happiness remain notably limited. This gap is especially critical in light of contemporary challenges faced by adolescents, who increasingly experience social fragmentation and diminished quality of peer interactions due to pervasive digital technologies and shifting socio-cultural dynamics (Twenge et al., 2018; Odgers & Jensen, 2020). Peer relationships constitute a cornerstone of adolescent psychosocial development, providing essential emotional support, identity formation, and social skills acquisition, all of which are strongly linked to subjective well-being and life satisfaction (Brown & Larson, 2009; McMahon et al., 2020). However, these relational benefits may be compromised by external stressors and environmental shifts, thus necessitating an exploration of protective factors that may buffer negative outcomes.

Leisure satisfaction emerges as a critical factor due to its demonstrated capacity to enhance positive affect, facilitate social connectedness, and promote adaptive coping mechanisms throughout adolescence (Cassidy, 2005; Shin & You, 2013; Yuh, 2022). Accordingly, its moderating role represents a central construct for advancing a nuanced understanding of the influence peer relationships exert on happiness. This study endeavors to

elucidate the subtle complexities underlying adolescents' happiness by systematically examining the moderating effects of varying levels of leisure satisfaction (low, average, high) on this association. Grounded in this conceptual framework, the investigation seeks to address the following research questions.

H1: Peer relationships have a positive effect on happiness level.

H2: Leisure satisfaction has a positive effect on happiness.

H3: Leisure satisfaction has a moderating role in the effect of peer relations on happiness level.

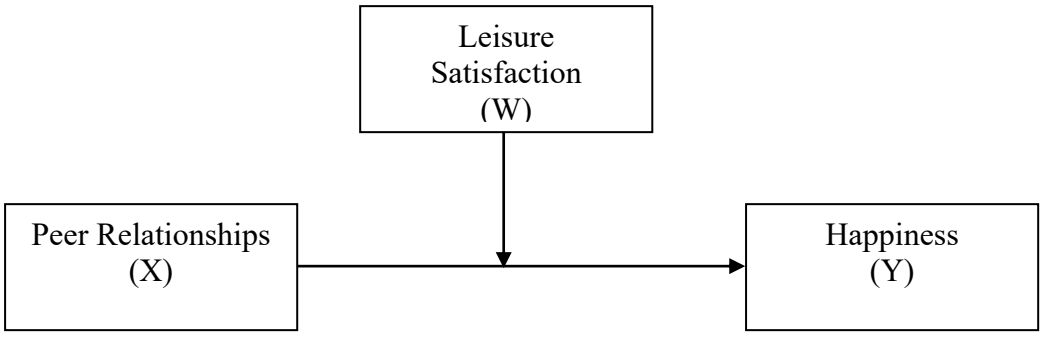
METHOD

Research Model

This research is quantitative research that is created from the perspective of numerical data in order to test the hypotheses (O'Dwyer & Bernauer, 2013). Within the scope of the study, the correlational survey method, which is one of the quantitative research methods, was preferred. Correlational surveys are studies that try to reveal the relationship between two or more variables (Gürbüz & Şahin, 2018). In this context, a research model was created within the scope of the study. Structural equation modeling was used to determine the cause-and-effect relationships of the model. Structural equation modeling is a multivariate statistical method that combines both regression and factor analysis (Denis, 2018; Hayes, 2017). The model includes x) peer relationships (independent variable) w) leisure satisfaction (moderator variable) y) happiness (dependent variable) variables. In line with this information, the theoretical structure of the research is shown in Figure 1.

Figure 1

Research Model



Participants and Procedure

The study sample of this research consists of a total of 529 high school students (Mage = 16.39 ± 1.18), including 110 females (20.8%) and 419 males (79.2%). The participants were selected through convenience sampling from various public high schools located in the provinces of Ankara and Isparta in Türkiye. Convenience sampling method refers to collecting data in the easiest and most accessible way until the sample size needed for the research is reached (O'Dwyer & Bernauer, 2013). Most participants were generally 2nd year high school students (n=173, 32.7%). While most of the sample participated in leisure activities regularly (n=323, 61.1%), the majority of participants reported engaging in physical activity (n=505,

95.5%). Furthermore, participants generally participated in leisure activities with friends (n=428, 80.9%).

Ethical approval was obtained from the Scientific Research and Publication Ethics Committee of Kütahya Dumlupınar University, in accordance with the letter dated 25.10.2024 and numbered 336607 issued by the Institute of Graduate Education. In order to apply the measurement tools, the necessary written permissions were obtained from the management departments of the relevant schools. After obtaining research permission, the application form was shared with the participants, and they filled out a consent form. Participants were guaranteed detailed information about the study, its purpose, design, and confidentiality of their answers. All participants in the research participated on a voluntary basis.

Measures

Personal Information Form: The personal information form, which was prepared with the information obtained from the literature review, consists of independent variables such as gender, age, grade, participation in leisure activities, participation in physical activity and with whom they participate in leisure activities to collect information about the students.

Oxford Happiness Questionnaire – Short Form (OHQ-SF): The validity and reliability study of the Turkish version of this scale developed by Hills and Argyle (2002) to measure the happiness levels of individuals was conducted by Doğan and Akıncı-Çötok (2011). The scale consists of 8 items and one sub-dimension. The scale items are listed as (1) "strongly disagree" and (5) "strongly agree". Cronbach's Alpha internal consistency coefficient calculated on the data collected within the scope of this study was found to be .72.

Friendship Qualities Scale (FQS): The validity and reliability study of the Turkish version of this scale developed by Bukowski et al. (1994) to measure the peer relationship levels of adolescents was conducted by Erkan-Atik et al. (2014). The scale consists of 22 items and 5 sub-dimensions. The scale items are ranked as (1) "not true" and (5) "completely true". The Cronbach's Alpha internal consistency coefficient calculated on the data collected within the scope of this study was .77 for the " companionship" subscale, .70 for the "conflict" subscale, .88 for the "help" subscale, .81 for the "security" subscale, and .84 for the "closeness" subscale. Cronbach's Alpha internal consistency coefficient obtained from the total score of the scale was determined as .88.

Leisure Satisfaction Scale (LSS): The validity and reliability study of the Turkish version of this scale, which was developed by Beard and Rahgeb (1980) to measure the leisure satisfaction levels of the participants, was conducted by Gökçe and Orhan (2011). The scale consists of 24 items and 6 sub-dimensions. The items of the scale are ranked as (1) "almost never true" and (5) "almost always true". Cronbach's Alpha internal consistency coefficient calculated on the data collected within the scope of this study was .81 for the "psychological" sub-dimension, .81 for the "educational" sub-dimension, .79 for the "socioligical " sub-dimension, .84 for the "relaxation" sub-dimension, .75 for the "physical" sub-dimension, and .78 for the "aesthetic" sub-dimension. In addition, Cronbach's Alpha internal consistency coefficient obtained from the total score of the scale was found to be .95.

Data analysis

The data collected within the scope of the research were analyzed in SPSS 23 program. In the analyses, skewness and kurtosis values were first examined regarding the normality distribution of the data, and the range of ±1,5 was taken as reference (Tabachnick et al., 2013). After testing the basic assumptions of parametric tests, Pearson correlation analysis method was applied to determine the relationship between the participants' 'LSS", "FQS" and "OHQ-SF" (O'Dwyer & Bernauer, 2013). In addition, Cronbach alpha internal consistency coefficients of the measurement tools used in the study were calculated and found to vary between 0.72 and

0.95. These values are above acceptable levels (Hair et al., 2010). To test the moderating role of leisure satisfaction on the effect of peer relationships on happiness levels, the PROCESS macro for SPSS (Model 1) was utilized. A bootstrap procedure with 5000 resamples was employed, as this method does not require the assumption of normality for the sampling distribution of the moderation effect, thereby providing more robust and reliable estimates. A 95% confidence interval (CI) was set, and significance was determined as the interval not including zero. Furthermore, the 16th, 50th, and 84th percentiles of the distribution were used to operationalize low, average, and high levels of leisure satisfaction, respectively (Hayes, 2017).

Common Method Bias

Given the self-reported nature of the data, Harman's single-factor test was applied to evaluate potential common method bias. Using SPSS factor analysis, the first eigenvalue from the data matrix was computed. The results indicated that the first eigenvalue accounted for 25.55% of the total variance, which is well below the critical threshold of 50%. Thus, the findings suggest that common method bias is unlikely to have significantly influenced the results (Kock, 2020).

FINDINGS

Table 1

Descriptive Statistics for Scale Scores (N=529)

Scale	Item	N	Min.	Max.	*M*	*SD*	Skewness	Kurtosis	α
LSS	24	529	1	5	3,63	0,84	-0,81	-0,31	0,95
FQS	22	529	1	5	3,59	0,67	-0,40	-0,50	0,88
OHQ-SF	7	529	1	5	3,02	0,78	0,86	0,10	0,72

Note: Leisure Satisfaction Scale (LSS), Friendship Qualities Scale (FQS), Oxford Happiness Questionnaire – Short Form (OHQ-SF).

When the data in Table 1 were analyzed, it was determined that the mean scores of the scales showed a normal distribution within the range of ±1,5 (Tabachnick et al., 2013). On the other hand, the mean score obtained from "LSS" (mean =3.63), the mean score obtained from the "FQS" (mean =3.59), and finally, the mean of the total scores obtained from the "OHQ-SF" (mean =3.02) were determined.

Table 2

Correlation Analysis Results

Scale	LSS	FQS	OHQ-SF
LSS	1		
FQS	0,166**	1	
OHQ-SF	0,313**	0,290**	1

Note: *= p<0,05; **= p<0,01; Note**: Leisure Satisfaction Scale (LSS), Friendship Qualities Scale (FQS), Oxford Happiness Questionnaire – Short Form (OHQ-SF).

The correlation analysis indicates statistically significant positive relationships among the scales ($p < 0.01$). Specifically, leisure satisfaction (LSS) is positively correlated with friendship qualities (FQS) ($r = 0.166$) and happiness (OHQ-SF) ($r = 0.313$). Additionally, friendship qualities (FQS) show a significant positive correlation with happiness (OHQ-SF) ($r = 0.290$). These results suggest interconnections among leisure satisfaction, peer relationships, and happiness levels.

Table 3

Regression Analysis Results for the Moderating Effect

Variable	β	SE	t	C.I.	p
Constant	3.010	.031	94.96	[2.948, 3.072]	0.00
FQS (X)	.3150	.048	6.513	[.2200, .4101]	0.00
LSS (W)	.2613	.037	6.900	[.1869, .3357]	0.00
X.W	.1442	.048	2.956	[.0484, .2400]	0.02

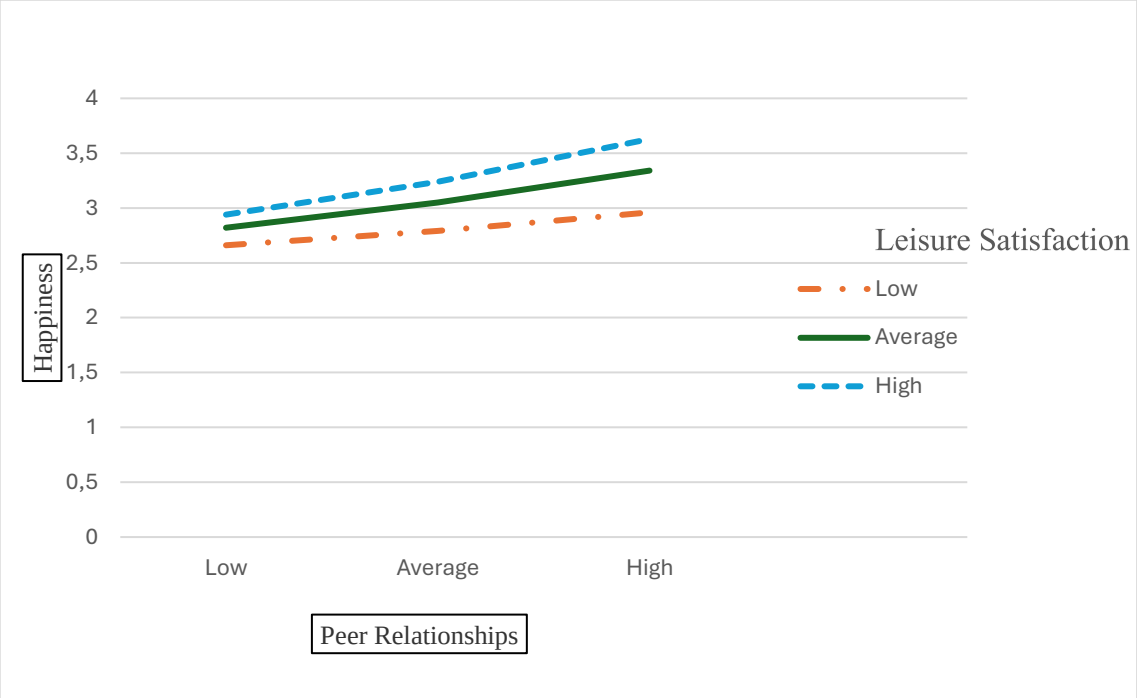
R=.41	R^2=.17
F(3, 525)= 35.88	p=0,00

Note: Leisure Satisfaction Scale (LSS), Friendship Qualities Scale (FQS)

The regression analysis (Table 3) indicates that the predictor variables account for approximately 17% of the variance in happiness levels (R^2 = .17). Peer relationships (FQS) have a significant positive effect on happiness (β = 0.31, p < 0.001, t = 6.51, 95% CI [0.22, 0.41]), as does leisure satisfaction (LSS) (β = 0.26, p < 0.001, t = 6.90, 95% CI [0.19, 0.34]). Moreover, the interaction term (X.W) confirms the significant moderating effect of leisure satisfaction on the relationship between peer relationships and happiness (β = 0.14, p = 0.002, t = 2.95, 95% CI [0.05, 0.24]).

Figure 2

Graphical Representation of the Moderating Effect of Leisure Satisfaction



As a result of the slope analysis, the effects of the moderating variable are shown graphically in Figure 2. When the conditional effects of the moderating variable were examined, it was observed that leisure satisfaction was low (β = 0,19, p < 0,01, t = 3,56, [CI = 0,08, 0,31]), average (β = 0,32, p < 0,01, t = 6,56, [CI = 0,22, 0,41]) and high (β = 0,47, p < 0,01, t = 5,99, [CI = 0,32, 0,63]), the effect of peer relationships on happiness level increases even more. Looking at the graph, it is observed that this relationship is even stronger when leisure satisfaction is high. In other words, when leisure satisfaction is high, the effect of peer

relationships on happiness level is higher and this means that the relationship between peer relationships and happiness is moderated by leisure satisfaction.

DISCUSSION

This study aimed to examine the moderating role of leisure satisfaction in the relationship between peer relationships and happiness levels. The findings supported all the proposed hypotheses. According to the findings of the research, peer relationships had a positive effect on the level of happiness (H1). When the literature is examined, previous studies support my research hypothesis (Cheng & Furnham, 2002; Chen & Li, 2020). Previous research shows that, in addition to the time spent with parents, satisfying personal relationships established with teachers and friends in the school environment during leisure time constitute one of the strongest factors of happiness (Holder & Coleman, 2009; Mínguez, 2020). In terms of peer relationships, adolescents who make quality friendships and have a higher number of friends are less likely to have socialization and adaptation problems (Waldrip et al., 2008). In this context, adolescent individuals' bonding with people in their youth development is seen as an important factor that positively affects their well-being (Shek & Siu, 2019). Chen et al. (2021) found that high-quality peer relationships tend to be associated with high levels of subjective well-being over time. It was also determined that socially successful adolescents had higher positive affect levels than those who were not. In another study, Moore et al. (2018) found that high peer relationships at school among adolescents are directly related to high subjective well-being and mental health. Considering the studies in literature, consistent with our research, adolescence is a critical period for the health and well-being of young people (Patton et al., 2016).

Another finding of the study revealed that leisure satisfaction has a positive effect on happiness. (H2). When previous studies investigating the effect of leisure satisfaction on happiness level are examined, we show that the positive relationship between these two concepts supports our research findings (Ito et al., 2017; Liu, 2014; Liu & Yu, 2015). Through participation in leisure activities, many positive emotions are gained, such as increasing knowledge, skills and well-being, as well as establishing social relationships (Brajša-Žganec et al., 2011). From this perspective, it appears that achieving a high level of leisure satisfaction is closely related to happiness (Liu & Yu, 2015). In this context, Ito et al. (2017) conducted on students from different cultures, it was determined that leisure satisfaction significantly and positively affected subjective well-being. In addition, it has been reported in the research that cultural differences play an important role in these effects. In general, when we look at literature from different perspectives, in parallel with our research findings, it reveals that leisure satisfaction positively affects happiness in all its aspects and is a very important tool in the development of adolescent individuals.

According to the findings showing the moderating effect we obtained from the research findings, it was revealed that the effect of peer relationships on the level of happiness differs depending on the individual's perception of leisure satisfaction at low, average and high levels. Namely, The higher the leisure satisfaction, the higher the effect of peer relationships on the level of happiness (H3). Previous studies have shown that, in addition to the fact that leisure contributes significantly to the healthy conduct of peer relationships (Cassidy, 2005; Denault & Poulin, 2008; Zeijl et al., 2000), it also contributes to many psychological factors such as happiness has shown that it is beneficial (Brajša-Žganec et al., 2011; Burton and Phipps, 2007; Yuh, 2022; Wang & Wong, 2014; Yalçın et al., 2025). In addition, with studies reporting that leisure satisfaction is an important predictor of happiness (Argan et al., 2018; Liu & Yu, 2015; Ito et al., 2017), it is important to examine concepts such as psychological well-being, life satisfaction, social intelligence, self-esteem and stress factors. Its existence can be seen in the concentrated studies (Doğan & Gürbüz, 2024; Freire & Ferreira, 2020; Sarol et al., 2024; Shin

& You, 2013). Unlike the existing literature, the main point to note in our research findings is that previous studies examining the relationship of peer relationships on happiness (Cheng & Furnham, 2002; Mínguez, 2020; Shek & Siu, 2019) and leisure satisfaction on happiness (Argan et al. , 2018; Ito et al., 2017; Liu, 2014; Liu and Yu, 2015) not only supports our idea that leisure satisfaction is an overlooked and effective predictor of peer relationships and happiness, but also has proven to be correct.

Conclusion

The findings highlight the importance of leisure satisfaction as a crucial factor in amplifying the positive impact of peer relationships on happiness. Specifically, the study revealed that higher levels of leisure satisfaction strengthen this relationship, underscoring its significance for adolescent socialization and happiness. These results suggest that interventions aimed at enhancing leisure satisfaction could significantly contribute to improving both peer relationships and happiness levels in adolescents, especially given the challenges posed by modern technological influences on communication and mental health.

Limitations and Future Research

This study has several limitations that should be considered. It is one of the first to examine the moderating role of leisure satisfaction in the relationship between peer relationships and happiness. This conceptual novelty adds value to the research; however, it also limits the generalizability of the findings. Additional studies are needed to validate and extend these results. Future research could explore related moderators such as leisure involvement, leisure constraints, and leisure attitudes. Another limitation concerns the sample. Participants were adolescents from a relatively homogeneous cultural background in Türkiye. To improve generalizability, future studies should be conducted in different cultural contexts and include more diverse populations. The age range of participants also presents a limitation. Since the study focused solely on adolescents, future research should examine whether similar patterns hold true for other age groups, such as adults or older individuals. This would provide a broader understanding of leisure satisfaction across the lifespan. Moreover, the proportion of male participants in the study was notably higher (79.2%). This gender imbalance may limit the generalizability of the findings to the broader adolescent population. Future research should aim to include more gender-balanced samples to better explore how the relationships among the variables may differ based on gender. Finally, the use of only quantitative methods may have limited the depth of the findings. Employing mixed-method designs that integrate qualitative approaches could offer richer insights into how leisure satisfaction influences peer relationships and happiness.

REFERENCES

Akçakese, A., & Demirel, M. (2024). Web weavers or leisure seekers? Attitudes toward leisure from the perspective of social media addiction, fear of missing out and sense of belonging. *Journal of Education and Recreation Patterns, 5*(2), 164–177. https://doi.org/10.53016/jerp.v5i2.250

Akçakese, A., & Demirel, M. (2025). Recreational awareness prevents digital game addiction associated with social exclusion in adolescents. *World Leisure Journal*, 1–20. https://doi.org/10.1080/16078055.2024.2337911

Alam, A. (2022). Positive psychology goes to school: Conceptualizing students' happiness in 21st century schools while 'minding the mind!' Are we there yet? Evidence-backed, school-based positive psychology interventions. *ECS Transactions, 107*(1), 11199. https://doi.org/10.1149/10701.11199ecst

Argan, M., Argan, M. T., & Dursun, M. T. (2018). Examining relationships among well-being, leisure satisfaction, life satisfaction, and happiness. *International Journal of Medical Research & Health Sciences, 7*(4), 49–59.

Argyle, M. (2013). *The psychology of happiness*. Routledge. https://doi.org/10.4324/9781315812212

Asquith, S. L., Wang, X., Quintana, D. S., & Abraham, A. (2022). The role of personality traits and leisure activities in predicting wellbeing in young people. *BMC Psychology, 10*(1), 249. https://doi.org/10.1186/s40359-022-00954-x

Atik, Z. E., Çoban, A. E., Çok, F., Doğan, T., & Karaman, N. G. (2014). The Turkish adaptation of the Friendship Qualities Scale: A validity and reliability study. *Educational Sciences: Theory & Practice, 14*(2), 433–446. https://doi.org/10.12738/estp.2014.2.1778

Avedissian, T., & Alayan, N. (2021). Adolescent well-being: A concept analysis. *International Journal of Mental Health Nursing, 30*(2), 357–367. https://doi.org/10.1111/inm.12833

Beard, J. G., & Ragheb, M. G. (1980). Measuring leisure satisfaction. *Journal of Leisure Research, 12*(1), 20–33. https://doi.org/10.1080/00222216.1980.11969416

Brajša-Žganec, A., Merkaš, M., & Šverko, I. (2011). Quality of life and leisure activities: How do leisure activities contribute to subjective well-being? *Social Indicators Research, 102*, 81–91. https://doi.org/10.1007/s11205-010-9724-2

Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., Vol. 2, Pt I, pp. 74–104). Wiley.

Bukowski, W. M., Buhrmester, D., & Underwood, M. K. (2011). Peer relations as a developmental context. In M. K. Underwood & L. H. Rosen (Eds.), *Social development: Relationships in infancy, childhood, and adolescence* (pp. 153–179). The Guilford Press.

Bukowski, W. M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: The development and psychometric properties of the Friendship Qualities Scale. *Journal of Social and Personal Relationships, 11*(3), 471–484. https://doi.org/10.1177/0265407594113011

Burton, P., & Phipps, S. (2007). Families, time and money in Canada, Germany, Sweden, the United Kingdom and the United States. *Review of Income and Wealth, 53*(3), 460–483. https://doi.org/10.1111/j.1475-4991.2007.00239.x

Cassidy, T. (2005). Leisure, coping and health: The role of social, family, school and peer relationship factors. *British Journal of Guidance & Counselling, 33*(1), 51–66. https://doi.org/10.1080/03069880412331335830

Chen, C. J., & Li, W. C. (2020). A study on the hot spring leisure experience and happiness of Generation X and Generation Y in Taiwan. *Asia Pacific Journal of Tourism Research, 25*(1), 39–51. https://doi.org/10.1080/10941665.2019.1592764

Chen, Y., Wang, L., & Zhao, J. (2021). Peer relationship profiles in rural Chinese adolescents: Longitudinal relations with subjective well-being. *Journal of Health Psychology, 26*(11), 1803–1820. https://doi.org/10.1177/1359105319888278

Cheng, H., & Furnham, A. (2002). Personality, peer relations, and self-confidence as predictors of happiness and loneliness. *Journal of Adolescence, 25*(3), 327–339. https://doi.org/10.1006/jado.2002.0475

Choi, Y. S., Shin, H. K., Hong, D. Y., Kim, J. R., Kang, Y. S., Jeong, B., ... & Lee, K. H. (2019). Self-esteem as a moderator of the effects of happiness, depression, and hostility on suicidality among early adolescents in Korea. *Journal of Preventive Medicine and Public Health, 52*(1), 30. https://doi.org/10.3961/jpmph.18.095

Deci, E. L., & Ryan, R. M. (2008). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies, 9*, 1–11. https://doi.org/10.1007/s10902-006-9018-1

Demir, M., Orthel, H., & Andelin, A. K. (2013). Friendship and happiness. In S. David, I. Boniwell, & A. C. Ayers (Eds.), *The Oxford handbook of happiness* (pp. 860–870). Oxford University Press.

Denault, A. S., & Poulin, F. (2008). Associations between interpersonal relationships in organized leisure activities and youth adjustment. *The Journal of Early Adolescence, 28*(4), 477–502. https://doi.org/10.1177/0272431608317607

Denis, D. J. (2018). *SPSS data analysis for univariate, bivariate, and multivariate statistics*. John Wiley & Sons.

Diener, E., & Ryan, K. (2009). Subjective well-being: A general overview. *South African Journal of Psychology, 39*(4), 391–406. https://doi.org/10.1177/008124630903900402

Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (2nd ed., pp. 63–73). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199396511.013.14

Diener, E., Sapyta, J. J., & Suh, E. (1998). Subjective well-being is essential to well-being. *Psychological Inquiry, 9*(1), 33–37. https://doi.org/10.1207/s15327965pli0901_3

Doğan, M., & Gürbüz, B. (2024). Leisure satisfaction as predictor of social intelligence. *Journal of Education and Future*, (26), 107–119. https://doi.org/10.30786/jef.1197255

Doğan, T., & Çötok, N. A. (2011). Adaptation of the short form of the Oxford Happiness Questionnaire into Turkish: A validity and reliability study. *Turkish Psychological Counseling and Guidance Journal, 4*(36), 165–172. https://doi.org/10.17066/pdrd.94477

Freire, T., & Ferreira, G. (2020). Do I need to be positive to be happy? Considering the role of self-esteem, life satisfaction, and psychological distress in Portuguese adolescents' subjective happiness. *Psychological Reports, 123*(4), 1064–1082. https://doi.org/10.1177/0033294119846064

Freire, T., & Teixeira, A. (2018). The influence of leisure attitudes and leisure satisfaction on adolescents' positive functioning: The role of emotion regulation. *Frontiers in Psychology, 9*, 358791. https://doi.org/10.3389/fpsyg.2018.01349

Freire, T., Tavares, D., Silva, E., & Teixeira, A. (2016). Flow, leisure, and positive youth development. In L. Harmat, F. Ørsted Andersen, F. Ullén, J. Wright, & G. Sadlo (Eds.), *Flow experience: Empirical research and applications* (pp. 163–178). Springer. https://doi.org/10.1007/978-3-319-28634-1_11

Frey, B. S. (2010). *Happiness: A revolution in economics*. MIT Press.

Gibbons, F. X., Kingsbury, J. H., & Gerrard, M. (2012). Social-psychological theories and adolescent health risk behavior. *Social and Personality Psychology Compass, 6*(2), 170–183. https://doi.org/10.1111/j.1751-9004.2011.00412.x

Gökçe, H., & Orhan, K. (2011). Validity and reliability study of the Leisure Satisfaction Scale (LSS) into Turkish. *Hacettepe Journal of Sport Sciences, 22*(4), 139–145. https://doi.org/10.17644/sbd.171376

Gürbüz, B. (2017). The conception and perception of leisure in Turkey. In K. Henderson & A. Sivan (Eds.), *Leisure from international voices* (pp. 139–152). Sagamore Publishing.

Gürbüz, S., & Şahin, F. (2018). *Research methods in social sciences*. Seçkin Publishing.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective* (Vol. 7). Pearson.

Hakokõngäs, E., & Puhakka, R. (2023). Happiness from nature? Adolescents' conceptions of the relation between happiness and nature in Finland. *Leisure Sciences, 45*(7), 665–683. https://doi.org/10.1080/01490400.2021.1877584

Hall-Lande, J. A., Eisenberg, M. E., Christenson, S. L., & Neumark-Sztainer, D. (2007). Social isolation, psychological health, and protective factors in adolescence. *Adolescence, 42*(166), 203–217.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.

Hills, P., & Argyle, M. (2002). The Oxford Happiness Questionnaire: A compact scale for the measurement of psychological well-being. *Personality and Individual Differences, 33*(7), 1073–1082. https://doi.org/10.1016/S0191-8869(01)00213-6

Holder, M. D., & Coleman, B. (2009). The contribution of social relationships to children's happiness. *Journal of Happiness Studies, 10*, 329–349. https://doi.org/10.1007/s10902-007-9083-0

Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies, 15*, 1425–1456. https://doi.org/10.1007/s10902-013-9485-0

Ito, E., Walker, G. J., Liu, H., & Mitas, O. (2017). A cross-cultural/national study of Canadian, Chinese, and Japanese university students' leisure satisfaction and subjective well-being. *Leisure Sciences, 39*(2), 186–204. https://doi.org/10.1080/01490400.2016.1165637

Ito, E., Walker, G. J., Mitas, O., & Liu, H. (2019). Cultural similarities and differences in the relationship between types of leisure activity and happiness in Canadian, Chinese, and Japanese university students. *World Leisure Journal, 61*(1), 30–42. https://doi.org/10.1080/16078055.2018.1535449

Iwasaki, Y. (2007). Leisure and quality of life in an international and multicultural context: What are major pathways linking leisure to quality of life? *Social Indicators Research, 82*, 233–264. https://doi.org/10.1007/s11205-006-9032-z

Koçak, F., & Gürbüz, B. (2024). Promoting social inclusion for adult communities: The moderating role of leisure constraints on life satisfaction in five European countries. *Journal of Community & Applied Social Psychology, 34*(3), e2794. https://doi.org/10.1002/casp.2794

Kock, N. (2020). Harman's single factor test in PLS-SEM: Checking for common method bias. *Data Analysis Perspectives Journal, 2*(2), 1–6.

Lee, C. J., Wu, C. S., & Lin, C. T. (2012). Leisure activity and coping with stress: Adolescents as case study. *Quality & Quantity, 46*(3), 979–991. https://doi.org/10.1007/s11135-012-9692-5

Leung, C., Leung, J. T., Kwok, S. Y., Hui, A., Lo, H., Tam, H. L., & Lai, S. (2021). Predictors to happiness in primary students: Positive relationships or academic achievement. *Applied Research in Quality of Life*, 1–15. https://doi.org/10.1007/s11482-021-09928-4

Liu, H. (2014). Personality, leisure satisfaction, and subjective well-being of serious leisure participants. *Social Behavior and Personality: An International Journal, 42*(7), 1117–1125. https://doi.org/10.2224/sbp.2014.42.7.1117

Liu, H., & Yu, B. (2015). Serious leisure, leisure satisfaction and subjective well-being of Chinese university students. *Social Indicators Research, 122*, 159–174. https://doi.org/10.1007/s11205-014-0687-6

Ma, L., Hagquist, C., & Kleppang, A. L. (2020). Leisure time physical activity and depressive symptoms among adolescents in Sweden. *BMC Public Health, 20*, Article 890. https://doi.org/10.1186/s12889-020-09022-8

Mannell, R. C., & Kleiber, D. A. (2020). Psychology of leisure. In T. Blackshaw (Ed.), *Routledge handbook of leisure studies* (pp. 40–51). Routledge.

McMahon, G., Creaven, A. M., & Gallagher, S. (2020). Stressful life events and adolescent well-being: The role of parent and peer relationships. *Stress and Health, 36*(3), 299–310. https://doi.org/10.1002/smi.2923

Mínguez, A. M. (2020). Children's relationships and happiness: The role of family, friends and the school in four European countries. *Journal of Happiness Studies, 21*(5), 1859–1878. https://doi.org/10.1007/s10902-019-00160-4

Moore, G. F., Cox, R., Evans, R. E., Hallingberg, B., Hawkins, J., Littlecott, H. J., ... & Murphy, S. (2018). School, peer and family relationships and adolescent substance use, subjective wellbeing and mental health symptoms in Wales: A cross sectional study. *Child Indicators Research, 11*, 1951–1965. https://doi.org/10.1007/s12187-017-9524-1

Nawijn, J., & Veenhoven, R. (2012). Happiness through leisure. In T. Freire (Ed.), *Positive leisure science: From subjective experience to social contexts* (pp. 193–209). Springer Netherlands.

Odgers, C. L., & Jensen, M. R. (2020). Annual research review: Adolescent mental health in the digital age: Facts, fears, and future directions. *Journal of Child Psychology and Psychiatry, 61*(3), 336–348. https://doi.org/10.1111/jcpp.13190

O'Dwyer, L. M., & Bernauer, J. A. (2013). *Quantitative research for the qualitative researcher*. SAGE Publications.

Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., ... & Viner, R. M. (2016). Our future: A Lancet commission on adolescent health and wellbeing. *The Lancet, 387*(10036), 2423–2478.

Poulsen, A. A., Ziviani, J. M., & Cuskelly, M. (2008). Leisure time physical activity energy expenditure in boys with developmental coordination disorder: The role of peer relations self-concept perceptions. *OTJR: Occupation, Participation and Health, 28*(1), 30–39. https://doi.org/10.3928/15394492-20080101-05

Riquelme, M., García, O. F., & Serra, E. (2018). Psychosocial maladjustment in adolescence: Parental socialization, self-esteem, and substance use. *Anales de Psicología, 34*(3), 536. https://doi.org/10.6018/analesps.34.3.315201

Roberts, K. (2005). Youth leisure and social inclusion. In H. Helve & J. Bynner (Eds.), *Youth policy and social inclusion: Critical debates with young people* (pp. 117–132). Routledge.

Roberts, K. (2019). *Youth and leisure*. Routledge. https://doi.org/10.4324/9780429024528

Santini, Z. I., Meilstrup, C., Hinrichsen, C., Nielsen, L., Koyanagi, A., Koushede, V., ... & Madsen, K. R. (2020). Associations between multiple leisure activities, mental health and substance use among adolescents in Denmark: A nationwide cross-sectional study. *Frontiers in Behavioral Neuroscience, 14*, Article 593340. https://doi.org/10.3389/fnbeh.2020.593340

Sarol, H., Polat, S. Ç., & Ekinci, E. (2024). Perceived health outcomes of recreation and happiness: Exploring the mediating role of resilience. *Frontiers in Public Health, 12*, Article 1383367. https://doi.org/10.3389/fpubh.2024.1383367

Scholte, R. H., & Van Aken, M. A. (2020). Peer relations in adolescence. In R. M. Lerner & J. B. Benson (Eds.), *Handbook of adolescent development* (pp. 175–199). Psychology Press.

Shek, D. T., & Siu, A. M. (2019). "UNHAPPY" environment for adolescent development in Hong Kong. *Journal of Adolescent Health, 64*(6), S1–S4. https://doi.org/10.1016/j.jadohealth.2019.01.007

Shin, K., & You, S. (2013). Leisure type, leisure satisfaction and adolescents' psychological wellbeing. *Journal of Pacific Rim Psychology, 7*(2), 53–62. https://doi.org/10.1017/prp.2013.6

Smetana, J. G., Robinson, J., & Rote, W. M. (2015). Socialization in adolescence. In J. E. Grusec & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (2nd ed., pp. 66–84). Guilford Press.

Stebbins, R. A. (2017). *The idea of leisure: First principles*. Routledge. https://doi.org/10.4324/9781315132549

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (Vol. 6, pp. 497–516). Pearson.

Tallman, I., Marotz-Baden, R., & Pindas, P. (2014). *Adolescent socialization in cross-cultural perspective: Planning for social change*. Academic Press.

Trainor, S., Delfabbro, P., Anderson, S., & Winefield, A. (2010). Leisure activities and adolescent psychological well-being. *Journal of Adolescence, 33*(1), 173–186. https://doi.org/10.1016/j.adolescence.2009.03.013

Trucco, E. M. (2020). A review of psychosocial factors linked to adolescent substance use. *Pharmacology Biochemistry and Behavior, 196*, Article 172969. https://doi.org/10.1016/j.pbb.2020.172969

Twenge, J. M., Spitzberg, B. H., & Campbell, W. K. (2019). Less in-person social interaction with peers among US adolescents in the 21st century and links to loneliness. *Journal of Social and Personal Relationships, 36*(6), 1892–1913. https://doi.org/10.1177/0265407519836170

Waldrip, A. M., Malcolm, K. T., & Jensen-Campbell, L. A. (2008). With a little help from your friends: The importance of high-quality friendships on early adolescent adjustment. *Social Development, 17*(4), 832–852. https://doi.org/10.1111/j.1467-9507.2008.00476.x

Wang, M., & Wong, M. S. (2014). Happiness and leisure across countries: Evidence from international survey data. *Journal of Happiness Studies, 15*, 85–118. https://doi.org/10.1007/s10902-013-9417-z

World Health Organization (WHO). (2024). *Adolescent health*. Retrieved from https://www.who.int/health-topics/adolescent-health#tab=tab_1

World Happiness Report. (2024). *World happiness report*. Retrieved from https://worldhappiness.report/

Wu, F., Jiang, Y., Liu, D., Konorova, E., & Yang, X. (2022). The role of perceived teacher and peer relationships in adolescent students' academic motivation and educational outcomes. *Educational Psychology, 42*(4), 439–458. https://doi.org/10.1080/01443410.2022.2042488

Yalçın, C., Ekinci, E., & Gürbüz, B. (2025). The relationship between happiness and educational stress: The role of leisure participation. *Journal of Computer and Education Research, 13*(25), 106–132. https://doi.org/10.18009/jcer.1553118

Yuh, J. (2022). Satisfaction with family socio-economic status, leisure opportunity, and well-being among adolescents in South Korea. *Loisir et Société/Society and Leisure, 45*(3), 611–625. https://doi.org/10.1080/07053436.2022.2141370

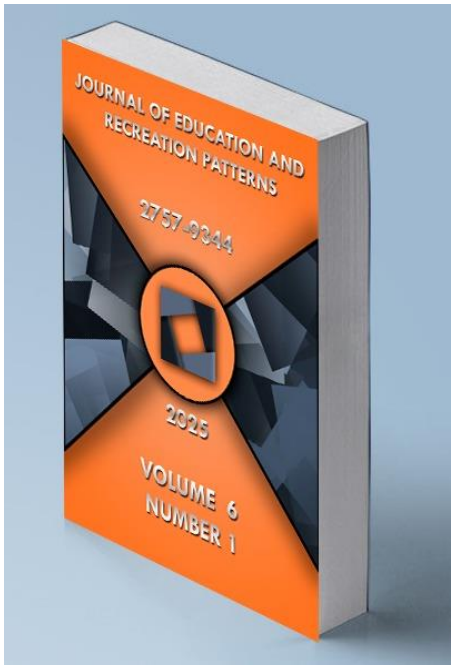
Zeijl, E., Poel, Y. T., Bois-Reymond, M. D., Ravesloot, J., & Meulman, J. J. (2000). The role of parents and peers in the leisure activities of young adolescents. *Journal of Leisure Research, 32*(3), 281–302. https://doi.org/10.1080/00222216.2000.11949918

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Sports Character and Criminal Behaviors Among High School Athletes

Fatma Şeyda YILDIZ[1], Mehtap YILDIZ[2]

To cite this article:

Yıldız, F.Ş. & Yıldız, M. (2025). Sports character and criminal behaviors among high school athletes. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 17-34. DOI: https://doi.org/10.53016/jerp.v6i1.277

[1]Reha Gündüz Aksoy Anatolian High School, Şehitkamil / Gaziantep, Türkiye, f.seydayldz@gmail.com , https://orcid.org/0000-0002-2719-5683

[2]Necmettin Erbakan University, Ahmet Kelesoglu Faculty Of Education, Department Of Physical Education And Sports, Konya, Türkiye, yildizmehtap77@gmail.com, https://orcid.org/0000-0001-8553-7154

* This study was produced from the master's thesis published by Necmettin Erbakan University Institute of Educational Sciences in 2022.

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Sports Character and Criminal Behaviors Among High School Athletes

Fatma Şeyda Yıldız[1], Mehtap Yıldız[2]

ARTICLE INFORMATION
Original Research Paper

Received 13.02. 2025
Accepted 15.05. 2025

https://jerpatterns.com

June, 2025
Volume: 6, No: 1
Pages: 17-34

ABSTRACT
The aim of this study is to investigate the correlation between sports characters and criminal behaviors of high school students who play sports according to certain demographic variables. The sample of this survey model consists of 427 student-athletes determined through simple random sampling from high school students in Konya province during the 2019-2020 Academic Year. The "Demographic Information Form", the "Sport Character Scale (SCS)", the "Improper Behavior Scale (IBS)" were used in the study. Descriptive statistics, t-test, one-way analysis of variance (ANOVA), Tukey HSD test, and Pearson Moment Correlation Coefficient were employed in the data analysis. The study results revealed a significant correlation between the sub-dimensions of the Improper Behavior Scale and variables such as grade level, gender, living with parents status, and school disciplinary status. In addition, a significant correlation was found between the sub-dimensions of the Sport Character Scale and grade level, gender, mother's occupation, parents living together status, doing team/individual sports, and school disciplinary status. A significant correlation was found between the sub-dimensions of the Sports Character Scale and the sub-dimensions of the Improper Behavior Scale. As a result of the regression analysis, it was determined that the sub-dimensions of honesty, antisocial, sportsmanship and justice had a significant effect on the sub-dimensions of the Improper Behavior Scale. It was determined that the independent variable of compassion did not have a significant effect on the sub-dimensions of the Improper Behavior Scale. It has been concluded that sports increase the level of honesty, compassion, sportsmanship and justice that constitute the character of sports and prevent irregular behavior in schools. Character education programs can be organized for the character development of athletes, and awareness training such as drama, theater, and short films can be organized for students to prevent criminal behavior in schools.

Keywords: Crime, Improper Behavior, Sports, Sports Character.

INTRODUCTION

It has been well recognized that sports is a medium for learning certain values such as sportspersonship, fairness, team loyalty, teamwork, collaboration with teammates, consultation, and problem-solving in ethical dilemmas (Jang, 2013). As sports activities promote individual responsibility, they can help individuals implement these adopted responsibilities, and these activities redirect individuals toward constructive endeavors rather than aggressive behaviors. Furthermore, sports activities play a significant role in personality and moral development, enabling individuals with physical and sports education to behave consistently with social values (Tazegül, 2014).

From a social perspective, the notion of character is associated with values such as sacrifice, loyalty, good citizenship, commitment, and teamwork among sports managers, trainers, and sports people. Moreover, sports scientists define character from an ethical point of view as the ability to adopt values such as impartiality, honesty, fairness, truthfulness, and justice in one's behavior (Camire & Trudel, 2010). While the positive effects of sports on societies and character have been highlighted continually, it is essential to mention that when personal decision-making processes come into play, there are also some moral shortcomings and negative situations in this field (Görgüt & Tuncel, 2017).

An individual’s character develops naturally and consciously and unconsciously within his/her social environment such as family, school, and external surroundings. An individual can find the motivation and dynamism required to develop his/her character within the national, cultural, and religious values of the society in which s/he lives, together with his/her own conscience. Based on this dynamism, transformation of these values into virtues in individual’s own selves depends on his/her personal preferences. In this sense, in order for individuals’ moral behaviors to become a character trait, individuals should express these behaviors based on their decisions and preferences, consistently and coherently, everywhere and at all times (Kanger, 2007).

Sports are accepted as the most important and most appropriate method in the development and education of children. Because the characteristics and principles of sports, which are accepted as a term of morality, also determine morality or way of life. The idea that sports build character has been around for centuries, and the word character is often used synonymously with sportsmanship, fair play, or morality in sports. At the same time, sport and character are also associated with the ability of an individual to adopt values such as impartiality, honesty, integrity and justice in their behavior (Camire & Trudel, 2010; Aydoğan, Özyürek & Akduman, 2015; Erdemli, 2016; İmamlı & Ünver, 2018; Weiss, Smith, & Stuntz, 2008).

The period of high school is a crucial phase in the formation of an individual's personality. It is believed that teenagers’ experiencing identity crises and acquiring negative habits during this period will negatively impact their adulthood. Therefore, sports activities play a central role in keeping individuals away from harmful habits, providing them with self-confidence, self-control, and many other positive qualities, and thus have a significant role in character development. The lack of research examining the relationship between sports and criminal behavior, especially during adolescence when personality begins to develop, and the fact that previous research has been conducted on sports character and athlete psychology increases the importance of this research. Within this context, the aim of this study is to investigate the correlation between sports characters and criminal behaviors of high school students.

Depending on this general purpose, the following questions will be answered. These are:

1. Do the sports characteristics of high school students who do sports differ according to the students' gender, grade level, living with parents status, and school disciplinary status?

2. Do the criminal behaviors of high school students who participate in sports differ according to the students' gender, grade level, living with parents status, and school disciplinary status?

3. Is there a significant relationship between the sports character and improper behavior of high school students who participate in sports?

METHOD

Research Model

This study adopts a descriptive survey model that examines the sports characters and criminal behavior of high school students who play sports according to certain demographic variables. In the study, descriptive method, one of the quantitative research methods, was used and evaluated with the relational screening model, one of the general screening models. Relational screening models aim to determine the change and degree between two or more variables (Karasar, 2003; Büyüköztürk et al., 2008).

Population and Sample of the Study

The population of this study consists of 3006 student-athletes who have a license among the 65813 students studying in high schools in Konya province during the 2019-2020 Academic Year. These numbers were reached through data received from the Konya Provincial Directorate of National Education and the Konya Provincial Directorate of Youth and Sports. The sample of the study was determined through simple random sampling from the population (Büyüköztürk et al., 2008) and involved 427 licensed student-athletes. Among the participants, 157 were female, and 270 were male. Ural and Kılıç (2005) stated that 375 people would be sufficient for a 0.05 tolerance error in selecting a sample from a universe of 11,000 people.

Data Collection Tools

In order to collect the data, the researcher used the "Demographic Information Form" developed by the researchers, the "Sport Character Scale (SCS)" developed by Jang (2013) and translated into Turkish by Görgüt and Tuncel (2017), and the "Improper Behavior Scale (IBS)" developed by Kaner (2001).

Sport Character Scale (SCS): The validity and reliability study of the SCS was conducted with a total of 693 students, 123 of whom were high school students and 570 were university students. The scale, consisting of 27 items in a five-point Likert type, take places five sub-dimensions: honesty, antisocial, compassion, sportsmanship and justice. The confirmatory factor analysis of the scale determined that the fit indices (X2/df= 3.97, GFI= 0.88, AGFI= 0.86, CFI= 0.97, NNFI = 0.96, NFI = 0.95, IFI= 0.97, RFI= 0.95, RMR= 0.05, SRMR= 0.05, RMSEA= 0.06) were at perfect and acceptable fit levels. For reliability, split-half reliability method was used. While the total internal consistency of the scale was 0.90, split-half test reliability was determined as 0.93. The internal consistency and split-half reliability results of the sub-dimensions were determined as 0.81/0.85 for the honesty sub-dimension, 0.78/0.79 for the antisocial sub-dimension, 0.76/0.78 for the compassion sub-dimension, 0.78/0.76 for the sportsmanship sub-dimension and 0.84/0.82 for the justice sub-dimension (Görgüt and Tuncel, 2017).

Improper Behavior Scale (IBS): IBS was developed by Kaner (2001) to identify behaviors that are not reflected in official institutions among young people, but many of which would be considered crimes if they were caught and could bring the young person into conflict with the law. The validity and reliability study of the IBS was conducted with 896 students between the

ages of 15 and 18. IBS is a four-point Likert-type scale consisting of 9 sub-dimensions and 38 items. The Cronbach alpha reliability coefficient of the scale was found to be 0.93, and the split-half reliability coefficient calculated with the Spearman-Brown formula was found to be 0.89. The sub-dimensions of the scale are status offense and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses, damaging buildings, and cheating in exams. The scale options are determined as "never" (1 point), "once or twice" (2 points), "three or four times" (3 points), "five or more" (4 points). Getting a high score on the scale indicates that there are many undesirable behaviors (Kaner, 2001).

Data analysis

The skewness and kurtosis values of the data indicated that they had a normal distribution within the range of -1.5 to +1.5 (Tabachnick, Fidell, & Ullman, 2007).

Due to the presence of a sufficient number of groups for parametric tests (at least 3 groups and 15 participants in each group) in demographic variables such as grade level, number of siblings, mother's educational status, father's educational status, mother's occupation, father's occupation, and family income, one-way analysis of variance (ANOVA) was employed, and Tukey HSD test was used to determine which groups showed significant differences. On the other hand, an independent samples t-test conducted for gender, parents living together status, and school disciplinary status due to the presence of 2 groups and at least 15 participants in each group (Büyüköztürk, 2021). In addition, SPSS 21 was used for data analysis, the significance level was set at 0.05, and the confidence interval for results was considered as 95%.

FINDINGS

This section presents the results of the correlation between the sub-dimensions of the SCS and IBS which were analyzed according to the students' demographic profiles.

Table 1

Independent Samples t-Test Results for the Sub-Dimensions of the Sportsmanship Character Scale (SCS) by Gender

Sub-dimension	Gender	n	$\bar{X}$	Sd	t	p
Honesty	Female	157	4,03	,748	1,58	,114
	Male	270	3,91	,843		
Antisocial	Female	157	4,15	,775	4,69	,000*
	Male	270	3,72	1,11		
Compassion	Female	157	4,01	,785	,719	,473
	Male	270	3,95	,895		
Sportsmanship	Female	157	4,25	,835	,995	,320
	Male	270	4,16	1,03		
Justice	Female	157	4,20	,816	2,29	,022*
	Male	270	3,99	1,04		

*= p<0,05

According to the findings in Table 1, significant differences were found between males and females in the sub-dimensions of the SCS, namely antisocial and justice (p< .05). The average scores of females in the antisocial (M=4.15) and justice (M=4.20) sub-dimensions were significantly higher than those of males in the antisocial (M=3.72) and justice (M=3.99) sub-dimensions (p< .05).

Table 2

Independent Samples t-Test Results for the Sub-Dimensions of the IBS Scale by Gender

Sub-dimension	Gender	n	X̄	Sd	t	p
Status offense and violating school rules	Female	157	1,42	,486	-3,24	,001*
	Male	270	1,61	,708		
Theft	Female	157	1,07	,198	-4,71	,000*
	Male	270	1,23	,515		
Inability to control anger and fighting	Female	157	1,45	,538	-3,61	,000*
	Male	270	1,68	,778		
Petty theft	Female	157	1,13	,253	-4,44	,000*
	Male	270	1,31	,560		
Attention-seeking vandalism	Female	157	1,11	,240	-3,96	,000*
	Male	270	1,27	,579		
Status offense and deceiving others	Female	157	1,25	,383	-8,75	,000*
	Male	270	1,75	,788		
Drug and violence offenses	Female	157	1,09	,282	-4,23	,000*
	Male	270	1,27	,607		
Damaging buildings	Female	157	1,09	,272	-3,88	,000*
	Male	270	1,26	,601		
Cheating in exams	Female	157	2,28	1,06	-,495	,621
	Male	270	2,33	1,12		

*= p<0,05

Table 2 indicates that there were significant differences in the sub-dimensions of the IBS, specifically status offense and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses, and damaging buildings (p< .05). It was found that males had higher levels of such improper behaviors compared to females. On the other hand, no significant difference was found in the sub-dimension of cheating in exams (p> .05).

Table 3

ANOVA Results for the Sub-Dimensions of the Sportsmanship Character Scale (SCS) by Grade Level

Sub-dimension		Grade Level	n	X̄	Sd	F	p	Difference
Honesty	A	Grade 9	101	4,17	,605	3,55	,014*	A>C A>D
	B	Grade 10	100	3,95	,801			
	C	Grade 11	106	3,89	,837			
	D	Grade 12	120	3,83	,914			
Antisocial	A	Grade 9	101	3,98	1,11	,785	,503	
	B	Grade 10	100	3,79	,983			
	C	Grade 11	106	3,81	1,09			
	D	Grade 12	120	3,93	,904			
Compassion	A	Grade 9	101	4,17	,671	2,43	,065	
	B	Grade 10	100	3,88	,917			
	C	Grade 11	106	3,94	,885			
	D	Grade 12	120	3,91	,898			
Sportsmanship	A	Grade 9	101	4,50	,615	4,52	,004*	A>B A>C A>D
	B	Grade 10	100	4,13	1,07			
	C	Grade 11	106	4,12	1,08			
	D	Grade 12	120	4,06	,968			

Justice	A	Grade 9	101	4,36	,760	4,27	,005*	A>B A>C A>D
	B	Grade 10	100	3,96	1,05			
	C	Grade 11	106	4,02	1,00			
	D	Grade 12	120	3,95	,976			

Note. A = Grade 9, B = Grade 10, C = Grade 11, D = Grade 12. *p < .05

As displayed in Table 3, significant differences were seen among groups in the dimensions of honesty, sportsmanship, and justice in the SCS (p< .05). In order to determine between which groups this difference existed, a post hoc (Tukey) test was performed. The honesty sub-dimension scores of 9th graders (M=4.17) were higher than those of 11th graders (M=3.89) and 12th graders (M=3.83). Similarly, the sportsmanship (M=4.50) and justice (M=4.36) sub-dimension scores of 9th graders were higher than the sportsmanship (M=4.13; M=4.12; M=4.06) and justice (M=3.96; M=4.02; M=3.95) sub-dimension scores of 10th, 11th, and 12th graders.

Table 4

ANOVA Results for the Sub-Dimensions of the Inappropriate Behavior Scale (IBS) According to Grade Level

Sub-dimension		Grade Level	n	X̄	Sd	F	p	Difference
Status offense and violating school rules	A	Grade 9	101	1,30	,516	6,60	,000*	A<B A<C A<D
	B	Grade 10	100	1,60	,694			
	C	Grade 11	106	1,61	,712			
	D	Grade 12	120	1,63	,576			
Theft	A	Grade 9	101	1,09	,275	1,60	,187	
	B	Grade 10	100	1,21	,444			
	C	Grade 11	106	1,20	,548			
	D	Grade 12	120	1,17	,419			
Inability to control anger and fighting	A	Grade 9	101	1,56	,686	1,11	,345	
	B	Grade 10	100	1,70	,751			
	C	Grade 11	106	1,57	,771			
	D	Grade 12	120	1,55	,623			
Petty theft	A	Grade 9	101	1,18	,402	,758	,518	
	B	Grade 10	100	1,27	,479			
	C	Grade 11	106	1,27	,543			
	D	Grade 12	120	1,26	,477			
Attention-seeking vandalism	A	Grade 9	101	1,19	,471	,393	,758	
	B	Grade 10	100	1,18	,414			
	C	Grade 11	106	1,25	,603			
	D	Grade 12	120	1,22	,451			
Status offense and deceiving others	A	Grade 9	101	1,48	,659	2,97	,031*	A<B D<B
	B	Grade 10	100	1,74	,783			
	C	Grade 11	106	1,58	,735			
	D	Grade 12	120	1,49	,645			
Drug and violence offenses	A	Grade 9	101	1,13	,402	1,27	,283	
	B	Grade 10	100	1,22	,570			
	C	Grade 11	106	1,27	,625			
	D	Grade 12	120	1,21	,452			
Damaging buildings	A	Grade 9	101	1,17	,492	,224	,880	
	B	Grade 10	100	1,19	,476			
	C	Grade 11	106	1,19	,533			
	D	Grade 12	120	1,22	,541			
	A	Grade 9	101	1,99	1,02			

Cheating in exams	B	Grade 10	100	2,49	1,10	4,19	,006*	A<B
	C	Grade 11	106	2,32	1,14			A<D
	D	Grade 12	120	2,42	1,08			

Note. A = Grade 9, B = Grade 10, C = Grade 11, D = Grade 12. *p < .05

According to the findings in Table 4, significant differences were found among groups in the sub-dimensions of status offense and violating school rules, status offense and deceiving others, and cheating in exams (p< .05). A post hoc (Tukey) test was employed to determine between which groups this difference was. The status offense and violating school rules sub-dimension scores of 9th graders (M=1.30) were lower than those of 10th (M=1.60), 11th (M=1.61), and 12th graders (M=1.63). The status offense and deceiving others sub-dimension scores of 10th graders (M=1.74) were higher than those of 9th (M=1.48) and 12th graders (M=1.49). In addition, the cheating in exams sub-dimension scores of 9th graders (M=1.99) were lower than those of 10th (M=2.49) and 12th graders (M=2.42). It was observed that while 9th graders exhibited fewer status offense and violating school rules and cheating in exams behaviors compared to higher-grade students, 10th graders performed more status offense and deceiving others behavior.

Table 5

t-Test Results of the SCS Sub-Dimensions Based on Living with Parents Status

Sub-dimension	Parents Living Together	n	X̄	Sd	t	p
Honesty	Parents live together	381	3,96	,798	,888	,375
	Parents live separately	44	3,85	,926		
Antisocial	Parents live together	381	3,86	1,01	-,495	,621
	Parents live separately	44	3,95	1,07		
Compassion	Parents live together	381	4,01	,810	2,25	,029*
	Parents live separately	44	3,61	1,13		
Sportsmanship	Parents live together	381	4,23	,936	2,00	,051
	Parents live separately	44	3,86	1,18		
Justice	Parents live together	381	4,08	,942	,736	,465
	Parents live separately	44	3,94	1,19		

*p < .05

Table 5 shows that there was a significant difference among groups in the sub-dimension of compassion (p< .05). The compassion sub-dimension mean score of students whose parents live together (M=4.01) was significantly higher than those of students whose parents live separately (M=3.61).

Table 6

t-Test Results of the IBS Sub-Dimensions Based on Living with Parents Status

Sub-dimension	Parents Living Together	n	X̄	Sd	t	p
Status offense and violating school rules	Parents live together	381	1,53	,642	-,805	,421
	Parents live separately	44	1,62	,652		
Theft	Parents live together	381	1,17	,436	,164	,870
	Parents live separately	44	1,16	,434		
Inability to control anger and fighting	Parents live together	381	1,57	,694	-2,13	,034*
	Parents live separately	44	1,81	,793		
Petty theft	Parents live together	381	1,24	,469	-,157	,875
	Parents live separately	44	1,26	,567		
Attention-seeking vandalism	Parents live together	381	1,21	,484	-,587	,557
	Parents live separately	44	1,25	,537		

Status offense and deceiving others	Parents live together	381	1,55	,702	-1,01	,309
	Parents live separately	44	1,67	,754		
Drug and violence offenses	Parents live together	381	1,20	,522	-1,01	,311
	Parents live separately	44	1,28	,506		
Damaging buildings	Parents live together	381	1,19	,506	-,822	,412
	Parents live separately	44	1,26	,565		
Cheating in exams	Parents live together	381	2,31	1,22	-1,12	,261
	Parents live separately	44	2,53	1,15		

*p < .05

As presented in Table 6, a significant difference was identified among groups in the sub-dimensions of inability to control anger and fighting (p< .05). The inability to control anger and fighting sub-dimensions mean score of students whose parents live together (M=1.57) was lower than those of students with separated parents (M=1.81). It was found that students with separated parents show more inability to control anger and fighting behavior compared to students whose parents live together.

Table 7

t-Test Results of the SCS Sub-Dimensions Based on School Disciplinary Status

Sub-dimension	Disciplinary Status	n	X̄	Sd	t	p
Honesty	Yes	41	3,57	1,00	-2,62	,012*
	No	386	3,99	,779		
Antisocial	Yes	41	3,44	1,26	-2,37	,022*
	No	386	3,92	,983		
Compassion	Yes	41	3,91	,989	-,481	,631
	No	386	3,98	,841		
Sportsmanship	Yes	41	3,82	1,27	-2,03	,047*
	No	386	4,23	,923		
Justice	Yes	41	3,73	1,20	-1,94	,058
	No	386	4,10	,936		

*p < .05

As it is presented in Table 7, regarding the honesty sub-dimension, no significant difference was found between students who performed disciplinary actions in the school and students who did not have disciplinary actions (p< .05). The honesty (M=3.57), antisocial (M=3.44), and sportsmanship (M=3.82) sub-dimension scores of students who had disciplinary actions in the school were significantly lower than the honesty (M=3.99), antisocial (M=3.92), and sportsmanship (M=4.23) sub-dimension scores of students who did not perform disciplinary actions in the school.

Table 8

t-Test Results of the IBS Sub-Dimensions Based on School Disciplinary Status

Sub-dimension	Disciplinary Status	n	X̄	Sd	t	p
Status offense and violating school rules	Yes	41	1,90	,901	2,78	,008*
	No	386	1,50	,596		
Theft	Yes	41	1,35	,703	1,76	,086
	No	386	1,15	,392		
Inability to control anger and fighting	Yes	41	1,92	,839	2,66	,011*
	No	386	1,56	,684		
Petty theft	Yes	41	1,40	,665	1,58	,121
	No	386	1,23	,452		

Attention-seeking vandalism	Yes	41	1,49	,782	2,49	,016*
	No	386	1,18	,438		
Status offense and deceiving others	Yes	41	2,12	,820	4,57	,000*
	No	386	1,51	,673		
Drug and violence offenses	Yes	41	1,55	,845	2,81	,007*
	No	386	1,17	,459		
Damaging buildings	Yes	41	1,31	,756	1,07	,290
	No	386	1,18	,478		
Cheating in exams	Yes	41	2,51	1,20	,959	,338
	No	386	2,31	1,22		

*p < .05

According to the findings in Table 8, significant differences were observed among groups in the sub-dimensions of status offense and violating school rules, inability to control anger and fighting, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses (p< .05). The status offense and violating school rules (M=1.90), inability to control anger and fighting (M=1.92), attention-seeking vandalism (M=1.49), status offense and deceiving others (M=2.12), drug and violence offenses (M=1.55) sub-dimension mean scores of students who had disciplinary actions in the school were higher than the status offense and violating school rules (M=1.50), inability to control anger and fighting (M=1.56), attention-seeking vandalism (M=1.18), status offense and deceiving others (M=1.51), drug and violence offense (M=1.17) sub-dimension mean scores of students who did not have disciplinary actions in the school. It was clear that students having disciplinary actions in the school showed more rule-violating behaviors.

Table 9

Pearson Correlation Coefficients Between the Sub-Dimensions of the Sportsmanship Character Scale (SCS) and the Inappropriate Behavior Scale (IBS)

		Honesty	**Antisocial**	**Compassion**	**Sportsmanship**	**Justice**
Status offense and violating school rules	r	,298**	,181**	,171**	,222**	,225**
Theft	r	,256**	,249**	,177**	,163**	,164**
Inability to control anger and fighting	r	,260**	,204**	,167**	,148**	,151**
Petty theft	r	,324**	,184**	,238**	,231**	,221**
Attention-seeking vandalism	r	,256**	,159**	,163**	,154**	,166**
Status offense and deceiving others	r	,257**	,242**	,180**	,156**	,184**
Drug and violence offenses	r	,363**	,236**	,290**	,241**	,256**
Damaging buildings	r	,277**	,280**	,317**	,281**	,217**
Cheating in exams	r	,101	,142**	-,015	-,024	,012

**p< .01

Table 9 depicts that the SCS honesty sub-dimension had a weak significant correlation with these IBS sub-dimensions; status offense and violating school rules (r=,298), theft (r=,256), inability to control anger and fighting (r=,260), attention-seeking vandalism (r=,256), status offense and deceiving others (r=,257), damaging buildings (r=,277). Likewise, the honesty sub-dimension of SCS showed a weak significant correlation with petty theft (r=,324) and drug and violence offenses (r=,363) sub-dimensions.

The antisocial sub-dimension of the SCS had a very weak significant correlation with these IBS dimensions; status offense and violating school rules (r=,181), theft (r=,249), inability to control anger and fighting (r=,204), petty theft (r=,184), attention-seeking vandalism (r=,159), status offense and deceiving others (r=,242), drug and violence offenses (r=,236), and cheating in exams (r=,142). Similarly, there was a weak significant correlation between the

antisocial sub-dimension of the SCS and the damaging buildings sub-dimension of the IBS (r=,280).

The compassion sub-dimension of the SCS had a very weak significant correlation with the IBS sub-dimensions, including status offense and violating school rules (r=,171), theft (r=,177), inability to control anger and fighting (r=,167), petty theft (r=,238), attention-seeking vandalism (r=,163), status offense and deceiving others (r=,180), drug and violence offenses (r=,290), and damaging buildings (r=,317).

It was found that there was a very weak significant correlation between the sportsmanship sub-dimension of the SCS and the IBS sub-dimensions, including status offense and violating school rules (r=,222), theft (r=,163), inability to control anger and fighting (r=,148), petty theft (r=,231), attention-seeking vandalism (r=,154), status offense and deceiving others (r=,156), drug and violence offenses (r=,241). In addition, the sportsmanship sub-dimension of the SCS had a weak significant correlation with damaging buildings sub-dimension of the IBS (r=,281).

A very weak significant correlation was observed between the justice sub-dimension of the SCS and the IBS sub-dimensions, including status offense and violating school rules (r=,225), theft (r=,164), inability to control anger and fighting (r=,151), petty theft (r=,221), attention-seeking vandalism (r=,166), status offense and deceiving others (r=,184), and damaging buildings (r=,217). There was a weak significant correlation between the justice sub-dimension of the SCS and the drug and violence offenses sub-dimension of the IBS (r=,256).

Table 10

Multiple Linear Regression Analysis of the Relationship Between SCS and IBS Sub-Dimensions

Dependent Variable: IBS **Independent Variables**	**Beta**	**Std. Deviation**	**t**	**p**
Honesty	-,254	,040	-3,67	,000*
Antisocial	-,291	,021	-6,35	,000*
Compassion	,048	,043	,611	,541
Sportsmanship	-,283	,041	-3,34	,001*
Justice	,195	,041	2,31	,021*
P= ,000	$_{adjusted}R^2$=,215	**F=** 24,27		

As presented in Table 10, a multiple linear regression analysis was executed to investigate the effects of honesty, antisocial, compassion, sportsmanship, and justice as independent variables on the IBS. The adjusted R2 value, representing the explanatory power in the multiple regression model, was calculated as .215. The results of the analysis revealed that there was a significant difference between dependent and independent variables ($p< .05$). It was found that the independent variables of honesty, antisocial, sportsmanship, and justice had a significant effect on the dependent variable, IBS. On the other hand, it was explored that compassion, an independent variable of the SCS, did not have a significant effect on the IBS ($p< .05$).

DISCUSSION AND CONCLUSION

When the mean scores of the SCS according to gender in Table 1 are examined, it was seen that there was a significant difference between groups in the sub-dimensions of antisocial attitude and justice. Accordingly, based on the finding that females tended to exhibit more antisocial behaviors compared to males, it can be expressed females living under male-dominated norms might feel more suppressed and thus display more antisocial behaviors in a patriarchal society. In the sub-dimension of justice, it can be discussed that the patriarchal societal structure leads women to internalize the sense of justice more.

Yıldız and Özmaden (2019), İmamlı and Ünver (2018) have found that female athletes tend to be more antisocial than male ones. Similarly, Yazıcı (2021) study showed that female

athletes exhibit higher levels of honesty, antisocial and justice compared to male athletes. However, this finding of the present study does not align with the findings of Kavussanu et al. (2009) study which revealed that male soccer players had more antisocial behaviors compared to female soccer players.

Regarding the mean scores of the IBS by gender displayed in Table 2, there was a statistically significant difference between the mean scores of female and male students in the sub-dimensions of status offenses and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses, and damaging buildings. This suggests that, except for cheating in exams, female students engaged in all sub-dimensions of delinquent behavior less frequently than their male peers. This finding can be attributed to the possibility that males growing up in a patriarchal society are raised to be more independent than females, and that they approach negative situations more courageously in social relations. Moreover, differences in societal roles assigned to males and females may also contribute to these results. It is also possible that social approaches that consider delinquent behaviors in males as a sign of courage, and that treat males who show these behaviors with tolerance can also have an impact on this finding.

In the literature, there are studies that highlight male students perform more improper behaviors compared to female students (Aras et al., 2007; Balkaya & Ceyhan, 2007; Bulut, 2010; Delikara, 2001; Yılmaz, 2000). Relatedly, Lilly et al. (2002) associated the finding that girls had lower levels of improper behaviors to Hagan's Power Control Theory. Hagan suggested that girls in patriarchal families are more restricted than boys, leading boys to have a freer upbringing and a greater tendency toward improper behaviors compared to girls. In other words, boys who are given more freedom by their families may feel more inclined to engage in improper behaviors compared to girls (Lilly, Cullen, & Ball, 2002).

When the mean scores of SCS by grade level are examined in Table 3, a significant difference is observed in the sub-dimensions of honesty, sportsmanship, and justice between groups. The average scores of 9th graders in the sub-dimensions of honesty, sportsmanship, and justice were significantly higher than those of 10th, 11th, and 12th graders. This result suggests that 9th graders maintain positive attitudes towards honesty, sportsmanship, and justice, while these positive attitudes decrease with increasing age and grade. It can be discussed that this decrease can be resulted from the fact that students internalize dishonest, unsportspersonlike, and unfair behaviors they observe in their environment over time.

Although there is no study specifically investigating the correlation between sports character and grade level, there exist studies focusing on the correlation between sports character and age, and the results of these studied do not correspond to that of the present study. For example, in Öztürk (2018) conducted with arm wrestling and bodybuilding athletes, and Kaplan and Akyüz (2020) study, involved soccer players, studies, it was found that older athletes had more positive attitudes regarding sports character.

In light of the average IBS scores by grade level in Table 4, it is clear that there was a significant difference in the sub-dimensions of status offense and violating school rules, status offense and deceiving others, and cheating in exams among students based on their grade levels. In the sub-dimension of status offense and violating school rules, a significant difference was found between the 9th graders and all other graders. The 9th graders had lower average scores for violating school rules compared to the 10th, 11th, and 12th graders. This indicates that 9th graders perform these behaviors less than students in higher grades. This finding can be due to the fact that 9th graders are newcomers to the school and belong to the youngest age group.

The 10th graders had a significantly higher average score in the sub-dimension of status offense and deceiving others compared to the 9th and 12th graders. 10th graders tended to have the behavior of deceiving others more frequently than 9th and 12th graders. In addition, the average scores for the sub-dimension of cheating in exams for 9th graders were lower than those of 10th and 12th graders. It was determined that 9th graders exhibited violating school rules and cheating in exams behaviors less than upper-grade students, while 10th graders tended

to have the behavior of status offense and deceiving others more than other grades. The 9th graders are the farthest age group from the university entrance exam, which occurs at the end of the 12th grade. It is believed that test anxiety, especially in behaviors like cheating in exams, plays an important role. These findings can be interpreted as students adopting more improper behaviors as their grade levels increase.

Aksu (2015) found that there is a significant correlation between the tendency to commit offenses and the grade levels of high school students. 9th graders tended to have a lower tendency to commit offenses compared to students in other grade levels. They had behaviors such as escaping from school, lying, cheating in exams, and skipping classes less frequently than students in other grade levels. Additionally, 10th graders tended to exhibit more anger and aggression behaviors compared to students in other grade levels, which is consistent with the findings of the current study.

In Table 5, when examining the average SCS scores based on the parents living together status, a significant difference was observed in the sub-dimension of compassion among the groups. On the other hand, the average scores of students whose parents live together were significantly higher than those with separated parents in the sub-dimension of compassion. It can be discussed that children living with their parents exhibit more important values related to sports character development compared to those with separated parents.

In Table 6, when examining the IBS sub-dimensions based on the parents living together status, a significant difference was found in the sub-dimensions of inability to control anger and fighting. That is, the average scores of students whose parents live together are lower than those of students with separated parents in the sub-dimension of inability to control anger and fighting. It was determined that students with separated parents exhibited more inability to control anger and fighting behaviors compared to those living with both parents. This finding indicates that lack of attention and control over children with separated parents may lead to an increase in these behaviors.

Bayoğlu (2013) explored that children with fragmented families had higher tendency to involve in crimes. Similarly, Bowlby (1982) who suggests that fragmented families lead to criminal behavior, found that individuals who have committed crimes had experienced complete or prolonged maternal separation during their first 5 years of life. Yavuzer (2009) determined that 47% of children involved in crime were forced to be separated from their parents for various reasons, and 22% came from broken or incomplete families.

When the mean scores of SCS by school disciplinary status are examined in Table 7, a significant difference was seen in the sub-dimensions of honesty, antisocial, and sportsmanship. The average scores of students who received punishments from school were significantly lower than those who did not have in the sub-dimensions of honesty, antisocial, and sportsmanship. This result indicates that non-penalized athletes tend to show more honest and sportsmanlike behaviors but also more antisocial behaviors compared to penalized ones. Additionally, this situation can be explained by the fact that individuals who start to have behaviors that are not welcomed by the society do not pay much attention to fair and sportspersonlike competition in sports.

Table 8 displays the IBS scores based on the school disciplinary status. There was a significant difference in the sub-dimensions of status offense and violating school rules, inability to control anger and fighting, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses. It was observed that students who received punishments from school tend to perform more improper behaviors. In light of the fact that students exhibiting improper behaviors at schools can face certain sanctions from school administration, it is believed that the findings of this study are not coincidental.

In Table 9, it was determined that the honesty sub-dimension of SCS had a low level and significant correlation with the IBS sub-dimensions of status offense and violating school rules, theft, inability to control anger and fighting, attention-seeking vandalism, status offense and deceiving others, damaging buildings. Additionally, the honesty sub-dimension of SCS had a

moderate and significant correlation with petty theft and drug and violence offenses. Given that a high score is associated with less exhibited behavior according to the IBS, it can be stated that as integrity character increases, petty theft and drug and violence offenses decrease. Güvendi (2019) underscored that as the tendency to endorse cheating increases, antisocial behaviors increase; as the desire to win fairly increases, antisocial attitudes increase; and positive behaviors such as honesty and sportsmanship also increase.

The antisocial sub-dimension of SCS had a low and significant correlation with the IBS sub-dimensions of status offense and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses, damaging buildings, and cheating in exams. When a high score is associated with less exhibited behavior according to the IBS, it can be discussed that as the antisocial character increases, behaviors such as damaging buildings, drug and violence offenses, and theft decrease.

Contrary to the findings of this study, having investigated the cases of committing crime, Noyan (2008) found that 93.3% of antisocial individuals had been convicted and punished for at least one crime, and that there was a positive and significant correlation between aggression and antisocial behavior in these individuals. Similarly, antisocial individuals were more likely to misuse psychoactive substances and engage in self-harming and suicidal behaviors compared to others. In the same vein, Cloninger et al. (1993) highlighted that the self-harm and substance use status of antisocial individuals were significantly higher than the other group in their study. The findings of Hare (1983) study in prisons showed that there was a positive and significant correlation between aggression and antisociality. One of the possible reasons that the findings of the present study do not align with the studies conducted by Hare (1983) and Noyan (2008) may be that those studies were conducted on individuals diagnosed with higher-level antisocial personality disorder.

There was a low-level significant correlation between the SCS sub-dimension of compassion and the sub-dimensions of IBS including status offense and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses. On the other hand, compassion sub-dimension had a moderate-level significant correlation with damaging buildings sub-dimension. As compassion increases, it can be said that behaviors such as damaging buildings, drug and violence offenses, and petty theft decrease. The concept of compassion involves the emotional energy that arises during empathetic reactions directed towards others, enabling individuals to determine how to behave (Batson & Shaw, 1991). At its core, compassion involves feeling the pain of others on an emotional level. As a result of experiencing this discomfort, individuals will strive to alleviate the pain of others in order to regulate their own emotions (Miller, Grimes, McMullen, & Vogus, 2012).

Regarding the SCS sub-dimension of sportsmanship, there was a low level significant correlation with the IBS sub-dimensions of status offense and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses, and damaging buildings. It can be expressed as sportsmanship increases, behaviors such as damaging buildings, drug and violence offenses, and petty theft decrease.

Balcıoğlu et al. (2016) stated that personal motivation factors and character traits significantly influence athletes' tendencies toward aggressive behavior. Relatedly, Perry (2014) determined that sportsmanship behavior had a positive correlation with moral behavior and a negative correlation with antisocial behavior. Barkoukis et al. (2011) emphasized that individuals with lower sportsmanship scores also tend to have lower levels of adherence to social norms, rules, regulations, and ethical attitudes. Similarly, Yıldız (2019) found a negative correlation between athletes' divergence from morality and their sportsmanship tendencies. Moreover, Berkowitz (1989) identified a negative correlation between aggressive behavior and sportsmanship behavior, suggesting that teenagers with unsportsmanlike attitudes are more

prone to easier expression of aggressive behavior due to lower levels of anger control and self-control. Chantal, Robin, Vernat, and Bernache (2005) accentuated that individuals who prioritize sportsmanship and possess a determined personality tend to adhere more to the rules of the sport they practice, show more respect for their opponents' personality and desire to engage in sports, and are less inclined toward aggressive actions. They, on the other hand, found that individuals with lower sportsmanship averages tend to be more prone to incompatible and aggressive behaviors. Similarly, Koç (2017) found a negative correlation between sportsmanlike behavior in physical education classes and students' tendencies toward violence. Koç and Güllü (2017) indicated a negative correlation between aggressive behavior and sportsmanship tendencies.

Within the realm of sports, it has been widely encountered that there are situations in which feelings of both adhering to sportsmanship and disregarding it. In the literature, there are studies demonstrating that athletes exhibit aggressive attitudes and fall into ethical dilemmas (Bebetsos et al., 2008; Bebetsos and Konstantoulas, 2006; Christoforidis et al., 2010; Kavussanu & Ntoumanis, 2003; Konstantoulas et al., 2006).

With respect to the SCS sub-dimension of justice, there was a low-level and significant correlation with the IBS sub-dimensions of status offense and violating school rules, theft, inability to control anger and fighting, petty theft, attention-seeking vandalism, status offense and deceiving others, drug and violence offenses, and damaging buildings. It can be mentioned that as the sub-dimension of justice increases, behaviors such as damaging buildings, drug and violence offenses, and petty theft decrease.

According to the results of the analysis in Table 10, a significant difference was observed between dependent and independent variables. It was determined that the independent variables of honesty, antisocial, sportsmanship, and justice had a significant effect on the dependent variable IBS. On the other hand, it was found that the independent variable of compassion did not have a significant effect on IBS. Overall, it can be concluded that the sub-dimensions of SCS significantly predict the sub-dimensions of IBS.

Recommendation

Based on the findings of the present study, it is recommended to implement character education programs for athletes character development, organize coach training for ethical character development among athletes, and train students to prevent their potential criminal behaviors. Additionally, awareness-raising activities such as drama, theater, and short films can be conducted.

Limitations

The research is limited to the data to be collected from high school students who do sports and study in Konya province in the 2019-2020 Academic Year.

REFERENCES

Aksu, N. (2015). *The research of the relationship between the academic self-competence, social relation elements and crime tendency of the high school students.* [Master's thesis, Zirve University]. Council of Higher Education Thesis Center.

Aras, G., Günay, T., Özan, S., & Orçın, E. (2007). Risky behaviors among high school students in İzmir. *Anatolian Journal of Psychiatry,* 8, 186-196. https://www.proquest.com/openview/14164078315ebe9e5f36d03ef3ff3fc3/1?cbl=136214&pq-origsite=gscholar

Aydoğan, Y., Özyürek, A., & Akduman, G. G. (2015). Okul öncesi dönem çocuklarının spora ilişkin görüşlerinin incelenmesi. *International Journal of Science Culture and Sport, 4*(Special Issue 1), 103-115. https://doi.org/10.14486/IJSCS265

Bahar, H. İ., & Seyhan, K. (2006). Çocuk suçluluğu [Juvenile delinquency]. Ş. Erçetin (Ed.), *Okullarda şiddet ve çocuk suçluluğu [Violence and juvenile delinquency in schools]* (s. 1-60). Hegem Publications.

Balcıoğlu, Y. H., Yıldırım, E., & Balcıoğlu, İ. (2016). Widely perspective evaluation of anger and agression ın sports sciences. *Istanbul University Journal of Sport Science, 6*(1), 1303-1314.

Balkaya, A., & Ceyhan, E. (2007). Investigation of criminal behavior levels of high school students in terms of some personal and family characteristics. *Family and Society Journal, 3*(11), 13–27. https://dergipark.org.tr/en/download/article-file/198240

Barkoukis, V., Lazuras, L., Tsorbatzoudis, H., & Rodafinos, A. (2011). Motivational and sportpersonship profiles of elit athletes in relation to doping behavior. *Psychology of Sport and Exercise,* 12, 205-212. https://doi.org/10.1016/j.psychsport.2010.10.003

Batson, C. D., & Shaw, L. L. (1991). Evidence for altruism: Toward a pluralism of prosocial motives. *Psychological Inquiry,* 2, 107-122. https://doi.org/10.1207/s15327965pli0202_1

Bayoğlu, F. (2013). *Comparison of children receiving counseling and children at risk of crime according to their personal and social variables.* [Master's thesis, Atatürk University]. Council of Higher Education Thesis Center.

Bebetsos, E., & Konstantoulas, D. (2006). Contact sports, moral functioning and planned behavior theory. *Perceptual and Motor Skills,* 103, 131-144. https://doi.org/10.2466/pms.103.1.131-144

Bebetsos, E., Christoforidis, C., & Mantis, K. (2008). Examination of athletes' aggressiveness and anger among greek team handball athletes. *Exercise and Society,* 47, 80-86.

Berkowitz, L. (1989). The frustration-aggression hypothesis: An examination and reformulation. *Psychological Bulletin, 106*(1), 59–73. https://doi.org/10.1037/0033-2909.106.1.59

Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. *American Journal of Orthopsychiatry, 52*(4), 664-678. https://doi.org/10.1111/j.1939-0025.1982.tb01456.x

Bulut, F. (2010). *Investigation of adolescent delinquency in terms of family functioning, family risk factors and quality of life.* [Master's thesis, Çukurova University]. Council of Higher Education Thesis Center.

Büyüköztürk, Ş. (2021). *Sosyal bilimler için veri analizi el kitabı [Manual of data analysis for social sciences].* Pegem Academy.

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2008). *Bilimsel araştırma yöntemleri [Scientific research methods].* Pegem Publications.

Camire, M., & Trudel, P. (2010). High school athletes' perspectives on character development through sport participation. *Physical Education and Sport Pedagogy, 15*(2), 193-207. https://doi.org/10.1080/17408980902877617

Chantal, Y., Robin, P., Vernat, J.P., & Bernache-Assollant, I. (2005). Motivation, sportspersonship, and athletic aggression: A mediational analysis. *Psychology of Sport and Exercise, 6*(2), 233-249. https://doi.org/10.1016/j.psychsport.2003.10.010

Christoforidis, C., Kalivas, V., Matsouka, O., Bebetsos, E., & Kambas, A. (2010). Does gender affect anger and aggression in handball players?. *The Cyprus Journal of Sciences,* 8, 3-11.

Cloninger, C.R. Svrakic, D.M., & Przybeck, T.R. (1993). A Psychobiological model of temperament and character. *Arch Gen Psychiatry,* 50, 975-990. doi:10.1001/archpsyc.1993.01820240059008

Erdemli, A. (2016). *Temel sorunlarıyla spor felsefesi [Philosophy of sports with its fundamental problems].* E Publications.

Görgüt, İ., & Tuncel, S. (2017). Spor karakter ölçeğinin Türkçeye uyarlanması [Adaptation of sports character scale to Turkish]. *Spormetre, 15*(3), 149-156. https://doi.org/10.1501/Sporm_0000000319

Güvendi, B., Güçlü, M., Güvendi, Y., & Türksoy-Işım, A. (2019, April 20-21). *Türkiye şampiyonasına katılan yıldız güreş kız sporcuların spor karakter yapıları ile ahlaki karar alma tutumları [Sports character structures and moral decision-making attitudes of star wrestling female athletes participating in the Turkish championship]* [Oral presentation]. M. Özcan (Ed.). 2. International Physical Education, Sports, Recreation and Dance Congress, Antalya, Turkey, Asos Publications.

Hare, R.D. (1983). Diagnosis of antisocial personality in two prison populations. *American Journal of Psychiatry,* 140, 887-890. https://doi.org/10.1176/ajp.140.7.887

İmamlı, H., & Ünver, G. (2018). Examination of sports character in terms of demographic qualifications. *Mediterranean Journal of Sport Science, 1*(1), 36-48.

Jang, C.Y. (2013*). Development and validation of the sport character scale*. [Ph.D. thesis, The University of Utah]. The University of Utah ProQuest Dissertations & Theses.

Kaner, S. (2001, March 29-30). *Suç/Kuraldışı davranışlar ölçeği geliştirme çalışması [Crime/Illicit behaviors scale development study].* I. National Child and Crime: Causes and Prevention Studies Symposium, Ankara, Turkey, Unicef Publications.

Kanger, F. (2007*). A model of character education taking up reference of the morality of Hz. Mohammed*. [Ph.D thesis, Marmara University]. Council of Higher Education Thesis Center.

Kaplan, E., & Akyüz, O. (2020). Investigation of the relationship between football players' achievement goals and sports characters. *International Journal of Exercise Psychology, 2*(2), 82-90. https://dergipark.org.tr/en/download/article-file/1404628

Karasar, N. (2003). *Bilimsel araştırma yöntemi [Scientific research method].* Nobel Publications.

Kavussanu, M., & Ntoumanis, N. (2003). Participation in sport and moral functioning: Does ego orientation mediate their relationship?. *Journal of Sport and Exercise Psychology,* 25, 501-518. https://doi.org/10.1123/jsep.25.4.501

Kavussanu, M., Stamp, R., Slade, G., & Ring, C. (2009). Observed prosocial and antisocial behaviours in male and female soccer players. *Journal of Applied Sport Psychology, 21*(1), 62-76. https://doi.org/10.1080/10413200802624292

Koç, Y. (2017). Relationships between the physical education course sportsmanship behaviors with tendency to violence and empathetic ability (Note 1). *Journal of Education and Learning,* *6*(3), 169-180. https://eric.ed.gov/?id=EJ1139287. https://doi.org/10.5539/jel.v6n3p169

Koç, Y., & Güllü, M. (2017). Research into sportspersonship behavior of high school students in physical education course in terms of some variables. *Spormetre, 15*(19), 19-30. https://doi.org/10.1501/Sporm_0000000304

Konstantoulas, D., Bebetsos, E., & Michailidou, D. (2006). Moral functioning research among greek water polo players. *Athlitiki Psychologia,* 17, 21-39.

Lilly, J. R., Cullen, F. T., & Ball, R. A. (2002). *Criminological theory: Context and consequences.* Sage Publications.

Miller, T. L., Grimes, M. G., McMullen, J. S., & Vogus, T. J. (2012). Venturing for others with heart and head: How compassion encourages social entrepreneurship. *Academy of Management Review,* 37, 616-640. https://doi.org/10.5465/amr.2010.0456

Noyan, C. O. (2008). *He relationship between the decision-making processes of individuals with antisocial personality disorder and psychopathy and temperament-character traits.* [Master's Thesis, General Staff Gulhane Military Medical Academy]. Council of Higher Education Thesis Center.

Öztürk, A. V. (2018). *Examination of sports moral approaches and characters of bodybuilding and arm wrestling competitors.* [Master's thesis, Akdeniz University]. Council of Higher Education Thesis Center.

Perry, J. (2014). *Redefining sportspersonship: A compliant and principled model*. [Ph.D. Thesis, University of Hull]. https://hull-repository.worktribe.com/output/4216525

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (5). Pearson.

Tazegül, Ü. (2014). The investigation of the effect of sports on personality. *The Journal of Academic Social Science Studies,* 25, 537-544. https://doi.org/10.9761/JASSS2352

Ural, A., & Kılıç, İ. (2005). *Bilimsel araştırma süreci ve SPSS ile veri analizi [Scientific research process and data analysis with SPSS].* Detay Publishing.

Weiss, M.R., Smith, A.L., & Stuntz, C.P. (2008). Moral development in sport and physical activity: Theory, research, and intervention. T.S. Horn (Ed.), *Advances in sport psychology* (s. 187-210). Human Kinetics.

Yavuzer, H. (2009). *Çocuk ve Suç [Child and Crime].* Remzi Bookstore.

Yazıcı, Ö. F. (2021). *The relationship between competitive aggression and anger sportsmanship behaviors of athlete character.* [Ph.D thesis, On Dokuz Mayıs University]. Council of Higher Education Thesis Center.

Yıldız, M. (2019). *Sportsmanship orientation in athletes: Goal commitment and the role of morality in sport.* [Ph.D thesis, Muğla Sıtkı Koçman University]. Council of Higher Education Thesis Center.

Yıldız, Y., & Özmaden, M. (2019). Evaluation of sports character of university students who do sports in terms of various variables. *Journal of Human Sciences, 16*(4), 1197-1206. https://doi.org/10.14687/jhs.v16i4.5893

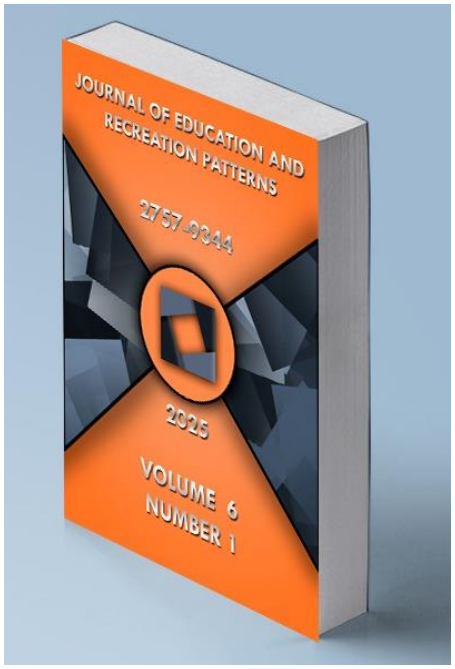
Yılmaz, T. (2000). *Examination of risk-taking behaviors in adolescents*. [Master's thesis, Ege University]. Council of Higher Education Thesis Center.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Parent Perspectives on the Developmental Gains of Individuals with Down Syndrome Participating in Regular Physical Activities

İlinsu DEMİRALP[1], Fatma ÖZOĞLU[2], Mehmet ILKIM[3]

To cite this article:

Demiralp İ., Özoğlu, F., & Ilkım, M. (2025). Parent perspectives on the developmental gains of individuals with down syndrome participating in regular physical activities. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 35-53. DOI: https://doi.org/10.53016/jerp.v6i1.262

[1] Istanbul Aydin University, Faculty Of Sports Science, ilinsudemiralp[at]aydin.edu.tr, https://orcid.org/0009-0009-6778-3795
[2] Inonu University, Faculty of Sports Science, famaozoglu@inonu.edu.tr, https://orcid.org/0000-0002-7000-8396
[3] Inonu University, Faculty of Sports Science, mehmetilkim@inonu.edu.tr, https://orcid.org/0000-0003-0033-8899

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Parent Perspectives on the Developmental Gains of Individuals with Down Syndrome Participating in Regular Physical Activities

İlinsu Demiralp[1], Fatma Özoğlu[2], Mehmet Ilkim[3]

ARTICLE INFORMATION
Original Research Paper

Received 11.01. 2025
Accepted 12.05. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 35-53

ABSTRACT

The aim of this study is to examine the developmental gains achieved by individuals with Down syndrome in Malatya through regular participation in physical activities, from the perspective of their parents. The study is based on semi-structured interviews conducted with 9 parents (6 females, 3 males) working part-time at Down Cafe in Malatya and participating in physical activities. A qualitative research method was used, and data were collected through a semi-structured interview form and demographic information. The data were analyzed using thematic analysis, and descriptive analyses were performed. The data were categorized into six main themes: emotional development, social development, motor development, physical activity development, daily living skills development, and behavior change. The findings indicate that children with Down syndrome who participated in regular physical activities showed increased motivation, positive behavioral changes, improved communication skills, and enhanced motor abilities. Additionally, it was observed that these children engaged in harmonious interactions with their peers, lived according to rules, and supported their development through physical activities. In conclusion, this study demonstrates that regular physical activities significantly improve the social, emotional, and physical development of individuals with Down syndrome and contribute to the enhancement of their daily living skills. Future research should explore the effects of different physical activity programs and involve larger sample groups. Moreover, it is emphasized that physical activities should be more effectively integrated into rehabilitation processes.

Keywords: Down Syndrome, Physical activity, Rehabilitation.

INTRODUCTION

Physical activities are crucial not only for healthy individuals but also for individuals with disabilities. These activities not only improve the physical fitness of individuals with intellectual disabilities but also positively impact on their social integration, concentration abilities, and communication skills (Borland et al., 2022). Participation in physical activities helps individuals with disabilities move away from feelings of loneliness, enables them to engage more actively in social life, and supports the development of their communication skills with peers, thereby significantly improving their quality of life (Yarımkaya et al., 2016). Regular and structured physical activities lead to significant improvements in the health of individuals with disabilities. This process is typically accompanied by increased happiness in life, a stronger connection with daily life, and a significant increase in self-confidence. In addition to physical activities, social interactions and supportive rehabilitation programs play an important role in achieving these positive outcomes (Gao et al., 2020). Sports play a significant role in the rehabilitation of individuals with disabilities. This role involves not only providing necessary exercises but also breaking the monotony of therapeutic processes by increasing motivation through variety (van der Woude et al., 2021). Group-based physical activities, unlike individual activities, facilitate socialization by bringing individuals with disabilities together and contribute to their physical, mental, and social development. The benefits of such activities are still a topic of active research today (Zimmer et al., 2021).

However, there are limited studies in the literature that specifically address the social effects of physical activities performed by individuals with genetic disorders such as Down syndrome in rehabilitation centers. There are various important studies that have examined the social effects of physical activities performed by individuals with genetic disorders like Down syndrome in rehabilitation centers. For example, Sammari & Naceur (2022) observed positive changes in psychomotor development, cognitive development, communication skills, and social adaptation through social activity programs conducted with children with hearing impairments. In the study conducted by Bastık et al. (2018), it was found that physical activities significantly contributed to the social skills of children with intellectual disabilities and helped improve their social relationships. The findings revealed that physical activities play an important role in supporting the social adaptation and socialization processes of these children. Additionally, Aksoy (2020) demonstrated in his study on children with autism that physical activities had positive effects on self-regulation and basic social skills. These studies indicate that physical activities play an important role in strengthening social interactions among individuals with special needs, and physical activities conducted in rehabilitation centers are effective in improving the quality of life of these individuals.

This study aims to explore the social effects of physical and educational activities conducted at rehabilitation centers in order to better understand the social development of individuals with disabilities. In the literature, such studies are limited, and it is often observed that the benefits related to general health and physical fitness are emphasized more (Martín-Rodríguez et al., 2024). However, the development of social integration and communication skills greatly contributes to individuals taking a more active role in daily life. This study aims to fill this gap by examining the effects of physical activities that strengthen social interaction and group bonds.

Down syndrome was first described by Dr. John Langdon Down in 1866 and is considered one of the main causes of genetic intellectual disability. This syndrome is a chromosomal condition that affects individuals across all races, ages, and socioeconomic levels (Tong, 2022). As a common genetic disorder, it highlights the importance of organizing supportive activities focused on social skills and adaptation. Specifically, encouraging social interaction early and continuously can help individuals become more active in their daily lives.

When examining the characteristics of individuals with Down syndrome, it is observed that their cognitive abilities differ slightly from those of typically developing individuals, leading to differences in developmental timing (Romano et al., 2020). In terms of language development, they typically begin to speak their first words at 18 months (Ferjan Ramírez et al., 2020). Individuals with Down syndrome often exhibit more positive behaviors than their intellectually disabled peers and typically developing individuals (Channell et al., 2021). Research shows that the social development of children with Down syndrome is generally two to three years ahead of their cognitive development. As a result, they tend to form harmonious relationships with their environment and are often described as affectionate and cheerful (Onnivello et al., 2022).

In terms of psychomotor skills, it can be stated that girls with down syndrome generally have more developed motor skills than boys, while boys tend to be more active in social interactions (Alesi et al., 2022). During early childhood, the development of these children progresses in a similar timeframe to that of their typically developing peers; however, it generally occurs at a slower pace. This emphasizes the necessity of providing support based on their individual characteristics and needs (Erdemir et al., 2022; Ababneh, 2021).

Regularly organized sports activities make significant contributions to positive behavior changes and the development of fine and gross motor skills in individuals with special needs. These activities also encourage social interactions with peers and strengthen friendship bonds (Dapp et al., 2021). In this context, it is important to note how often individuals with Down syndrome engage in physical activities and for how long they perform these activities each week. In this study, it has been observed that individuals who regularly participate in physical activities at rehabilitation centers engage in these activities at least three days a week, for 30-45 minutes each session. Regular participation in these activities contributes to strengthening social bonds, improving communication skills, and increasing self-confidence. Therefore, sports can be considered and utilized as an effective strategy to improve the overall quality of life of these individuals.

This study investigates the social effects of physical and educational activities conducted by individuals with Down syndrome at rehabilitation centers, as well as their part-time work at Down Cafe in Malatya, through semi-structured interviews with their parents. Parents were asked about the physical activities their children are involved in, whether their children enjoy these activities, changes in their mood after participating in these activities, and observed changes in their socialization processes. Additionally, the study evaluates how regular participation in physical activities contributes to their children's ability to fulfill daily life responsibilities. While aiming to contribute to the literature, this study also aims to provide insights that can help practitioners and families offer more effective services and is expected to be a valuable resource for future research.

METHOD

Research Design and Interview Technique

This study employs interview techniques, which is widely used in qualitative research (Hitchings & Latham, 2020). The interview technique is an effective method for deeply understanding participants' personal experiences, thoughts, and emotions. The questions were designed in alignment with the research objective, based on discussions with three academics from the Faculty of Sport Sciences at Inonu University, as well as insights from similar studies in the literature. The same open-ended questions were asked in the same order to all participants. This approach allowed participants to provide flexible responses, thereby increasing the diversity of the data and enabling a more detailed exploration of the emotional and practical barriers faced by parents regarding their children's participation in physical activities.

Ethical Approval and Participant Information

Ethical approval for the study was obtained from the Inonu University Ethics Committee on September 25, 2024. After receiving ethical approval, participants were informed about the purpose and procedures of the study, and written consent was obtained. The confidentiality of the participants' identities was ensured, and each participant was assigned a number to guarantee anonymity.

Participants and Data Collection Process

The study involved nine individuals with Down syndrome, who were working part-time at Down Cafe in Malatya and participating in physical activities with their accompanying relatives. Participants were selected based on voluntary participation, and the dates and times of the interviews were arranged according to the availability of the participants. The interviews lasted approximately 10-15 minutes each and were recorded with a voice recorder. The recorded materials were subsequently transcribed. The accuracy of the transcripts was reviewed by each researcher, and no discrepancies were found.

Data Analysis

Data analysis was conducted using thematic coding. Codes were determined based on frequently recurring expressions and key concepts in the interview data. Two independent researchers participated in the coding process, and to ensure consistency, they discussed and resolved any discrepancies that arose. A coding guide was used to define the scope of each code. Coding was performed using NVivo software, which allowed for the systematic categorization of the data and the visual analysis of the themes. Care was taken to accurately reflect each participant's perspective when determining the themes. The reliability of the analysis was enhanced through consistency in coding and the validity of the content analyzed. The results were supported by illustrative quotations and reported transparently.

Table 1

Demographic Characteristics of the Participants and Their Children

Participant	Gender	Child's Age	Child's Gender	Years of Child's Regular Physical Activity
P1	Female	23	Girl	3
P2	Male	36	Boy	5
P3	Male	25	Girl	10
P4	Female	24	Girl	22
P5	Female	22	Girl	10
P6	Female	34	Boy	24
P7	Female	18	Boy	10
P8	Female	23	Girl	19
P9	Female	30	Girl	3

The participant profile consisted of nine individuals (P1 to P9), with a predominance of female participants (n = 7) and only two males. The ages of the participants' children ranged from 18 to 36 years, with a mean age of approximately 26.1 years, indicating that most children were young adults. Regarding the children's gender, six were girls and three were boys, showing a slightly higher representation of female children in the sample. In terms of physical activity history, the number of years children engaged in regular physical activity varied widely from 3 to 24 years, suggesting considerable diversity in physical activity experience among participants. For instance, the longest duration (24 years) was reported by P6, indicating long-

term involvement in active routines since early childhood, whereas the shortest durations (3 years) were reported by P1 and P9, possibly reflecting more recent engagement. This distribution highlights both the heterogeneity of participant backgrounds and the potential influence of longitudinal exposure to physical activity on any psychological, behavioral, or health-related outcomes being investigated in the study.

FINDINGS

The primary research question of this study is whether the physical activities conducted significantly contribute to the social progress of individuals with Down syndrome. The interviews conducted not only support this question but also emphasize the importance of regular physical activities in the context of the study involving parents of individuals with Down syndrome who work at Down Cafe. The findings of this study are as follows.

Table 2

Findings Related to the Emotional Development Theme Based on Participant Interviews

Main Category	Subcategories	Codes Generated from the Interview Results	Participants
Emotional Development	Behavior	Calmness, Introverted, Shy, Bored	P5, P7, P8, P9
	Motivation	Positive thought, Positive approach, Desire, Interest	P2, P4, P6
	Well-being	Happy, Enjoyment	P1, P3

The findings related to the theme of emotional development indicate that regular participation in physical activities has a significantly positive impact on the emotional development of individuals with Down syndrome. Engagement in physical activities not only increases their motivation but also enhances their approach to various situations and improves their overall well-being. Parents have reported that their children become calmer, develop a more positive mindset, and participate in activities without boredom as a result of these activities. The emotional development theme is of critical importance, particularly in understanding individuals' emotional well-being and overall health.

The perspectives of P1 and P2 highlight that physical activities help their children relax and develop a more positive outlook. P3 further emphasizes that the freedom to move increases the child's happiness. P4 and P5 point out that physical activities play a crucial role in achieving emotional balance and fostering social interactions. P4 suggests that these activities help release negative energy, while P5 observes that more introverted children behave differently in social activities after participating in physical exercises. P6's perspective suggests that physical activities help calm children, while P7 and P8 express that such activities alleviate feelings of loneliness and boredom. P9 underscores that regular physical activities provide emotional regulation and contribute to the children's overall sense of stability. Notably, no negative feedback regarding physical activities was reported throughout the study. However, it is possible that some parents observed initial anxiety or resistance in their children towards these activities. Such negative feedback, if present, would highlight the fact that physical activities may not be equally effective for every child, suggesting the need for a more balanced analysis.

In conclusion, regular physical activities provide significant benefits not only for the physical health of children with Down syndrome but also for their emotional balance and social interactions. These findings underscore the importance of physical activities in emotional development, while also indicating that the effects may vary for each individual.

The perspectives related to this theme are as follows:

P1: “When my child participates in regular physical activities, they experience relaxation and calmness. They are normally calm, but there is a significant sense of relief, and they become happy.” P2: “My child fills with happiness and relaxes; their irritability decreases, and they view everything more positively.” P3: “They become happier and convey that feeling to others. After physical activities, they move more freely, which triggers their happiness.” P4: “There have been positive changes. They used to accumulate negative energy throughout the day and couldn’t find an outlet for it. Now, as they participate in physical activities, I see them more relaxed and able to release that energy. You could think of it as emptying a pool. On days they don’t participate in physical activities, you can see that negativity.” P5: “They are very emotional and view everything from an emotional perspective. You can observe that they relax when they participate in physical activity. You can see the difference between a normally introverted child and one who engages in social activities.” P6: “After physical activities, they are in a happier and calmer state of mind. They even express their desire to go for a walk or exercise cheerfully. When they don’t engage in these activities, they become more irritable and give negative responses, retreating into themselves. When I say we are going to the cafe, they want to do everything themselves, but when we don’t go, they don’t even want to change their clothes.” P7: “They are happier and not bored because they are not alone with themselves.” P8: “It’s hard for them to go, meaning they get anxious when starting something. But after they go, they are very happy and calm. I don’t see any problems.” P9: “They move more calmly, especially after they start playing ball; they begin to settle down even more.”

Table 3

Findings Related to the Social Development Theme

Main Category	Subcategories	Codes Generated from the Interview Results	Participants
Social Development	Communication	Initiating communication, Conversation, Introductions	P1, P4, P6, P7
	Integration	Calm, Moderate, Adaptation	P2, P3, P9
	Making Friends	Number of friends, Environment	P5, P8

In the findings related to the social development theme, it was observed that regular physical activity participation significantly impacts the social development of individuals with Down syndrome. Parents' statements demonstrate the crucial role physical activities play in improving their children's social skills and enabling more effective communication with their surroundings. The social development theme is crucial as it highlights the impact of interpersonal interactions and social integration on an individual's overall development and quality of life.

P1 reported that their child has become more comfortable expressing themselves and enjoys engaging in conversations with friends. This indicates that the child has become more active in their social environment. P2 and P3 observed that their children have become more adaptable and attentive listeners. P2 noted that physical activities helped their child overcome introversion and develop a more cooperative attitude. P3 highlighted that the improvement in communication resulted not only in increased understanding but also in a positive and cooperative behavioral change. P4, P5, and P6's observations further reinforce the direct impact of physical activities on social interactions. P4 noted an increased willingness to communicate, while P5 mentioned significant progress in both fine motor and social skills. P6 observed that their children became happier and more affectionate, and their family communication improved. P7 and P8 stated that their children have become happier and more eager to spend

time with friends. This demonstrates how social interactions and play help children overcome negative emotions such as loneliness and boredom. P9 shared that their child could be more irritable when reluctant to play, but after spending time with friends, they become calmer and more relaxed. The study found no reports from parents indicating negative effects of physical activities on social development. However, some parents noted that their children initially showed resistance to participating in games. This suggests that physical activities may not be equally effective for every child, emphasizing the need for broader analysis.

In conclusion, the parents' perspectives indicate that regular physical activities significantly enhance the social development of children with Down syndrome. These activities contribute not only to physical health but also to social skills and family communication.

The perspectives related to this theme are as follows:

P1: “I noticed a significant difference in their speech. They have started to express themselves more comfortably and enjoyably converse with their friends.” P2: “There are more positive changes. They used to be quite introverted, but after starting physical and social activities, they have become more adaptable.” P3: “We have started to understand each other better. They listen attentively and exhibit more moderate and obedient behaviors.” P4: “I observe positive behaviors, especially a greater willingness to communicate.” P5: “My child is progressing day by day, especially coming to the cafe and spending time with friends has enriched them. They have made considerable progress in fine motor skills and socialization, which makes me very happy.” P6: “I have seen positive changes; they are happier and more affectionate. They respond to every question we ask, and their communication with us is improving.”
P7: “Because they are happier, they engage in good conversations, responding to what we say.” P8: “Since they are quite a positive child, they actually get along well with their friends, and they are very happy spending time together.” P9: “I think it is nice and fun. Sometimes they don’t want to play, and during those times, they can be more irritable, but after playing with their friends, I see that they become more relaxed and calm.”

Table 4

Findings Related to the Motor Development Theme Based on Participant Interviews

Main Category	Subcategories	Codes Generated from the Interview Results	Participants
Motor Development	Development of Motor Skills	Fine motor, Gross motor, Hand-eye coordination	P2, P3, P6, P9
	Physical Fitness	Body posture, Upright walking, Cardiovascular development, Balance	P5, P7
	Talent Discovery	Traditional dance, Volleyball, Folk dance, Skill	P4, P8
	Management of Chronic Conditions	Heart disease	P1

The findings related to the social development theme highlight the significant impact of regular physical activity participation on the motor development of individuals with Down syndrome. Parental reports indicate that such activities contribute to the development of both fine and gross motor skills, improvement in hand-eye coordination, facilitation of balanced walking, and correction of postural issues. Furthermore, physical activities have been found to contribute to positive developments in specific sports disciplines and the ability to cope with chronic conditions. The motor development theme is of great importance as it helps individuals

enhance their physical abilities and increase their independence in daily life activities.

The observations of parents provide valuable insights into the progress their children have made in motor skills. P1 notes that their child now moves more comfortably, finds it easier to sit and stand, and that participation in physical activities has contributed to this improvement. This suggests that physical activities not only enhance muscle development but also positively impact overall motor skills. P2 and P3 emphasize the progress their children have made in motor abilities. P2 observes an improvement in their child's ability to approach and track the ball, while P3 shares that their child, who previously struggled to catch a ball, is now able to do so with ease, which has made them very happy. These developments indicate that physical activities also lead to noticeable increases in self-confidence and engagement. P4 and P5 discuss the impact of physical activities on balance and coordination. P4 highlights the success of their child in performing folkloric movements and the teachers' role in helping them master these skills. P5 observes significant improvements in their child's balance and increased enthusiasm for playing with the ball. These observations suggest that physical activities not only contribute to physical development but also encourage greater participation in daily activities, enhancing mobility and engagement. P6 and P7 note significant improvements in their children's motor skills. P6 points out progress in their child's ability to ride a bike and play ball games, while P7 reports that their child now walks more steadily and has made progress in running. These developments further illustrate how regular physical activities contribute to the improvement of balance and motor skills in children. P8 and P9 discuss the improvements in motor skills as well as the positive effects of activities on attention and focus. P8 observes their child's increased interest in traditional dance and the contribution of this activity to their development. P9 shares that despite a minor eye issue, their child has developed the ability to jump over shapes placed on the ground with careful attention, aided by their teacher. These quotes suggest that physical activities not only enhance motor skills but also improve cognitive abilities such as attention and coordination. Some parents mentioned that their children initially resisted participating in physical activities. These observations indicate that not every child benefits equally from these activities, and individual differences must be considered. This underscores the need for a more comprehensive approach, as physical activities may not be equally effective for every child.

In conclusion, parental perspectives indicate that regular physical activities lead to significant improvements in the motor skills of children with Down syndrome. These activities not only promote physical health but also offer benefits in terms of self-confidence, attention, and social interaction. These findings demonstrate that physical activities play a vital role in enhancing children's motor development and serve as an effective tool for fostering different motor skills.

The perspectives related to this theme are as follows:

P1: “Previously, he had a hole in his heart. His doctor said that participating in physical activities would not pose a problem. His condition is now good, and he moves more easily. His sitting and standing have also become more comfortable.” P2: “Before, he used to dodge when the ball came near his head. Now, he approaches the ball, follows it with his eyes, and hugs it. He is currently in very good condition.” P3: “There is a significant difference in his ability to catch things thrown to him. When we threw him the ball, he couldn't catch it, but now he can and feels very happy. He used to show no interest in anything, but now he is much more engaged.” P4: “Of course, there is. For instance, my daughter performs the folkloric movements very well. Her teachers showed her how to do it correctly by having her repeat the movements. She didn't believe our words, but she listened to her teachers. Physical activities are very important for such children, and when she participates in them, she also focuses her mind, so these activities are essential for us.” P5: “He couldn't walk straight and had balance issues.

Since participating in physical activities, he has made significant progress. He also goes to a few training centers where we stay and has improved a lot in terms of balance. He is very eager to play with the ball and can throw the basketball into the hoop very well." P6: "His movements have improved significantly, especially in terms of walking steadily. He always plays ball with his siblings and loves to ride his bike." P7: "He moves more steadily when walking, and we have seen positive results in his running as well." P8: "Actually, my daughter doesn't like to move much, but she loves playing traditional dance. You really need to see it; whatever you give to the child, they will take it." P9: "He adjusts his focus very well now, which he didn't do before. He has a minor issue with his eye, but now his teacher places shapes on the ground, and he jumps over them carefully."

Table 5

Findings Related to the Theme of Physical Activities Based on Participant Interviews

Main Category	Subcategories	Codes Generated from the Interview Results	Participants
Physical Activity Development	Relief from Monotony	Active lifestyle, Various physical activities	P2, P7, P8
	Hobby – Sports	Drawing, Basketball, Line dance	P5, P9
	Rehabilitation	Target achievement, Peer education	P1, P3, P4, P6

The theme of physical activity development is a process that leads to significant changes in the social, emotional, and physical development of individuals with Down syndrome. Parental observations reveal that these individuals transition to a more active lifestyle through physical activities, showing improvements in their social interactions and overall mood. Findings related to physical activities are important for improving health, enhancing quality of life, and preventing diseases.

P1 and P2 highlight that their children appear happier and more relaxed when with their friends, emphasizing that these interactions play a crucial role in their social development. P3 also points out that the bonds formed with peers contribute to their social identity development. This indicates the strong impact of social relationships on the emotional growth of children. Observations from P4 and P5 demonstrate that physical activities have a significant effect on individual skills. P4 notes that their child performs better in individual activities with preferred teachers, while P5 shares that their child's passion for painting was supposed to culminate in an exhibition, but due to the pandemic and earthquake, it was delayed. These observations underscore the role of physical activities and teacher guidance in enhancing individual abilities. P6 and P7 discuss the enjoyable and educational aspects of physical activities with peers. P6 mentions that their child learns more through activities with friends, while P7 highlights that the intensity of physical activities during competition periods may lead to feelings of fatigue. This suggests that while children may struggle with challenging activities, the social interactions that make them fun and educational can boost motivation. P8 and P9 provide insights into how some children may be reluctant to engage in physical activities. P8 notes that their child participates in activities with the teacher despite initial reluctance, while P9 shares that activities like basketball increase their child's motivation. This emphasizes the importance of tailoring activities to meet the child's interests and needs.

In conclusion, physical activities provide significant contributions to the development of individuals with Down syndrome. However, since each child has different needs, a personalized approach is crucial to achieve more effective results.

The perspectives related to this theme are as follows:

P1: “He appears to be happier and more relaxed when he is with his friends.” P2: “Having spent the last five years consistently with his friends, I observe that he seems happier, as they engage in various activities together and work at the café.” P3: “His interactions with peers contribute to his happiness, as they provide him with individuals he can communicate and connect with. This experience fosters his development as a distinct social individual.” P4: “When he participates in individual activities with his preferred teachers, his performance is significantly better. In our presence, he tends to be negatively influenced, as he knows we will support him and compensate for any shortcomings. When his teacher provides directives, he executes the assigned tasks or learned concepts much more effectively and correctly.” P5: “He has a deep passion for painting and was supposed to hold an exhibition; however, due to the pandemic followed by an earthquake, we were unable to proceed. We aim to open it at an appropriate time.” P6: “He derives great joy from the physical activities he engages in with his friends; although he sometimes wishes for my company, I believe he learns more from these activities with his peers.” P7: “He generally enjoys participating in various activities, but during competition periods, the intensity of physical activities increases. During these times, he may become aware of the exhausting nature of these activities, which can trigger feelings of boredom.” P8: “Overall, he does not enjoy physical activity, which has resulted in him being heavier than necessary. However, when he is required to participate in activities with his teacher, he reluctantly engages despite his initial reluctance.” P9: “He absolutely loves playing basketball and loses himself in the joy it brings; he also enjoys dancing in circles, whether with us or his friends.”

Table 6

Findings Related to the Theme of Daily Living Skills Based on Participant Interviews

Main Category	Subcategories	Codes Generated from the Interview Results	Participants
Development of Daily Living Skills	Self-Care Skills	Dressing, Personal care	P3
	Structured Living Skills	Sleep routine, Order and organization, Plan – Schedule, Compliance with social rules	P1, P2, P4, P5, P6, P7, P8, P9

The theme of daily living skills development is an important factor influencing the progress of individuals with Down syndrome in areas such as self-care, responsibility awareness, organization, and social adaptation. Parental observations reveal that regular participation in physical activities contributes to these developments, enabling individuals to lead more independent and organized lives. The following quotes illustrate the impact of physical activities on these skills. Findings related to the theme of daily living skills are important because they enable individuals to perform essential tasks independently, promoting autonomy and overall well-being.

P1 emphasizes that physical activities enhance social interaction and communication skills. The child’s improved ability to communicate more comfortably at the café and the increase in organizational skills demonstrate that physical activities have positive effects not only on motor skills but also on social and emotional development. This contributes to children's independence in social interactions. P2’s observation indicates that physical activities help the child live a more planned and disciplined life. Such organization enhances the child’s ability to complete daily routines and responsibilities at home. P3 highlights that physical activities increase self-confidence and help the child perform household responsibilities more consciously. Tasks like clearing the table, cleaning the floors, and putting away dishes demonstrate the development of both motor skills and responsibility. P4 and P5 note that

physical activities have helped the child lead a more organized and planned life. P4 mentions that the child has adopted a disciplined lifestyle, while P5 reports significant progress. These observations indicate that physical activities help children organize their lives and have a strong impact on their overall development. P6 states that physical activities have contributed to the child's increased help with household chores and greater organization. The tendency to be orderly, commonly seen in individuals with Down syndrome, is reinforced by physical activities, which also increase their sense of responsibility and adaptability to their environment. P7 underscores that physical activities positively impact the child's ability to perform household responsibilities. The child's contribution to household routines reflects broader developmental progress. P8 and P9's observations suggest that some children may be reluctant to engage in physical activities, yet they show more responsibility in specific environments (e.g., at the café).

P8 notes that while the child is often unwilling to help at home, they perform all requested tasks at the café. This highlights the importance of tailoring activities to the child's interests. P9 expresses that the child has always been responsible and organized, underlining the positive effects of physical activities on these skills.

In conclusion, physical activities significantly contribute to the development of individuals with Down syndrome. However, since each child has unique needs, not all activities will have the same effect for every child. This underscores the importance of personalized approaches in fostering their growth.

The perspectives related to this theme are as follows:

P1: "He has become somewhat more independent compared to the previous situation. He is able to move around by himself, and we have observed that he communicates more comfortably, especially in the café where he works. He is more relaxed in forming sentences when talking to others and has shown greater organization in his life. This was not the case before. The café has significantly benefited us in this regard." P2: "Previously, he would go directly to his room and sit at the computer without ever getting up. Now, he doesn't even open the computer properly. While at home, he engages in pre-planned activities." P3: "After participating in physical activities, my child has started to move more consciously. He is aware of certain responsibilities at home. For instance, he helps with clearing the table and cleaning the floors, and he puts away his own plate. He has begun to develop greater self-confidence." P4: "Most importantly, he acts in a planned manner. He must wake up at a specific time in the mornings, eat at a certain time, and he organizes specific activities according to the day's plan. This has resulted in a more disciplined life, and he is learning to live in a structured and organized manner." P5: "Everything has developed significantly day by day compared to the past. Even if it is not a hundred percent improvement, perhaps around fifty percent, it still makes us very happy, as there are others who do not experience this. He is adapting to the rules of his environment." P6: "He is helping more with household chores and is following instructions. He generally enjoys being organized; children with Down syndrome often exhibit this trait. If he sees something out of place, he immediately corrects it. I have two other children who do not care about the state of the house when they come home, but my child immediately tidies up and organizes the space." P7: "We are achieving very positive results from all aspects. Our routine changed a bit after the earthquake, but before that, for example, he would fill and empty the dishwasher, help with clearing the table, and organize his room. Currently, due to our changed living situation, it is challenging to demonstrate this, but he was very helpful." P8: "My child is not very eager to help and does not enjoy doing chores. However, he works at the café and, when he goes there, he collects glasses, assists with service, and performs all requested tasks. At home, though, he often says, 'I am very tired, you do it.'" P9: "He was already fulfilling his responsibilities at home, but this has increased as he spends more time at the café. He organizes the house without us prompting him; he has always been a child who enjoys order since he was

little.”

Table 7

Findings Related to the Theme of Behavior Change Based on Participant Interviews

Main Category	Subcategories	Codes Generated from the Interview Results	Participants
Development of Behavior Change	Problem Solving	Solution	P3
	Transfer	Imitation, Adaptation, Daily life, Learning by doing	P1, P2, P4, P5, P7, P9
	Analogy	Association, Model	P6, P8

The development of daily living skills is a crucial factor in facilitating the independence, responsibility, organization, and social integration of individuals with Down syndrome. Parental observations indicate that regular participation in physical activities contributes to these developments, enabling individuals to lead more independent and organized lives. Below are the perspectives of parents regarding this theme and explanations of the significance of these viewpoints. Findings related to the theme of behavior change are important because they provide insights into how to effectively modify habits, improve outcomes, and promote positive long-term adjustments in individuals' lives.

P1 emphasizes that the increased activity level and the ability to perform activities without hesitation highlight the potential of physical activities to enhance confidence in social interactions. This allows children to establish stronger connections with the community and move more comfortably in social settings. P2's observation of their initially introverted child becoming more friendly through outdoor activities shows the critical role physical activities play in the development of social skills. This process helps individuals with Down syndrome become more active and participatory in society. P3 highlights the improvement in their child's self-awareness and problem-solving ability, pointing to the positive effects of increased self-confidence and social interaction. This development encourages individuals to take more responsibility in their own lives. P4 and P5 observe that children begin to integrate the skills they learn through observation into their daily lives. P4 notes that their child mimics the movements of their friends or teachers, while P5 mentions that their child has started helping with household chores. This demonstrates how physical activities help individuals apply what they learn from their environment. P6 and P7 indicate that physical activities strengthen children's social connections. P6 observes that their child has bonded with friends and learned their names, while P7 notes that their child's socialization has increased through repeated visits to the café. This shows that physical activities provide an essential opportunity for children to develop their social skills. P8 states that their child applies the responsibilities learned at the café to help at home, suggesting that physical activities reinforce the sense of responsibility. This enables individuals to organize their daily lives and contribute to their surroundings. P9 points out that children acquire new skills through observation, indicating that individuals with Down syndrome become more independent through trial and error and observation in the learning process. Some parents mention that their children show reluctance in participating in physical activities, which highlights that each child has different motivations and needs. This situation underscores the importance of individualized approaches. For instance, some children may be more hesitant to engage in social interactions. This once again emphasizes the importance of adapting activities to the child’s interests.

In conclusion, physical activities have a significant impact on behavior change in

individuals with Down syndrome. However, due to the varying needs of each child, personalized approaches can lead to more effective outcomes.

The perspectives related to this theme are as follows:

P1: “My child has become quite active; they have started to recognize people and move more comfortably, and they carry out their activities without shame.” P2: “They were very withdrawn at first, avoiding everyone. As they participated in outdoor activities, they began to exhibit friendlier behaviors towards others.” P3: “Their self-confidence has increased, and their interactions with people have improved; they have become aware of themselves as a distinct individual and I see that they are trying to solve the problems they encounter throughout the day.” P4: “While engaging in physical activities with a few others, they observe their friends or teachers, mimicking their movements and taking them as role models.” P5: “Previously, my daughter did nothing; now she makes her bed, chooses and folds her clothes, and prepares coffee for us.” P6: “She didn’t know the names of her friends, but as she participated in physical activities, they bonded, and now she tells us their names and constantly shares what happened that day at home.” P7: “Especially as she goes back and forth to the café, her socialization has increased; she has started to engage in conversations and does the things she needs to do throughout the day without us telling her.” P8: “When she works at the café, she knows her responsibilities and what she needs to do, and she helps us at home with what she has learned there.” P9: “While engaging in activities with her friends, they observe each other, and if she cannot do something, she tries to replicate it by watching someone else and experimenting with it.”

DISCUSSION

The aim of this study is to examine the developmental gains achieved by individuals with Down syndrome in Malatya through regular physical activity, based on their parents' perceptions. However, the fact that data was collected from only nine parents and a single geographical region limits the generalizability of the findings. The small sample size may hinder the applicability of the results to a broader population. The study’s findings may only be relevant for parents in Malatya, and similar studies conducted in different regions may yield different results. Additionally, the high developmental expectations of the parents in the sample may have introduced bias into the study. Parents who are more motivated to gather information about improving their children's development might have shaped their perceptions in a more positive direction. Therefore, studies with larger and more diversified samples may enhance the generalizability of the findings. Furthermore, clinical or observational measurements of motor skills could provide a more substantial contribution to the literature.

Bor (2018) demonstrated in his study that therapeutic recreation activities positively impact the social development of children with Down syndrome. These activities helped children improve in areas such as social skills, speech, relationship-building, teamwork, and emotional control. Moreover, teachers trained in therapeutic recreation were found to support children's social skills more effectively. Educational games and social development activities for disabled students also play a crucial role in developing their social skills. These findings indicate that therapeutic recreation activities and teacher training are effective tools for supporting social development.

In the study by Albayrak & Eliöz (2023), regular sporting activities were shown to play an important role in the development of social adaptation and skills in children with Down syndrome. Sports not only promote physical development but also provide significant opportunities for social and emotional growth. Furthermore, sports enhance children’s self-confidence while helping them learn to follow social rules, work in teams, and take individual

responsibility. This process encourages children to be more active in their social environments, leading to positive psychological effects.

Jung et al. (2017) found that children with Down syndrome exhibited lower functionality and social participation compared to typically developing children. However, as their functionality improved, so did their quality of life.

In the study by Ilkim et al. (2021), participation in regular physical activities was shown to significantly improve the self-esteem and happiness levels of individuals with Down syndrome. This finding demonstrates that regular exercise has positive effects on the psychological and emotional development of these individuals, enhancing their quality of life. Physical activities contribute not only to physical health but also to emotional and social well-being, strengthening self-esteem and enabling a happier life. Therefore, individuals with Down syndrome should be encouraged to participate in regular sports and physical activities.

Senlik et al. (2017) found that special physical education programs for children with Down syndrome positively affected their emotional adjustment and supported their psychological and social development. These findings demonstrate that physical education lessons offer not only physical but also psychological and social benefits for these individuals.

Yazıcı & Kepenek-Varol (2021) revealed that the physical performance of children with Down syndrome was lower than that of typically developing children. Delays in areas such as walking speed, lower extremity muscle strength, and dynamic balance are associated with motor developmental delays specific to Down syndrome. Decreased physical activity levels were found to increase health problems, which negatively affected families as well. In this context, increasing the physical activity levels of individuals with Down syndrome can have positive effects on both their physical health and the psychological well-being of their families. The study shows that physical activity contributes to improvements in motor skills and social integration, and this process can be strengthened with family support.

Barıs & Aras Bayram (2020) found a connection between the development of motor skills and the level of independence in children with Down syndrome. As children's motor skills improve, they become more independent. This suggests that motor development helps children gain more independence in their daily lives.

In the study by Franco et al. (2023), it was revealed that participation in physical activities had a positive effect on all students with Down syndrome, regardless of gender.

Uygur & Aslan (2024) observed that an exercise and game program implemented through distance education helped redirect the television-watching habits of children with Down syndrome toward education, thereby enhancing their motor skills and promoting socialization with their peers. Numerous studies in the literature have indicated that children with Down syndrome show improvements in motor skills as a result of regular exercise (Aksay, 2022; Eren et al., 2019; Lersilp et al., 2016; Tekin & Tekin, 2021).

It has been established that regular participation in physical activities has significant positive effects on the social, psychological, and motor development of individuals with Down syndrome. Special physical education programs contribute to the development of social skills, self-confidence, and emotional regulation. Moreover, regular exercise and sports activities have been shown to improve the quality of life of individuals with Down syndrome, increase their social integration, and make them more active in their social environments. Physical activity not only improves motor skills but also contributes to the psychological well-being of children, enhancing their independence and freedom. These findings demonstrate that participation in physical activities strengthens both the individual development and social integration of individuals with Down syndrome. Similarly, in our study, the positive effects of regular

physical activities on the development of children with Down syndrome were observed. Therefore, encouraging regular physical activity for these individuals is critical to improving their quality of life and enabling more active participation in society.

Conclusion

This study, conducted with the families of individuals with Down syndrome working part-time at the Down Cafe in Malatya, reveals that these individuals significantly benefited from physical activities, leading to an improvement in their quality of life. Specifically, the regular participation in sports and physical activities contributed to the development of their motor skills and facilitated the strengthening of their social skills. Additionally, these activities have helped enhance their social integration, reduce feelings of loneliness, and promote a more active lifestyle. Observations from parents have supported these findings, and the real-world setting of "Down Cafe" has provided a unique methodological contribution to the study.

Recommendation

It is recommended that rehabilitation centers incorporate structured, peer-led physical activities into their programs at least twice a week to support the development of individuals with Down syndrome. These activities will foster both motor and social skill development, while also encouraging families to participate in social events, which in turn will improve social integration and overall development. Furthermore, rehabilitation and educational institutions should increase employment opportunities for professionals trained in sports sciences to help disseminate such programs more widely. Policymakers must invest in and create strategic plans to expand these community-based programs, ensuring that they reach a broader population.

Future research could test these findings with larger, more diverse sample groups and examine the development of motor skills and social integration processes over a longer time frame. In particular, the development of motor skills could be further validated through quantitative measurements, in combination with parent reports. Additionally, studies conducted in various educational institutions and special education centers could explore in greater detail how individuals with different demographic characteristics benefit from such activities, evaluating the effectiveness of community-based social programs. Such research will provide scientific support for the effectiveness of these programs, ultimately enhancing their applicability.

Limitations

This study is limited to the families of individuals with Down Syndrome living in Malatya province and working in Down cafes in 2024.

Acknowledgements or Notes

In conclusion, this study demonstrates a marked improvement in the quality of life and social integration of individuals with Down syndrome. These findings underscore the importance of expanding community-based social programs, such as "cafes" specifically designed for individuals with Down syndrome. Policymakers and local governments should take steps to replicate and expand such social programs in other regions. By doing so, social participation can be encouraged, social isolation can be mitigated, and the overall quality of life for individuals with Down syndrome can be significantly improved.

REFERENCES

Ababneh, O. M. A. (2021). How do green HRM practices affect employees' green behaviors? The role of employee engagement and personality attributes. *Journal of Environmental Planning and Management, 64*(7), 1204–1226. https://doi.org/10.1080/09640568.2020.1814708

Aksay, E. (2022). Comparison of motor coordination levels of children with Down syndrome and typically developing children – Germany sample. *International Journal of Sport Exercise and Training Sciences (IJSETS), 8*(2), 33–44. https://doi.org/10.18826/useeabd.942641

Aksoy, Y. (2020). The effects of physical activities as recreational activities on social communication in children with autism. *Gaziantep University Journal of Sports Sciences, 5*(1), 1–9. https://doi.org/10.31680/gaunjss.689747

Albayrak, Ö., & Eliöz, M. (2023). Spor yapma alışkanlığının özel gereksinimli çocukların kognitif becerilerine etkisi. *Ondokuz Mayıs Üniversitesi Eğitim Fakültesi Dergisi, 42*(1), 1–32. https://doi.org/10.7822/omuefd.1098305

Alesi, M., Giustino, V., Gentile, A., Gómez-López, M., & Battaglia, G. (2022). Motor coordination and global development in subjects with Down syndrome: The influence of physical activity. *Journal of Clinical Medicine, 11*(17), 5031. https://doi.org/10.3390/jcm11175031

Barış, B., & Aras Bayram, G. (2020). The relationship between gross motor function level and independence level of preschool children with Down syndrome and their parents' quality of life. *Hacettepe University Faculty of Health Sciences Journal, 7*(3), 381–393. https://doi.org/10.21020/husbfd.702125

Bastık, C., Erkan, M., & Gümüşdağ, H. (2023). Investigation of the effect of sports on the socialization of physically disabled individuals. *SPORMETRE Beden Eğitimi ve Spor Bilimleri Dergisi, 21*(1), 1–12. https://doi.org/10.33689/spormetre.1128586

Bor, M. Ö. (2018). *The effect of therapeutic recreational activities on the social development of children with Down syndrome: The example of Elazig province* (Master's thesis). Fırat University, Department of Recreation Management.

Borland, R. L., Cameron, L. A., Tonge, B. J., & Gray, K. M. (2022). Effects of physical activity on behavior and emotional problems, mental health, and psychosocial well-being in children and adolescents with intellectual disability: A systematic review. *Journal of Applied Research in Intellectual Disabilities, 35*(2), 399–420. https://doi.org/10.1111/jar.12961

Channell, M. M., Mattie, L. J., Hamilton, D. R., Capone, G. T., Mahone, E. M., ... & Down Syndrome Cognition Project. (2021). Capturing cognitive and behavioral variability among individuals with Down syndrome: A latent profile analysis. *Journal of Neurodevelopmental Disorders, 13*, Article 1. https://doi.org/10.1186/s11689-021-09365-2

Dapp, L. C., Gashaj, V., & Roebers, C. M. (2021). Physical activity and motor skills in children: A differentiated approach. *Psychology of Sport and Exercise, 54*, 101916. https://doi.org/10.1016/j.psychsport.2021.101916

Erdemir, E., & Brutt-Griffler, J. (2020). Vocabulary development through peer interactions in early childhood: A case study of an emergent bilingual child in preschool. *International Journal of Bilingual Education and Bilingualism, 25*(3), 834–865. https://doi.org/10.1080/13670050.2020.1722058

Eren, A., Gec, F., & Calış, D. (2019). A study on visual arts education in children with Down syndrome. *Journal of Academic Social Research, 97*(7), 178–190. http://doi.org/10.9779/pauefd.1271893

Ferjan Ramírez, N., Lytle, S. R., & Kuhl, P. K. (2020). Parent coaching increases conversational turns and advances infant language development. *Proceedings of the*

National Academy of Sciences, 117(7), 3484–3491. https://doi.org/10.1073/pnas.1921653117

Franco, E., Ocete, C., Pérez-Calzado, E., & Berástegui, A. (2023). Zihinsel engelli kişilerde fiziksel aktivite ve yaşam kalitesi: Cinsiyetin ve uygulama özelliklerinin rolü. *Davranış Bilimleri, 13*(9), 773. https://doi.org/10.3390/bs13090773

Gao, Z., Lee, J. E., McDonough, D. J., & Albers, C. (2020). Virtual reality exercise as a coping strategy for health and wellness promotion in older adults during the COVID-19 pandemic. *Journal of Clinical Medicine, 9*(6), 1986. https://doi.org/10.3390/jcm9061986

Hitchings, R., & Latham, A. (2019). Qualitative methods I: On current conventions in interview research. *Progress in Human Geography, 44*(2), 389–398. https://doi.org/10.1177/0309132519856412

Ilkim, M., Ozoğlu, F., Simsek, E., & Keskin, M. T. (2021). Parents' evaluation of happiness and self-esteem levels of Down syndrome individuals who participate in regular physical activity and those who do not (The Malatya province example). *ROL Spor Bilimleri Dergisi, 2*(2), 65–71. https://doi.org/10.29228/roljournal.49921

Jung, H. K., Chung, E., & Lee, B. H. (2017). A comparison of the function, activity and participation and quality of life between Down syndrome children and typically developing children. *Journal of Physical Therapy Science, 29*(8), 1377–1380. https://doi.org/10.1589/jpts.29.1377

Lersilp, S., Putthinoi, S., & Panyo, K. (2016). Fine motor activities program to promote fine motor skills in a case study of Down's syndrome. *Global Journal of Health Science, 8*(12), 60–67. http://doi.org/10.5539/gjhs.v8n12p60

Martín-Rodríguez, A., Gostian-Ropotin, L. A., Beltrán-Velasco, A. I., Belando-Pedreño, N., Simón, J. A., López-Mora, C., Navarro-Jiménez, E., Tornero-Aguilera, J. F., & Clemente-Suárez, V. J. (2024). Sporting mind: The interplay of physical activity and psychological health. *Sports, 12*(1), 37. https://doi.org/10.3390/sports12010037

Onnivello, S., Pulina, F., Locatelli, C., Marcolin, C., Ramacieri, G., Antonaros, F., ... & Lanfranchi, S. (2022). Cognitive profiles in children and adolescents with Down syndrome. *Scientific Reports, 12*(1), 1936. https://doi.org/10.1038/s41598-022-05825-4

Romano, M., Kaiser, A., Lounds-Taylor, J., & Woods, J. (2020). Rates of prelinguistic communication and early symbol use in young children with Down syndrome: Using a progress-monitoring tool to model growth. *American Journal of Speech-Language Pathology, 29*(1), 49–62. https://doi.org/10.1044/2019_AJSLP-19-0016

Sammari, E., & Naceur, A. (2022). The effectiveness of an intervention program for the development of social and emotional capacities of children with a hearing impairment. *Psychology, 13*(7), 1025–1062. http://doi.org/10.4236/psych.2022.137070

Şenlik, Z. A., Kul, M., Karataş, İ., & Mulhim, M. A. (2017). The effect of physical education and sports lessons on the psychological adaptation levels of children with Down syndrome. *International Journal of Cultural and Social Research, 3*(2), 263–282.

Tekin, S. S., & Tekin, F. (2021). Activity participation and quality of life with adolescents with Down syndrome. *Journal of Exercise Therapy and Rehabilitation, 8*(3), 245–253. http://doi.org/10.15437/jetr.840003

Tong, F. (2022). Breaking down: A critical discourse analysis of John Langdon Down's (1866) classification of people with trisomy 21 (Down syndrome). *Critical Discourse Studies, 19*(6), 648–666. https://doi.org/10.1080/17405904.2021.1933117

Uygur, E. H., & Aslan, S. (2024). The effects of remote education-based game activities on the motor skills of children with Down syndrome. *Pamukkale University Journal of Education Faculty, 61*, 214–235. https://doi.org/10.9779/pauefd.1271893

Van der Woude, L. H. V., Houdijk, H. J. P., Janssen, T. W. J., Seves, B., Schelhaas, R., ... & Vegter, R. J. K. (2021). Rehabilitation: Mobility, exercise & sports; a critical position

stand on current and future research perspectives. *Disability and Rehabilitation, 43*(24), 3476–3491. https://doi.org/10.1080/09638288.2020.1806365

Yarımkaya, E., İlhan, E. L., & Gençer, E. (2016). The effect of physical education and sports activities on the psychological adaptation levels of children. *Journal of Physical Education and Sports Sciences, 10*(1), 141–152.

Yazıcı, M., & Kepenek-Varol, B. (2021). An investigation of physical activity and performance level in children with Down syndrome. *Turkiye Klinikleri Journal of Health Sciences, 6*, 69–77. https://doi.org/10.5336/healthsci.2020-75044

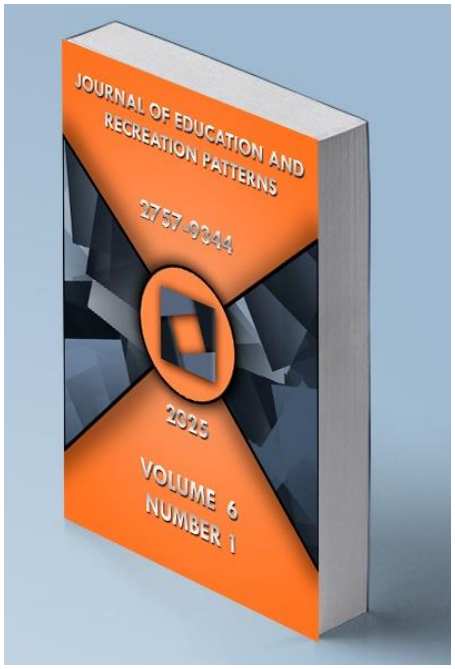
Zimmer, C., McDonough, M. H., Hewson, J., Toohey, A., Din, C., ... & Bennett, E. V. (2021). Experiences with social participation in group physical activity programs for older adults. *Journal of Sport & Exercise Psychology, 43*(4), 335–344. https://doi.org/10.1123/jsep.2020-0335

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

An Examination of Ecological Attitude and Nature Relatedness Among Young Adults Participating in Outdoor Recreation Activities

İbrahim Hakkı KAYNAK[1], Mustafa Sabır BOZOĞLU[2], Alper KAYA[3], Sude KILINÇ[4]

To cite this article:

Kaynak, İ.H., Bozoğlu, M.S., Kaya, A. & Kılınç, S. (2025). An examination of ecological attitude and nature relatedness among young adults participating in outdoor recreation activities. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 54-71. DOI: https://doi.org/10.53016/jerp.v6i1.300

[1] Faculty of Tourism, Necmettin Erbakan University, ihkaynak@erbakan.edu.tr, https://orcid.org/0000-0001-5552-6673
[2] Faculty of Tourism, Necmettin Erbakan University, mbozoglu@erbakan.edu.tr, https://orcid.org/0009-0002-2696-6105
[3] Faculty of Tourism, Necmettin Erbakan University, akaya@erbakan.edu.tr, https://orcid.org/0000-0002-0364-4122
[4] Institute of Social Sciences, Necmettin Erbakan University, sudekilinc@outlook.com, https://orcid.org/0000-0002-6473-0374

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

An Examination of Ecological Attitude and Nature Relatedness Among Young Adults Participating in Outdoor Recreation Activities

İbrahim Hakkı Kaynak[1], Mustafa Sabır Bozoğlu[2], Alper Kaya[3], Sude Kılınç[4]

ARTICLE INFORMATION
Original Research Paper

Received 02.05. 2025
Accepted 19.06. 2025

https://jerpatterns.com

June, 2025
Volume: 6, No: 1
Pages: 54-71

ABSTRACT
Outdoor recreation activities facilitate individuals' connection with nature. The close contact with nature that such activities provide can positively influence individuals' ecological attitudes and interest in the natural environment. In today's era, where urbanization heavily interferes with human life, both outdoor recreation activities and the resulting interest and attitudes toward nature have gained increasing importance. Accordingly, this study aimed to examine the relationship between ecological attitude and nature relatedness among young adults who regularly participate in outdoor recreation activities. A total of 461 university students who regularly engage in outdoor recreation activities participated in the study. In addition to a demographic information form that included variables such as gender, perceived income level, frequency of participation (monthly), and type of outdoor recreation activity, two measurement tools were employed: the "Nature Relatedness Scale (NRS)" to assess participants' connection with nature, and the "New Ecological Paradigm Scale (NEP)" to measure ecological attitudes. Data were analyzed using SPSS 24. Skewness and kurtosis tests indicated normal distribution of the data, and thus parametric tests were conducted. The findings revealed no meaningful differences in ecological attitudes or nature relatedness based on gender, income level, or participation frequency. However, individuals who engaged in outdoor activities individually rather than in groups exhibited notably stronger emotional bonds with nature. Furthermore, the results demonstrated a moderate and statistically significant positive relationship between participants' nature relatedness and ecological attitudes. This suggests that individuals with a stronger psychological and emotional connection to nature tend to adopt more environmentally responsible and ecologically aware perspectives.

Keywords: Nature relatedness, Ecological attitude, Outdoor recreation.

INTRODUCTION

According to data from the Turkish Statistical Institute, 67.9% of the country's population resides in highly urbanized areas, 14.8% in moderately urbanized areas, and 17.3% in rural areas (TUIK, 2023). Urbanization is recognized as one of the major challenges of the 21st century. The high population density observed in urban areas can lead to numerous environmental and social problems, significantly impacting both human health and the natural environment. Nature is particularly vulnerable to the disruptions associated with urban lifestyles and practices. Moreover, urbanization may trigger profound shifts in individuals' daily routines and ways of living. These lifestyle changes can have long-term effects on individual health and may contribute to broader public health issues. More broadly, mental and physical well-being are closely linked to exposure to natural environments (Bratman et al., 2019; Çetinkaya, 2013; Hartig et al., 2013; Shanahan, 2016). Engagement with and interest in nature have been shown to positively affect individuals' quality of life. Various benefits are associated with contact with nature, including reduced stress levels (Fan et al., 2011; Stigsdotter et al., 2010), decreased symptoms of depression (Nutsford et al., 2013; Taylor et al., 2015), lower anxiety (Beyer et al., 2014; Song et al., 2015), and enhanced happiness and life satisfaction (Fleming et al., 2016; Larson et al., 2016). These benefits often motivate individuals to spend more time in nature and engage in nature-based recreational activities.

Outdoor recreation encompasses a wide range of activities that bring individuals into direct contact with natural settings. These activities commonly occur in environments such as mountains, national parks, forests, and lakes. Beyond offering opportunities for leisure, such settings also facilitate personal growth and development. Participation in outdoor activities helps individuals become more familiar with nature while improving their skills and knowledge in a meaningful way (D'Amato et al., 2011; Lekies et al., 2015). Involvement in outdoor recreation may also strengthen interest in nature and cultivate more positive ecological attitudes. In this context, examining ecological attitude and nature relatedness—both potential outcomes of outdoor recreation participation—is of particular importance. Interest in nature refers to an individual's curiosity, desire to explore, and voluntary engagement with the natural environment. It encompasses both emotional and cognitive orientation toward nature and is often associated with environmental awareness, pro-environmental behavior, and ecological attitudes (Kals, Schumacher & Montada, 1999; Cheng & Monroe, 2012). Ecological attitude refers to an individual's evaluative tendencies—cognitive, affective, and behavioral—toward nature and the environment. It encompasses sensitivity to environmental issues, a sense of responsibility for ecological preservation, and a predisposition toward sustainable behaviors (Dunlap & Van Liere, 1978; Milfont & Duckitt, 2010).A growing body of research has recently emerged examining the link between outdoor recreation and participants' environmental attitudes (Puhakka, 2024; Vasilaki et al., 2025). Specifically, several studies have explored how outdoor recreation influences nature relatedness and ecological attitudes (Bjerke, 2006; Emmons, 1997; Ewert et al., 2005; Kim et al., 2021; Shin & Van Riper, 2025; Tarrant & Green, 1999; Thapa, 2010).

However, studies focusing on the connection between nature-based recreational activities and levels of nature relatedness and ecological attitude among young adults remain limited. Therefore, this study aimed to examine the relationship between nature relatedness and ecological attitude in young adults who regularly participate in outdoor recreational activities. In line with this aim, the study addressed the following research questions:

- Does gender significantly affect ecological attitude and nature relatedness?
- Do perceived levels of well-being influence ecological attitudes and nature relatedness?
- Are there significant differences in ecological attitudes and nature relatedness based on the type and frequency of outdoor recreation participation?

- Is there a relationship between nature relatedness and ecological attitude among young adults who engage in outdoor recreational activities?

Outdoor Recreation

In its simplest form, outdoor recreation refers to leisure activities carried out in natural environments, though it also encompasses human-made and urban open-air settings. Outdoor recreation contributes to individuals' psychological and emotional renewal, supporting overall well-being. Engaging in outdoor recreational activities allows individuals to socialize and experience cultural enrichment. This broad category includes land-, water-, air-, and sea-based activities such as hiking, sightseeing, paragliding, free diving, scuba diving, swimming, surfing, mountaineering, and climbing (Jenkins & Pigram, 2006; Phipps, 1990).

In recent years, outdoor recreation has become an increasingly popular and prominent area of academic inquiry. Studies on the topic have addressed a variety of themes including well-being (Fagerholm et al., 2021), motivation (Hu & Zhao, 2022; Humagain & Singleton, 2021; Pröbstl-Haider et al., 2023), nature connectedness (Beery et al., 2021), leisure satisfaction (Lee et al., 2023), environmental sensitivity (Chi, 2022), constraints and facilitators (McCormack et al., 2023; Menzies et al., 2021), self-efficacy (Powell et al., 2023), sustainability and ecology (Miller et al., 2022; Morse et al., 2022), destination loyalty (Karagiorgos et al., 2023), climate change (Pröbstl-Haider et al., 2021; Wilkins et al., 2021), accessibility (Ankre & Wall-Reinius, 2024), and physical activity (Derakhshan et al., 2024; Farías-Torbidoni et al., 2024). Accordingly, outdoor recreation has been attracting growing attention within academia and is being explored in increasing depth within the field of recreation science.

While these studies provide important insights, they are largely limited to formal educational settings. Empirical investigations of nature relatedness among students who engage in self-directed outdoor recreation remain scarce, indicating a need for broader contextual exploration, which this study seeks to address.

Nature Relatedness

According to the Turkish Language Association, the term "interest" is defined as "any form of connection between two things, a sense of closeness or preference toward a particular event or activity, or the tendency to prioritize attention toward something" (TDK, 2025). Çakcı and Ekşi (2024) define nature relatedness as "a construct that seeks to explain how individuals form emotional, cognitive, and behavioral connections with their environment." Nature relatedness reflects an individual's curiosity about, enjoyment of, and active engagement with the natural world. This type of interest is often rooted in a desire to develop emotional bonds with nature (Anada et al., 2024). University students reported that spending time in natural environments during sports and leisure activities enhanced their emotional well-being and promoted stronger nature relatedness" (Hekim & Er, 2022).

A review of the literature suggests that empirical studies specifically measuring nature relatedness remain limited. Existing research has primarily focused on student populations. For instance, Saiful (2024) examined the effects of ecomusicology education on students' connection to and interest in nature, finding increased levels of nature relatedness following the educational intervention. Similarly, Saefudin et al. (2025) reported that permaculture education positively affected students' emotional and cognitive nature relatedness, as well as their environmental awareness.

Although these studies provide important findings, they are largely confined to formal educational contexts. Empirical research examining nature relatedness in the context of self-initiated participation in outdoor recreation remains quite limited. This highlights the need for broader, contextually diverse investigations.

Ecological Attitude

The Turkish Language Association defines the term “attitude” as “a stance, demeanor, or behavior,” and “ecology” as “the scientific discipline that studies the relationships between living organisms and their environments, either individually or collectively” (TDK, 2025). Ecological attitude refers to individuals’ behaviors and orientations toward the environment. Such attitudes are shaped by a combination of social and psychological values and are also influenced by personal beliefs and behaviors (Biswas, 2020).

The literature shows that ecological attitude has been examined in relation to a range of topics, including environmental concern (Wu et al., 2024), nature connectedness (Zhao et al., 2025), recreational value (Khalili Ardali et al., 2024), flow experiences (Han, 2023), nature-based tourism (Luzar et al., 1995), sustainability (Simonavičė et al., 2024), global warming (Kosic et al., 2024), and sustainable leisure activities (Zarei et al., 2024).

Nevertheless, empirical studies directly linking ecological attitude to the recreational behaviors of university students—particularly in non-formal, non-touristic outdoor settings—remain sparse. The current research aims to fill this empirical void by focusing on ecological attitudes within the context of voluntary outdoor recreation.

METHOD

Research Design

This study aimed to investigate the relationship between nature relatedness and ecological attitude among individuals who regularly participate in outdoor recreation activities. Therefore, it was designed according to the principles of quantitative research. A correlational survey design was employed, which is defined as a methodological approach used to examine the relationships between two or more variables (Büyüköztürk et al., 2017).

Population and Sample

The study population consisted of undergraduate students enrolled at Necmettin Erbakan University during the Spring Semester of the 2024–2025 academic year, categorized as young adults. During this period, the total number of undergraduate students at the university was 27,321. In order to achieve a 95% confidence level with a 5% margin of error, it was calculated that data should be collected from at least 379 individuals. The study sample comprised students who regularly participated in outdoor recreational activities. A simple random sampling method was used for participant selection. Students who did not engage in such activities were excluded from the study, resulting in a final sample of 461 students who met the participation criteria (see Table 1).

Table 1.

Demographic Characteristics of the Participants

Variables		n	%
Gender	Female	306	66,4
	Male	155	33,6
Perceived Income Level	Low	146	31,7
	Medium	286	62,0
	High	29	6,3
Frequency of Participation in Outdoor Recreation Activities (Monthly)	1-2 times	323	70,1
	3-4 times	100	21,7
	5-6 times	21	4,5

	7 and more	17	3,7
General Type of Participation in Outdoor Recreation Activities	Individual participation	184	39,9
	Group participation	277	60,1

As presented in Table 1, 66.4% of the participants were female. A majority of respondents (62.0%) reported a perceived income level categorized as medium. Most participants (70.1%) stated that they engage in outdoor recreation activities one to two times per month. Furthermore, 60.1% indicated that they generally participate in such activities as part of a group.

Data Collection Instruments

In this study, a demographic information form developed by the researchers was used to collect data on participants' gender, perceived income level, type of participation, and frequency of participation in outdoor recreation activities. In addition, the Nature Relatedness Scale (NRS) was employed to measure participants' levels of nature relatedness, and the New Ecological Paradigm Scale (NEP) was used to assess their ecological attitudes.

Nature Relatedness Scale (NRS): The Nature Relatedness Scale was originally developed by Kleespies et al. (2021) and adapted into Turkish by Çakcı and Ekşi (2024), who verified its validity and reliability. The scale comprises 9 items and consists of three subdimensions: Emotional Connection, Cognitive Connection, and Value. Items 1 to 3 correspond to the Emotional Connection subdimension, items 4 to 6 to the Cognitive Connection subdimension, and items 7 to 9 to the Value subdimension. The instrument is structured as a 5-point Likert-type scale ranging from "1 = Strongly Disagree" to "5 = Strongly Agree." The original version reported a Cronbach's alpha of .93. In the current study, the overall Cronbach's alpha was calculated as .90. For the subdimensions, the reliability coefficients were .86 for Emotional Connection, .66 for Cognitive Connection, and .83 for Value.

New Ecological Paradigm Scale (NEP): The New Ecological Paradigm Scale was developed by Dunlap et al. (2000) and adapted into Turkish by Demirel, Gürbüz, and Karaküçük (2009), who conducted the necessary validity and reliability analyses. The scale consists of 12 items and utilizes a 5-point Likert-type response format ranging from "1 = Strongly Disagree" to "5 = Strongly Agree." In the original development study, the Cronbach's alpha coefficient was reported as .72. In the present study, it was calculated as .76.

Table 2.

Reliability Test Results

Scale	n	Mean	Alpha
New Ecological Paradigm (NEP)	461	3,28	0,76
Nature Relatedness (NRS)		3,76	0,90
NRS – Emotional Connection		3,82	0,86
NRS – Cognitive Connection		3,59	0,66
NRS – Value		3,88	0,83

Data Analysis

The data collected for the study were analyzed using the SPSS 24 statistical software package. To assess the normality of the data distribution, skewness and kurtosis tests were conducted. The results indicated that the values fell within the acceptable range of +1.5 to -1.5, suggesting a normal distribution. According to Tabachnick and Fidell (2013), skewness and kurtosis values within this interval are indicative of normality. Given that the data were normally distributed, parametric test methods were applied. Independent samples t-tests and

one-way ANOVA were used to examine statistically significant differences in the measurement instruments across variables. Additionally, Pearson correlation analysis was performed to explore the relationships between the measurement instruments.

To evaluate the validity of the model used in the study, confirmatory factor analysis (CFA) was conducted. The overall model fit indices revealed a statistically significant chi-square value ($\chi^2(183) = 611.485$, $p < .001$). This result aligns with findings in the literature indicating that the chi-square test may disproportionately reject model fit in large samples (Kline, 2016). Other fit indices demonstrated acceptable values: CFI = .891, TLI = .875, RMSEA = .071 (90% CI = [0.064, 0.078]), and SRMR = .070. According to Hu and Bentler's (1999) recommended thresholds, while CFI and TLI fall slightly below the ideal cutoff of .90, the RMSEA and SRMR values fall within acceptable limits. Specifically, an RMSEA below .08 and an SRMR of .08 or lower suggest an acceptable level of model fit. Based on these results, the construct validity of the model can be considered generally adequate.

Ethical approval for this study was granted by the Ethics Committee for Scientific Research in Social and Human Sciences at Necmettin Erbakan University on May 2, 2025, with decision number 2025/365.

FINDINGS

Table 3.

Independent Samples t-Test Results by Gender

Scale	Group	n	x	Sd	t	p	Cohen's *d*
New Ecological Paradigm (NEP)	Female	306	3,28	0,42	0,22	0,83	-0,02
	Male	155	3,27	0,49			
Nature Relatedness (NRS)	Female	306	3,78	0,83	0,76	0,45	-0,08
	Male	155	3,72	0,90			
NRS – Emotional Connection	Female	306	3,82	0,87	-0,09	0,93	-0,14
	Male	155	3,82	0,99			
NRS – Cognitive Connection	Female	306	3,62	1,08	0,79	0,43	-0,08
	Male	155	3,54	0,99			
NRS – Value	Female	306	3,92	0,85	1,37	0,17	0,01
	Male	155	3,80	0,93			

$p<0.05$

As shown in Table 3, participants' scores on the Nature Relatedness Scale (NRS) and the New Ecological Paradigm Scale (NEP) were compared by gender using independent samples t-tests. The analysis revealed no statistically significant differences between genders across the following variables: Emotional Connection ($t(458) = -0.09$, $p = .932$), Cognitive Connection ($t(458) = 0.79$, $p = .431$), Value ($t(458) = 1.37$, $p = .171$), total NRS score ($t(458) = 0.76$, $p = .446$), and NEP score ($t(270.11) = 0.22$, $p = .825$), all at the $p>0.05$ level. Effect size values (Cohen's *d*) were calculated as follows: $d = 0.01$ for Emotional Connection, $d = -0.08$ for Cognitive Connection, $d = -0.14$ for Value, $d = -0.08$ for total NRS, and $d = -0.02$ for NEP. Based on Cohen's (1988) classification, these effect sizes are considered very small.

Table 4.

ANOVA Results by Perceived Income Level

Scale	Group	n	x	sd	df	f	p	Significant Difference
New Ecological Paradigm (NEP)	Low	146	3,23	0,49	2-458	2,92	0,06	-
	Medium	286	3,29	0,42				
	High	29	3,43	0,47				
Nature Relatedness (NRS)	Low	146	3,73	0,88	2-458	0,19	0,83	-
	Medium	286	3,78	0,82				
	High	29	3,74	1,07				
NRS – Emotional Connection	Low	146	3,73	0,97	2-458	1,37	0,26	-
	Medium	286	3,85	0,87				
	High	29	4,00	0,98				
NRS – Cognitive Connection	Low	146	3,61	0,96	2-458	0,17	0,84	-
	Medium	286	3,60	1,08				
	High	29	3,48	1,21				
NRS – Value	Low	146	3,85	0,89	2-458	0,19	0,59	-
	Medium	286	3,91	0,83				
	High	29	3,75	1,19				

$p<0.05$

As shown in Table 4, a one-way analysis of variance (ANOVA) was performed to examine whether participants' perceived income level led to significant differences in scores on the New Ecological Paradigm Scale (NEP) and the Nature Relatedness Scale (NRS). The results indicated that perceived income level did not yield any statistically significant differences in either NEP or NRS scores ($p>0.05$).

Table 5.

One-Way ANOVA Results Based on Monthly Frequency of Participation in Outdoor Recreation Activitie

Scale	Group	n	x	sd	df	f	p	Significant Difference
New Ecological Paradigm (NEP)	1-2 times	323	3,25	0,44	3-457	1,79	0,148	-
	3-4 times	100	3,36	0,44				
	5-6 times	21	3,33	0,49				
	7 and more	17	3,36	0,45				
Nature Relatedness (NRS)	1-2 times	323	3,72	0,86	3-457	1,58	0,194	-
	3-4 times	100	3,89	0,78				
	5-6 times	21	3,95	0,81				
	7 and more	17	3,63	1,15				
NRS – Emotional Connection	1-2 times	323	3,78	0,91	3-457	1,19	0,314	-
	3-4 times	100	3,95	0,85				
	5-6 times	21	3,92	0,88				
	7 and more	17	3,63	1,21				
NRS – Cognitive Connection	1-2 times	323	3,54	1,08	3-457	1,64	0,18	-
	3-4 times	100	3,71	0,91				
	5-6 times	21	3,95	0,86				
	7 and more	17	3,43	1,35				
NRS – Value	1-2 times	323	3,83	0,89	3-457	1,34	0,26	-

3-4 times	100	4,02	0,81
5-6 times	21	3,98	0,78
7 and more	17	3,82	1,01

p<0.05

As shown in Table 5, a one-way analysis of variance (ANOVA) was conducted to investigate whether participants' scores on the New Ecological Paradigm Scale (NEP) and the Nature Relatedness Scale (NRS) differed significantly based on their monthly frequency of participation in outdoor recreation activities. The results indicated that frequency of participation did not result in any statistically significant differences in either NEP or NRS scores (p>0.05).

Table 6.

Independent Samples t-Test Results by Type of Participation in Outdoor Recreation Activities

Scale	Group	n	x	Sd	t	p	Cohen's *d*
New Ecological Paradigm (NEP)	Individual Participation	184	3,25	0,46	-1,01	0,313	0,10
	Group Participation	277	3,30	0,44			
Nature Relatedness (NRS)	Individual Participation	184	3,83	0,87	1,41	0,158	-0,13
	Group Participation	277	3,72	0,84			
NRS – Emotional Connection	Individual Participation	184	3,93	0,93	2,16	**0,031**	-0,03
	Group Participation	277	3,75	0,89			
NRS – Cognitive Connection	Individual Participation	184	3,67	0,98	0,777	0,185	-0,13
	Group Participation	277	3,54	1,10			
NRS – Value	Individual Participation	184	3,89	0,95	0,28	0,777	-0,20
	Group Participation	277	3,87	0,83			

p<0.05

As shown in Table 6, participants' environmental attitudes and levels of nature relatedness were compared based on their mode of participation in nature-based activities—either individually or in groups—using independent samples t-tests. No statistically significant difference was found between individual participants (M = 3.25, SD = 0.46) and group participants (M = 3.30, SD = 0.44) in terms of their scores on the New Ecological Paradigm Scale (NEP) (p >0.05). Similarly, no significant difference was observed in total scores on the Nature Relatedness Scale (NRS), t(459) = 1.41, p = .158, Cohen's d = -0.13. The mean score for individual participants was M = 3.83 (SD = 0.87), while that for group participants was M = 3.72 (SD = 0.84). At the subscale level, however, a statistically significant difference was found only in the Emotional Connection subdimension (p<0.05).

Table 7.

Correlation Between the Measurement Instruments

Scale	NRS – Emotional Connection	NRS – Cognitive Connection	NRS – Value	Nature Relatedness (NRS)	New Ecological Paradigm (NEP)
NRS – Emotional Connection	—				
NRS – Cognitive Connection	0.70***	—			
NRS – Value	0.75***	0.70***	—		
Nature Relatedness (NRS)	0.90***	0.90***	0.90***	—	
New Ecological Paradigm (NEP)	0.50***	0.34***	0.50***	0.49***	—

Note. n = 461. * p < .05, ** p < .01, *** p < .001.

As shown in Table 7, strong positive correlations were found among the subdimensions of the Nature Relatedness Scale (NRS)—namely, Emotional Connection, Cognitive

Connection, and Value. Specifically, the correlation between Emotional Connection and Cognitive Connection was r = .70, p<0.001; between Emotional Connection and Value, r = .75, p<0.001; and between Cognitive Connection and Value, r = .70, p<0.001. Very strong positive correlations were also observed between the total NRS score and its subdimensions: Emotional Connection (r = .90, p<0.001), Cognitive Connection (r = .90, p<0.001), and Value (r = .90, p<0.001). These results suggest that the subdimensions are highly integrated into the overall structure of the scale. In addition, significant positive correlations were found between the New Ecological Paradigm Scale (NEP) and both the total NRS score and its subdimensions. The NEP showed the strongest correlations with Emotional Connection (r = .50, p<0.001) and Value (r = .50, p<0.001), while moderate but statistically significant correlations were observed with Cognitive Connection (r = .34, p<0.001) and the total NRS score (r = .49, p<0.001). (r = .49, p<0.001).

DISCUSSION

In this study, which aimed to examine the relationship between nature relatedness and ecological attitude among individuals who participate in outdoor recreation activities, no statistically significant gender differences were found in scores on the Nature Relatedness Scale (NRS) and the New Ecological Paradigm Scale (NEP). However, the results indicated that, on average, female participants demonstrated higher levels of both nature relatedness and ecological attitude compared to their male counterparts (see Table 3). This outcome may reflect a greater level of environmental and ecological awareness among female participants. Supporting this interpretation, Çelik and Küçük (2022) reported that women displayed higher environmental awareness than men. Similarly, Gyurián Nagy (2025) found that women exhibited higher ecological attitude scores. Several other studies align with these findings (Corraliza et al., 2013; Costache & Sencovici, 2019; Halkos & Matsiori, 2015; Hosseinnezhad, 2017; Reyna, 2018). In contrast, some studies have reported statistically significant gender differences, suggesting results that contradict the current findings (Johnson et al., 2004; Pienaar et al., 2013; Zelezny et al., 2000).

No statistically significant differences were found in participants' NEP and NRS scores based on perceived income levels (see Table 4). Nonetheless, participants who reported medium or high income levels generally exhibited higher scores on both scales. Individuals with higher financial means may develop stronger ecological attitudes due to greater access to natural environments. Supporting this explanation, several studies have shown that higher income levels are associated with more positive environmental attitudes (Alam & Zakaria, 2021; Du et al., 2024; Franzen & Meyer, 2010). However, conflicting evidence also exists. For instance, some studies report that income level significantly influences ecological attitudes and interest in nature (Hosseinnezhad, 2017; Marcineková et al., 2024; Ntanos et al., 2019), while others support the present study's findings by reporting no significant differences (Denis & Pereira, 2017; Wiidegren, 1998).

Likewise, no statistically significant differences were identified in NEP or NRS scores based on participants' monthly frequency of outdoor recreation participation (see Table 5). Nevertheless, the data suggest that participants who engage in such activities 1–2 times per month tend to report higher levels of nature relatedness. This may be due to the emotional, cognitive, and value-based satisfaction derived from moderate, yet consistent, engagement with nature. For instance, a study by Gömülütaş and Gençay (2024) found no relationship between hiking frequency and environmental behavior. In contrast, Ceran (2023) observed that individuals who camp several times a week reported significantly stronger feelings of nature connectedness and integration with the natural environment. These findings partially align with the present study.

Regarding the type of participation, no significant difference was observed in NEP scores between individuals who engaged in outdoor recreation activities individually and those who participated as part of a group (see Table 6). However, a significant difference emerged in the Emotional Connection subdimension of the NRS, with individual participants scoring higher. This suggests that individuals who experience nature alone may form a deeper, more personal, and emotionally resonant connection with the natural environment than those who engage in group-based activities. Supporting this, outdoor serious leisure activities participants showed significantly lower levels of aggressive attitudes compared to their indoor counterparts (Kavlak & Aksu, 2023). Finally, results from the correlation analysis indicated a significant positive relationship between nature relatedness and ecological attitude (see Table 7). Specifically, increases in individuals' emotional connection to and valuation of nature appear to correspond with stronger ecological attitudes. These findings highlight the potential of fostering nature relatedness as a means to promote more environmentally conscious attitudes and behaviors. In this context, the Biophilia Hypothesis (Wilson, 1984), which posits that humans have an innate tendency to seek connections with nature and other life forms, provides a useful theoretical lens to interpret the observed relationship between emotional connection and ecological concern. Similarly, the concept of Environmental Identity (Clayton, 2003) may help explain how deeply rooted connections with nature influence pro-environmental attitudes.

In terms of practical implications, these findings can inform the development of university-based programs and recreational planning efforts aimed at strengthening students' connection with nature. For instance, higher education institutions may promote solo or small-group nature immersion experiences that emphasize emotional and reflective engagement with natural environments. Recreation planners can also design outdoor activities that facilitate personal interaction with nature, thereby potentially enhancing ecological attitudes among young adults.

Conclusion

Based on the findings of this study, it can be concluded that women who participate in outdoor recreation activities exhibit higher levels of nature relatedness and ecological attitude. Furthermore, individuals with higher perceived income levels and those who engage in outdoor recreation individually tend to report a greater interest in nature.

Overall, an increase in individuals' connection to nature may positively contribute to the development of ecological attitudes. In particular, the dimensions of valuing nature and forming an emotional bond with the natural world may help individuals adopt a more holistic and responsible perspective toward the environment.

Recommendation

Various projects can be designed to encourage young adults who regularly participate in outdoor recreation activities to develop a deeper connection with nature. Awareness-raising programs may be implemented to enhance participation in outdoor activities among this demographic. Future research could involve larger sample sizes and focus on specific types of outdoor recreation activities (e.g., mountaineering, trekking). The relationship between outdoor recreation and nature could also be investigated using alternative measurement models. Additionally, mixed-method research designs may be employed to gain deeper insight into the underlying factors influencing the observed results.

Limitations

The sample group of this study was limited to students from Necmettin Erbakan University who regularly participate in outdoor recreation activities. Moreover, the study did not focus on any specific type of outdoor recreation, and all participants were university students categorized as young adults. These factors constitute the primary limitations of the

research. Expanding the sample in future studies could enable a more comprehensive understanding of the relationship between nature relatedness and ecological attitude. Broadening the scope of the research may also enhance understanding of the broader concepts of outdoor recreation and the human–nature connection.

REFERENCES

Alam, M. M., & Zakaria, A. F. M. (2021). A Probit Estimation of Urban Bases of Environmental Awareness: Evidence from Sylhet City, Bangladesh. arXiv preprint arXiv:2107.08342. https://doi.org/10.48550/arXiv.2107.08342

Ananda, F., Sastria, E., & Zebua, D. R. Y. (2024). Nature ınterest: Comparison between students of science-related study programs and non-science-related study programs at the Kerinci State Islamic Institute. *Journal of Science and Science Education,* 5(2), 88-99. https://jppipa.unram.ac.id/index.php/jossed/article/view/8968

Ankre, R., & Wall-Reinius, S. (2024). Nature for everyone? Planning perspectives on accessibility, disability and participation in the Swedish outdoors. *Planning Practice & Research,* 39(5), 793-812. https://doi.org/10.1080/02697459.2024.2358281

Beery, T., Olsson, M. R., & Vitestam, M. (2021). Covid-19 and outdoor recreation management: Increased participation, connection to nature, and a look to climate adaptation. *Journal of Outdoor Recreation and Tourism,* 36, 100457. https://doi.org/10.1016/j.jort.2021.100457

Beyer, K. M., Kaltenbach, A., Szabo, A., Bogar, S., Nieto, F. J., & Malecki, K. M. (2014). Exposure to neighborhood green space and mental health: evidence from the survey of the health of Wisconsin. *International Journal of Environmental Research And Public Health*, 11(3), 3453-3472. https://doi.org/10.3390/ijerph110303453.

Biswas, A. (2020). A nexus between environmental literacy, environmental attitude and healthy living. *Environmental Science and Pollution Research,* 27(6), 5922-5931. https://doi.org/10.1007/s11356-019-07290-5

Bjerke, T., And, C. T., & Kleiven, J. (2006). Outdoor recreation interests and environmental attitudes in Norway. *Managing Leisure,* 11(2), 116-128. https://doi.org/13606710500520197

Bratman, G. N., Anderson, C. B., Berman, M. G., Cochran, B., De Vries, S., Flanders, J., ... & Daily, G. C. (2019). Nature and mental health: An ecosystem service perspective. *Science Advances*, *5*(7), eaax0903. https://doi.org/10.1126/sciadv.aax0903

Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2017). *Bilimsel araştırma yöntemleri.* Ankara: Pegem Akademi.

Ceran, E. (2023). Serbest Zamanlarında Doğa ve Macera Kampı Yapan Bireylerin Psikolojik İyi Oluş Düzeyleri ve Doğaya Bağlılıkları Arasındaki İlişkinin İncelenmesi: İzmir İli Örneği. T.C. Manisa Celal Bayar Üniversitesi Sosyal Bilimler Enstitüsü Rekreasyon Anabilim Dalı, Manisa.

Cheng, J. C.-H., & Monroe, M. C. (2012). Connection to nature: Children's affective attitude toward nature. *Environment and Behavior,* 44(1), 31–49. https://doi.org/10.1177/0013916510385082

Chi, N. T. K. (2022). Environmentally responsible behaviour in outdoor recreation: The moderating impact of COVID-19 related risk perception. *Journal of Tourism Futures.* 1-16. https://www.emerald.com/insight/content/doi/10.1108/jtf-09-2021-0234/full/html

Clayton, S. (2003). Environmental identity: A conceptual and an operational definition. In S. Clayton & S. Opotow (Eds.), *Identity and the Natural Environment* (pp. 45–65). MIT Press.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.).* Lawrence Erlbaum Associates.

Corraliza, J. A., Collado, S., & Bethelmy, L. (2013). Spanish version of the new ecological paradigm scale for children. *The Spanish Journal of Psychology*, 16, E27. https://doi.org/10.1017/sjp.2013.46

Costache, A., & Sencovici, M. (2019). Age, gender and endorsement of the new ecological paradigm. *International Multidisciplinary Scientific GeoConference: SGEM, 19*(5.1), 11-22. https://www.sgem.org/index.php/elibrary-research-areas?view=publication&task=show&id=5952

Çakcı, E. ve Ekşi, H. (2024). Doğa İlgisi Ölçeğinin Türk kültürüne uyarlanması: Bir geçerlilik ve güvenirlik çalışması. A. Uslu (Ed.). 2. Bilsel Uluslararası Aspendos Bilimsel Araştırmalar Kongresi Kongre Kitabı içinde. (s. 614-627). Astana Yayınları.

Çelik, A., & Küçük, A. (2022). Toplumsal cinsiyet açısından çevre duyarlılığı: Şanlıurfa örneği. *Dicle Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi,* 12(24), 386-406. https://doi.org/10.53092/duiibfd.1142665

Çetinkaya, Ç. (2013). Eko-kentler: kent ve doğa ilişkisinde yeni bir sistem tasarımı. *Türk Bilimsel Derlemeler Dergisi*, (1), 12-16. https://dergipark.org.tr/en/pub/derleme/issue/35088/389238

D'Amato, L. G., & Krasny, M. E. (2011). Outdoor adventure education: Applying transformative learning theory to understanding instrumental learning and personal growth in environmental education. *The Journal of Environmental Education,* 42(4), 237-254. https://doi.org/10.1080/00958964.2011.581313

Demirel, M., Gürbüz, B. ve Karaküçük, S. (2009). Rekreasyonel aktivitelere katılımın çevreye yönelik tutum üzerindeki etkisi ve yeni ekolojik paradigma ölçeği'nin geçerliği ve güvenirliği. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi,* 7(2), 47-50. https://dergipark.org.tr/en/download/article-file/602567

Denis, H. D., & Pereira, L. N. (2017). Measuring the level of endorsement of the new environmental paradigm: A transnational study. *Dos Algarves: Tourism, Hospitality & Management Journal,* (23), 4-26. https://dosalgarves.com/index.php/dosalgarves/article/view/18/134

Derakhshan, P., Miller, W. C., Bundon, A., Labbé, D., Bolt, T., & Mortenson, W. B. (2024). Adaptive outdoor physical activities for adults with mobility disability: a scoping review. Frontiers in Rehabilitation Sciences, 4, 1331971. https://doi.org/10.3389/fresc.2023.1331971

Du, S., Cao, G., & Huang, Y. (2024). The effect of income satisfaction on the relationship between income class and pro-environment behavior. *Applied Economics Letters,* 31(1), 61-64. https://doi.org/10.1080/13504851.2022.2125491

Dunlap, R. E., & Van Liere, K. D. (1978). The "New Environmental Paradigm": A proposed measuring instrument and preliminary results. Journal of Environmental Education, 9(4), 10–19. https://doi.org/10.1080/00958964.1978.10801875

Dunlap, R., E., Van Liere, K., D., Mertig, A., G. & Jones, R., E. (2000). Measuring endorsement of the new ecological paradigm: A revised nep scale. *Journal Of Social Issues,* Vol.56, No:3, 425-442. https://doi.org/10.1111/0022-4537.00176

Emmons, K. M. (1997). Perceptions of the environment while exploring the outdoors: A case study in Belize. *Environmental Education Research,* 3(3), 327-344. https://doi.org/10.1080/1350462970030306

Ewert, A., Place, G., & Sibthorp, J. (2005). Early-life outdoor experiences and an individual's environmental attitudes. *Leisure Sciences,* 27(3), 225-239. https://doi.org/10.1080/01490400590930853

Fagerholm, N., Eilola, S., & Arki, V. (2021). Outdoor recreation and nature's contribution to well-being in a pandemic situation-Case Turku, Finland. *Urban Forestry & Urban Greening,* 64, 127257. https://doi.org/10.1016/j.ufug.2021.127257

Fan Y., Das, K. V., & Chen Q. (2011). Neighborhood green, social support, physical activity, and stress: Assessing the cumulative impact. *Health Place* 17(6):1202–1211. https://doi.org/10.1016/j.healthplace.2011.08.008

Farías-Torbidoni, E. I., Monserrat-Revillo, S., & Soler-Prat, S. (2024). Comparing the gendered nature of visits, recreation and physical activities in two Catalan (Spain) protected natural areas: natural and peri-urban parks. *Journal of Sport & Tourism,* 28(4), 173-196. https://doi.org/10.1080/14775085.2024.2448938

Fleming, C. M., Manning, M., & Ambrey, C. L. (2016). Crime, greenspace and life satisfaction: An evaluation of the New Zealand experience. *Landscape and Urban Planning,* 149, 1-10. https://doi.org/10.1016/j.landurbplan.2015.12.014

Franzen, A., & Meyer, R. (2010). Environmental attitudes in cross-national perspective: A multilevel analysis of the ISSP 1993 and 2000. *European Sociological Review,* 26(2), 219-234. https://doi.org/10.1093/esr/jcp018

Gömülütaş, M., & Gençay, S. (2024). Doğa kulüplerine üye rekreasyonel doğa yürüyüşçülerinin çevresel davranışlarının incelenmesi. *International Journal of Social and Humanities Sciences Research (JSHSR),* 11(104), 493-502. https://doi.org/10.5281/zenodo.10737548

Gyurián Nagy, N. (2025). Gender differences in environmental attitudes: An analysis using the NEP Scale. *Gender Issues,* 42(1), 5. https://doi.org/10.1007/s12147-024-09349-1

Halkos, G. & Matsiori, S. (2015). Environmental Attitude, Motivations and values for Marine

Han, G. S. (2023). Relationships between outdoor recreation-associated flow, pro-environmental attitude, and pro-environmental behavioral intention. *Sustainability,* 15(13), 10581. https://doi.org/10.3390/su151310581

Hartig, T., Mitchell, R., De Vries, S., & Frumkin, H. (2014). Nature and health. *Annual Review of Public Health,* 35(1), 207-228. https://doi.org/10.1146/annurev-publhealth-032013-182443

Hekim, Ö. & Er, Y. (2022). Examination of University Students' Reasons to Participate in Nature-Based Sports Leisure Activities and Leisure Constraints. *Journal of Education and Recreation Patterns (JERP), 3 (2),* 100-113. https://doi.org/10.53016/jerp.v3i2.60

Hosseinnezhad, F. (2017). A study of the new environmental paradigm scale in the context of Iran. *European Journal of Sustainable Development Research*, 1(2), 14. https://doi.org/10.20897/ejosdr.201714

Hu, B., & Zhao, J. (2022). Factors promoting nature-based outdoor recreation during the daytime and evening. *Journal of Outdoor Recreation and Tourism,* 40, 100572. https://doi.org/10.1016/j.jort.2022.100572

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal,* 6(1), 1–55. https://doi.org/10.1080/10705519909540118

Humagain, P., & Singleton, P. A. (2021). Exploring tourists' motivations, constraints, and negotiations regarding outdoor recreation trips during COVID-19 through a focus group study. *Journal of Outdoor Recreation and Tourism,* 36, 100447. https://doi.org/10.1016/j.jort.2023.100626

Jenkins, J. M., Pigram, J. J. (2006). Outdoor Recreation. In: Rojek, C., Shaw, S.M., Veal, A.J. (eds) *A handbook of leisure studies.* Palgrave Macmillan, London. https://doi.org/10.1057/9780230625181_22

Johnson, C. Y., Bowker, J. M., & Cordell, H. K. (2004). Ethnic variation in environmental belief and behavior: An examination of the new ecological paradigm in a social psychological context. *Environment and Behavior,* 36(2), 157-186. https://doi.org/10.1177/0013916503251478

Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior,* 31(2), 178–202. https://doi.org/10.1177/00139169921972056

Karagiorgos, T., Lianopoulos, Y., Alexandris, K., & Kouthouris, C. (2023). The role of brand associations on the development of place attachment into outdoor adventure tourism destinations. *Journal of Outdoor Recreation and Tourism,* 42, 100617. https://doi.org/10.1016/j.jort.2023.100617

Kavlak, H.T. & Aksu, H.S. (2023). The effect of attitudes towards physical violence and demographic variables on serious leisure time activity choice. *Journal of Education and Recreation Patterns (JERP), 4 (2),* 495-506. https://doi.org/10.53016/jerp.v4i2.173

Kellert, S. R., & Wilson, E. O. (1993). *The Biophilia hypothesis*. Island Presss.

Khalili Ardali, Z., Amirnejad, H., Mohammadi Limaei, S., & Salehi, S. (2024). assessment of recreational value in a protected forest area considering the new environmental paradigm (Case Study: Helen Forest, Southwestern Iran). *Sustainability*, 16(7), 2771. https://doi.org/10.3390/su16072771

Kim, D., Avenzora, R., & Lee, J. H. (2021). Exploring the outdoor recreational behavior and new environmental paradigm among urban forest visitors in Korea, Taiwan and Indonesia. *Forests,* 12(12), 1651. https://doi.org/10.3390/f12121651

Kleespies, M. W., Doderer, L., Dierkes, P. W., & Wenzel, V. (2021). Nature Interest Scale Development and evaluation of a measurement instrument for individual interest in nature. *Frontiers in Psychology,* 12, Article 774333. https://doi.org/10.3389/fpsyg.2021.774333

Kline, R. B. (2016). *Principles and practice of structural equation modeling (4th ed.).* The Guilford Press

Kosic, A., Passafaro, P., & Molinari, M. (2024). Predicting pro-environmental behaviours in the public sphere: Comparing the ınfluence of social anxiety, self-efficacy, global warming awareness and the NEP. *Sustainability,* 16(19), 8716. https://doi.org/10.3390/su16198716

Larson, L. R., Jennings, V., & Cloutier, S. A. (2016). Public parks and wellbeing in urban areas of the United States. *PLoS one*, 11(4), e0153211. https://doi.org/10.1371/journal.pone.0153211

Lee, K. J., Casper, J., Powell, R., & Floyd, M. F. (2023). African Americans' outdoor recreation involvement, leisure satisfaction, and subjective well-being. *Current Psychology,* 42(31), 27840-27850. https://doi.org/10.1007/s12144-022-03905-2

Lekies, K. S., Yost, G., & Rode, J. (2015). Urban youth′ s experiences of nature: Implications for outdoor adventure recreation. *Journal of Outdoor Recreation and Tourism,* 9, 1-10. https://doi.org/10.1016/j.jort.2015.03.002

Luzar, E. J., Diagne, A., Gan, C., & Henning, B. R. (1995). Evaluating nature-based tourism using the new environmental paradigm. *Journal of Agricultural and Applied Economics*, 27(2), 544-555. https://doi.org/10.1017/S1074070800028571

Marcineková, L., Štěrbová, M., Výbošťok, J., Hajdúchová, I., Giertliová, B., Šulek, R., ... & Šálka, J. (2024). Slovakia and its environmental transformation: measuring environmental attitudes using the new ecological paradigm. *Frontiers in Psychology,* 15, 1320451. https://doi.org/10.3389/fpsyg.2024.1320451

McCormack, G. R., Petersen, J., Naish, C., Ghoneim, D., & Doyle-Baker, P. K. (2023). Neighbourhood environment facilitators and barriers to outdoor activity during the first wave of the COVID-19 pandemic in Canada: A qualitative study. *Cities & Health*, 7(4), 643-655. https://doi.org/10.1080/23748834.2021.2016218

Menzies, A., Mazan, C., Borisoff, J. F., Mattie, J. L., & Mortenson, W. B. (2021). Outdoor recreation among wheeled mobility users: Perceived barriers and facilitators. *Disability and Rehabilitation: Assistive Technology,* 16(4), 384-390. https://doi.org/10.1080/17483107.2019.1710772

Milfont, T. L., & Duckitt, J. (2010). The environmental attitudes inventory: A valid and reliable measure to assess the structure of environmental attitudes. Journal of Environmental Psychology, 30(1), 80–94. https://doi.org/10.1016/j.jenvp.2009.09.001

Miller, A. B., Blahna, D. J., Morse, W. C., Leung, Y. F., & Rowland, M. M. (2022). From recreation ecology to a recreation ecosystem: A framework accounting for social-ecological systems. *Journal of Outdoor Recreation and Tourism*, 38, 100455. https://doi.org/10.1016/j.jort.2021.100455

Morse, W. C., Selin, S., Cerveny, L. K., & Blahna, D. J. (2022). Introduction to sustainably managing outdoor recreation and nature-based tourism as social-ecological complex adaptive systems. *Journal of Outdoor Recreation and Tourism,* 38, 100519. https://doi.org/10.1016/j.jort.2022.100519

Ntanos, S., Kyriakopoulos, G., Skordoulis, M., Chalikias, M., & Arabatzis, G. (2019). An application of the new environmental paradigm (NEP) scale in a Greek context. *Energies*, 12(2), 239. https://doi.org/10.3390/en12020239

Nutsford, D., Pearson, A. L., & Kingham, S. (2013). An ecological study investigating the association between access to urban green space and mental health. *Public Health,* 127(11), 1005-1011. https://doi.org/10.1016/j.puhe.2013.08.016.

Phipps, M. L. (1990). Definition of Outdoor Recreation and Other Associated Terminology. In: *National conference of outdoor leaders, public*, Commer Non-Profit Partnerships 1990 Conference Proceedings https://eric.ed.gov/?id=ED335189.

Pienaar, E. F., Lew, D. K., & Wallmo, K. (2013). Are environmental attitudes influenced by survey context? An investigation of the context dependency of the New Ecological Paradigm (NEP) Scale. *Social Science Research,* 42(6), 1542-1554. https://doi.org/10.1016/j.ssresearch.2013.07.001

Powell, S. M., Carpenter, K. E., Novik, M. G., & Gibson, H. M. (2023). Exploring the Influence of Self-Efficacy and Autonomy on Outdoor Recreation Behaviors during the COVID-19 Pandemic. *Journal of Outdoor Recreation, Education, and Leadership,* 15(2). https://js.sagamorepub.com/index.php/jorel/article/view/11212

Pröbstl-Haider, U., Gugerell, K., & Maruthaveeran, S. (2023). Covid-19 and outdoor recreation–Lessons learned? Introduction to the special issue on "Outdoor recreation and Covid-19: Its effects on people, parks and landscapes''. J*ournal of Outdoor Recreation and Tourism,* 41, 100583. https://doi.org/10.1016/j.jort.2022.100583

Pröbstl-Haider, U., Hödl, C., Ginner, K., & Borgwardt, F. (2021). Climate change: Impacts on outdoor activities in the summer and shoulder seasons. *Journal of Outdoor Recreation and Tourism,* 34, 100344. https://doi.org/10.1016/j.jort.2020.100344

Puhakka, R. (2024). Effects of outdoor adventures on emerging adults' well-being and connection with nature. *Journal of Adventure Education and Outdoor Learning,* 24(4), 719-734. https://doi.org/10.1080/14729679.2023.2220836

Reyna, C. (2018). Validating the structure of the New Ecological Paradigm Scale among Argentine citizens through different approaches. *Pensamiento Psicológico*, 16(1), 12-12.https://revistas.javerianacali.edu.co/index.php/pensamientopsicologico/article/view/352

Saefudin, S., Suwandi, T., Baharudin, R., & Rachman, H. T. (2025). Integration of permaculture to reinvent students' interest in nature and environmental awareness for quality education under SDG-4. *Jurnal Pendidikan IPA Indonesia*, 14(1). https://doi.org/10.15294/jpii.v14i1.22122

Saiful, J. A. (2024). Chirping symphony of nature in the digital art world: How ecomusicology cultivates EFL students' nature connectedness and ınterests. *Tell: Teaching of English Language and Literature Journal*, 12(1), 1-17. https://doi.org/10.30651/tell.v12i1.21678

Shanahan, D. F., Bush, R., Gaston, K. J., Lin, B. B., Dean, J., Barber, E., & Fuller, R. A. (2016). Health benefits from nature experiences depend on dose. *Scientific Reports*, 6(1), 28551. https://doi.org/10.1038/srep28551

Shin, S., & van Riper, C. J. (2025). childhood outdoor recreation and environmental education shape pro-environmental behavior among adults: A study of residents in Illinois, USA. *Society & Natural Resources,* 1-24. https://doi.org/10.1080/08941920.2024.2449048

Simonavičė, S., Shevchuk, V., & Bordun, O. (2024). Pro-environmental behaviour and sustainable development: Evidence from a Survey of Lithuanian and Ukrainian students. *Regional Formation & Development Studies*, 44(3), 37-48. https://doi.org/10.15181/rfds.v44i3.2636

Song, C., Ikei, H., Igarashi, M., Takagaki, M., & Miyazaki, Y. (2015). Physiological and psychological effects of a walk in urban parks in fall. *International Journal of Environmental Research and Public Health*, 12(11), 14216-14228. https://doi.org/10.3390/ijerph121114216

Stigsdotter, U. K., Ekholm, O., Schipperijn, J., Toftager, M., Kamper-Jørgensen, F., & Randrup T. B. (2010). Health promoting outdoor environments - associations between green space, and health, health-related quality of life and stress based on a Danish national representative survey. *Scand J Public Health,* 38(4):411 https://doi.org/10.1177/1403494810367468

Tabachnick, B. G., & Fidell L. S. (2013). *Using multivariate statistics (6. ed.).* Boston: Pearson,

Tarrant, M. A., & Green, G. T. (1999). Outdoor recreation and the predictive validity of environmental attitudes. *Leisure Sciences,* 21(1), 17-30. https://doi.org/10.1080/014904099273264

Taylor, M. S., Wheeler, B. W., White, M. P., Economou, T., & Osborne, N. J. (2015). Research note: Urban street tree density and antidepressant prescription rates—A cross-sectional study in London, UK. *Landscape and Urban Planning,* 136, 174-179. https://doi.org/10.1016/j.landurbplan.2014.12.005.

TDK. (2025). Türk Dil Kurumu: Güncel Türkçe Sözlük. https://sozluk.gov.tr/ Accessed 10 May 2025.

Thapa, B. (2010). The mediation effect of outdoor recreation participation on environmental attitude-behavior correspondence. *The Journal of Environmental Education,* 41(3), 133-150. https://doi.org/10.1080/00958960903439989

TUİK (2023). Kent-Kır Nüfus İstatistikleri, 2022. https://data.tuik.gov.tr/Bulten/Index?p=Kent-Kir-Nufus-Istatistikleri-2022-49755

Vasilaki, M. M., Zafeiroudi, A., Tsartsapakis, I., Grivas, G. V., Chatzipanteli, A., Aphamis, G., ... & Kouthouris, C. (2025). Learning in nature: A systematic review and meta-analysis of outdoor recreation's role in youth development. *Education Sciences,* 15(3), 332. https://doi.org/10.3390/educsci15030332

Wiidegren, Ö. (1998). The new environmental paradigm and personal norms. *Environment and Behavior,* 30(1), 75-100. https://doi.org/10.1177/0013916598301004

Wilkins, E. J., Chikamoto, Y., Miller, A. B., & Smith, J. W. (2021). Climate change and the demand for recreational ecosystem services on public lands in the continental United States. *Global Environmental Change,* 70, 102365. https://doi.org/10.1016/j.gloenvcha.2021.102365

Wilson, E. O. (1984). *Biophilia.* Harvard University Press.

Wu, X., Zhong, C., Chen, H., & Zou, X. (2024). Assessment on the environmental concern level and driving mechanism of beach recreationists based on the new ecological paradigm scale. *Sustainability,* 16(8), 3292. https://doi.org/10.3390/su16083292

Zarei, I., Ehsani, M., Moghimehfar, F., & Aroufzad, S. (2024). Fostering sustainable leisure activities: a behavioural insight into eco-friendly intentions in Mount Damavand. *World Leisure Journal*, 1-24. https://doi.org/10.1080/16078055.2024.2423399

Zelezny, L. C., Chua, P. P., & Aldrich, C. (2000). New ways of thinking about environmentalism: Elaborating on gender differences in environmentalism. *Journal of Social Issues,* 56(3), 443-457. https://doi.org/10.1111/0022-4537.00177

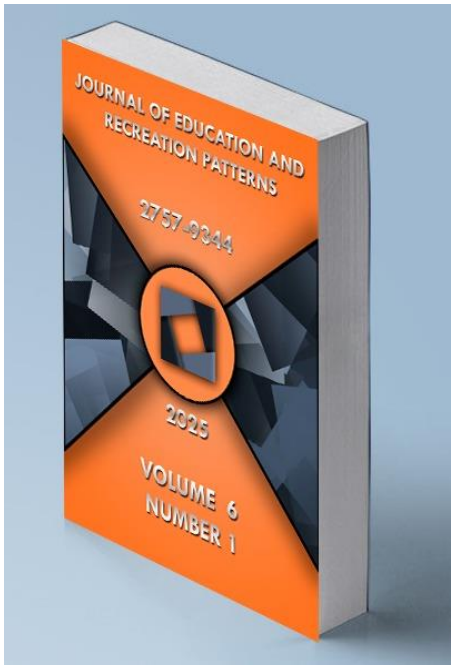
Zhao, D., Meng, J., Wang, H., Liu, J., Jiao, L., Zhao, J., & Yang, Z. (2025). Does the benefit in pro-environmental behavior from nature exposure depend on the greenness of an individual's surroundings? *Current Psychology,* 1-12. https://doi.org/10.1007/s12144-025-07611-7

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

The Role of Sports Participation in the Relationship Between Emotional Intelligence and Career Awareness: A Research Study on University Students

Arslan KALKAVAN[1], Oğulcan GÜNER[2], İsa KAVALCI[3]

To cite this article:

Kalkavan, A., Güner, O. & Kavalcı, İ. (2025). The role of sports participation in the relationship between emotional intelligence and career awareness: A Research study on university students. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 72-85. DOI: https://doi.org/10.53016/jerp.v6i1.235

[1] Recep Tayyip Erdoğan Üniversitesi, Spor Bilimleri Fakültesi, Rize, Türkiye, arslan.kalkavan@erdogan.edu.tr, https://orcid.org/0000-0001-9439-4976

[2] Recep Tayyip Erdoğan Üniversitesi, Spor Bilimleri Fakültesi, Rize, Türkiye, ogulcan.guner@erdogan.edu.tr, https://orcid.org/0000-0002-4880-3166

[3] Recep Tayyip Erdoğan Üniversitesi, Spor Bilimleri Fakültesi, Rize, Türkiye, isa.kavalci@erdogan.edu.tr, https://orcid.org/0000-0001-5419-4224

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

The Role of Sports Participation in the Relationship Between Emotional Intelligence and Career Awareness: A Research Study on University Students

Arslan Kalkavan[1], Oğulcan Güner[2], İsa Kavalcı[3]

ARTICLE INFORMATION
Original Research Paper

Received 22.05. 2024
Accepted 15.06. 2025

https://jerpatterns.com

June, 2025
Volume: 6, No: 1
Pages: 72-85

ABSTRACT
The aim of this study is to reveal the relationship between emotional intelligence levels and career awareness levels of university students and to examine the role of sports participation in this relationship. Quantitative research method was used in the study. The research data were collected through demographic data form, Trait Emotional Intelligence Questionnaire–Short Form and Career Awareness Scale. The population of the study consisted of Recep Tayyip Erdoğan University students, and the sample consisted of 391 students selected from the population by simple random method. The data were analyzed using SPSS 25.0, JASP and JAMOVI statistical package programs. Descriptive statistics, Two-Factor Analysis of Variance and Simple Linear Regression Analysis were used in the research analysis. According to the analysis results, positive significant relationships were found between emotional intelligence and career awareness, and emotional intelligence accounted for 31% of the variance in career awareness scores. It was determined that students with high emotional intelligence levels had significantly higher career awareness levels than other students. Additionally, it has been determined that participation in sports has a positive and significant effect on career awareness. Although emotional intelligence and sports participation are separately significant predictors of career awareness, the interaction effect between emotional intelligence and sports participation was not found to be statistically significant. This indicates that the combined influence of these two variables does not contribute additional explanatory power in predicting career awareness beyond their separate effects.

Keywords: Career Awareness, Emotional Intelligence, Higher Education, Sport Participation, University Students.

INTRODUCTION

It is known that the experiences and interests of individuals during their high school and university years have a great influence on shaping their careers (Kleinberg, 1976). The university years are the stage of career exploration, and individuals evaluate their career options during this period (Martens & Felissa, 1998). It can be said that taking the right steps at this stage is the key to having a good working life in the future (Watson & Stead, 1997). It may be difficult for undergraduate students to decide which career path is the right one. It is thought that having career awareness has an effect on students' ability to achieve this. Students with a high career awareness will make more accurate career choices and manage their careers more effectively.

In order to have high career awareness, it is first necessary to understand what the concept of awareness means. Awareness is the state when people have consciousness of existence and the necessary knowledge about situations (Meager et al., 2002). Career awareness can be evaluated as being aware of the factors that contribute to people's success in their targeted profession and better managing their careers in line with their intelligence and abilities (Wiroterat, 2013). Based on this evaluation, it can be said that being aware of their intelligence and abilities plays a key role in shaping the career awareness levels of individuals. At this point, it is thought that the concept of emotional intelligence is effective. Because emotional intelligence improves thinking by combining intelligence and emotions (Mayer et al., 2008). Emotional intelligence includes skills such as recognising and controlling emotions, empathy, and effective communication (Çakır & Özdilek, 2023). In other words, emotional intelligence enables individuals to be aware of their emotions (Dulewicz & Higgs, 1999).

Educational institutions are expected to play an active role in developing students' emotional intelligence and awareness (Çevik & Çevik, 2023). There are many potential personal, social, and societal benefits of focusing on emotional intelligence that can be shaped in higher education (Cohen, 1999; Goleman, 1995; Topping, Holmes & Bremmer, 2000). In terms of personal benefits, it has been reported that having high emotional intelligence at the undergraduate level has benefits such as making wise career choices and increasing the likelihood of success in a career (Gelso & Fretz, 2001; Vandervoort, 2006).

Considering the studies investigating the interaction between career and emotional intelligence, it can be said that the studies investigating the relationship between emotional intelligence and career development, career adaptability, and career choice are intensive (Aksaraylı & Ozgen, 2008; Di Fabio et al., 2012; Jiang, 2014; Tanrıverdi et al., 2019). Based on these studies, it can be mentioned that there is a lack of studies in the literature that reveal the relationship between students' emotional intelligence levels and career awareness levels and investigate the role of sports participation in this relationship. Therefore, it can be said that this research is an original study that will contribute to the literature.

In light of all these thoughts, this study was aimed at revealing the relationship between emotional intelligence levels and career awareness levels of university students and examining the role of sports participation in this relationship.

Conceptual Framework

It is thought that the basic perspective of the concept of career awareness is formed by the concepts of ‘paying attention’ and'readiness’ of social cognitive career theory. Social cognitive career theory reveals that people should have self-competence and that the adequacy of their cognitive levels is important (Sunay & Yaşar, 2019).

When we look at the concept of emotional intelligence, there are three main models: the trait model, the mixed model, and the ability model. According to the trait model, emotional

intelligence is a personality trait that plays an important role in the formation and development of personality and can be measured by self-perceptions (Petrides et al., 2007). The trait model of emotional intelligence includes some characteristics such as'self-control' and 'awareness' (Petrides, 2010).

From this point of view, it was concluded that the social cognitive theory, which is the theory that forms the basis of career awareness (considering its emphasis on the concept of self-efficacy), may be related to the trait model of emotional intelligence. Therefore, in this study, which examines the relationship between emotional intelligence and career awareness, the trait model of emotional intelligence was used.

In line with all these theoretical and factual studies, it can be said that the career awareness and emotional intelligence of undergraduate university students should be addressed together in order for them to manage their careers effectively. Moreover, the idea that students' having high emotional intelligence may play a role in having high career awareness is one of the ideas that form the basis of this research. In order to investigate the effect of students' emotional intelligence levels on their career awareness levels, the following question will be tested:

Q1: Does the level of emotional intelligence have an effect on the level of career awareness in university students?

Some studies suggest that sport participation positively affects emotional intelligence (Laborde et al., 2018; Magrum et al., 2019; Meyer & Zizzi, 2007). In addition, it has been reported in the literature that emotional intelligence positively affects the academic performance and career plans of student athletes (Laborde et al., 2016). Therefore, it is thought that participation in sports may play a role in the relationship between emotional intelligence and career awareness. In order to investigate the role of sport participation in the relationship between emotional intelligence and career awareness, the following question will be tested:

Q2: Are there significant differences in the career awareness levels of university students according to their emotional intelligence levels, sporting status, and the integration of emotional intelligence levels and sporting status?

METHOD

Quantitative research methods were used in the study. Quantitative research methods are widely used in all branches of science (Yıldırım, 1999).

Research Model

The study was designed using the general survey model. The general survey model is a survey conducted on a sample that is representative of the universe within large populations (Karasar, 2012).

Study Group

The study group of the research consists of university students. The population of the research consists of 17,240 undergraduate students studying at Recep Tayyip Erdoğan University. The population is the large group from which the research results are predicted (Karasar, 2012). The research sample consists of 391 volunteer students selected by simple random method from the population. The sample is defined as a representative set selected from the population with some rules (Karasar, 2012).

For large universes, the sample size that is sufficient to represent the universe can be determined by the following formula (İslamoğlu & Alnıaçık, 2019);

$$n = \frac{\mathrm{Nz}^2.\,\mathrm{pq}}{Nd^2 + z.pq}$$

n= Universe size

p= Proportion of those with a particular characteristic in a random sample

q= 1-p

d= Sensitivity level

z= Estimated reliability interval

In estimating the minimum number required for a population of 17,240 units, it was determined that a minimum of 362 participants were required for the study sample, assuming a precision rate of 5%, a 95% confidence interval, and a coincidence rate of z = 1.96, with a precision rate of 5%, a 95% confidence interval, and a coincidence rate of 0.5 (p) and a non-occurrence rate of 0.5 (q), taking a random sample from this population as a reference.

$$n = \frac{17.240.\,(1{,}96^2).\,(0{,}5)\,.\,(0{,}5)}{17.240.\,(0{,}05)^2 + 1{,}96.\,(0{,}5).\,(0{,}5)} = 362$$

Procedure and Ethics

Firstly, permission to use the relevant measurement tools was obtained from the researchers who developed and adapted the data collection tools used in the study. Then, the approval of the ethics committee dated May 8, 2023, and numbered 2023/190, was obtained from Recep Tayyip Erdoğan University Social and Human Sciences Ethics Committee. The research was conducted in accordance with the 'Higher Education Institutions Scientific Research and Publication Ethics Directive'.

Procedure for Data Collection

A structured questionnaire including validated scales was distributed both online and face-to-face to gather data from students. Questionnaire is a data collection method in which data are collected by asking questions to the people who make up the sample according to the study designed on a subject (Balcı, 2010). The research questionnaire consists of two scales measuring independent variables: emotional intelligence characteristics and career awareness levels. Data were collected between May and June 2023.

Data Collection Tools

In the study, the demographic data form created by the researcher, the 'Career Awareness Scale' developed by Yaşar and Sunay (2019) and the 'Trait Emotional Intelligence Questionnaire–Short Form' developed by Petrides and Furnham (2000) and adapted into Turkish by Deniz, Özer and Işık (2013) were used as data collection tools.

Trait Emotional Intelligence Questionnaire–Short Form: The questionnaire was developed by Petrides and Furnham (2000) and adapted to Turkish culture by Deniz, Özer, and Işık (2013). The scale consists of 4 sub-dimensions (Self-Control, Subjective Well-Being, Sociability, and emotionality) and 20 questions. In addition, total SWB score, which is called global score, can also be obtained from the scale. The scale is graded on a 7-point Likert scale (from 1: Strongly disagree to 7: Strongly agree). The internal consistency reliability coefficient (Cronbach's alpha) for the entire scale was reported as 0.81 in the original study, while it was calculated as 0.84 in the current study.

Career Awareness Scale: The scale, consisting of 18 items (4 sub-dimensions: Professional Development Disposition, Professional Readiness, Professional Awareness, and Professional Self-Confidence), was developed by Sunay and Yaşar (2019). The scale is graded on a 5-point Likert scale (from 1: strongly disagree to 5: strongly agree). The internal consistency reliability coefficient (Cronbach's alpha) for the entire scale was reported as 0.92 in the original study, while it was calculated as 0.90 in the current study.

The acceptability of alpha values between 0.70-0.95 is reported in many studies (Tavakol & Dennick, 2011).

Data Analysis

SPSS 25, Jamovi and JASP statistical package programmes were used in the analysis of the data. In the analysis of the data, firstly descriptive statistics (frequency, percentage, mean, standard deviation, etc.) were made. Then, it was evaluated whether the data showed normal distribution or not. In order to decide on the distribution of the data, kurtosis-skewness values were analysed.

Table 1

Skewness and Kurtosis Values of the Data

Variables	Skewness	Kurtosis
Emotional Intelligence	-0.471	-0.158
Career Awareness	-0.293	-0.308

In Table 1, it is seen that the skewness and kurtosis values of the data are between -1.5 and +1.5, and the skewness and kurtosis values between -1.5 and +1.5 indicate that the data show normal distribution (Tabachnick & Fidell, 2013). According to these results, it was accepted that the data showed normal distribution. Two-Way Analysis of Variance (Two-Way ANOVA), Tukey test, which is one of the Post-Hoc tests, and Simple Linear Regression Analysis were performed. The error level of the statistics was accepted as $p<0.05$ and the significance level as Alpha (α).

FINDINGS

In this section, the statistical results obtained from the analysis of the research data are presented in line with the research questions and hypotheses.

Participants:

The distribution of the participants according to their sporting status and gender is presented in Table 2.

Table 2

Distribution of Participants by Sport Participation Status and Gender

Gender	Sport Participation	n	%	Total (n)
Female	Yes	93	46.70%	199
	No	106	53.30%	
Male	Yes	103	53.60%	192
	No	89	46.40%	
Total	Yes	196	50.10%	391
	No	195	49.90%	

The data (Table 2.) suggest that male students were more likely to participate in sports compared to female students. Specifically, 53.6% of men reported participating in sports (103

out of 192), while 46.7% of women (93 out of 199) reported the same. Conversely, the proportion of non-participation was slightly higher among females (53.3%) than among males (46.4%).

Descriptive Statistics

Descriptive statistics such as the scores obtained by the participants from the scales and the standard deviations of the scores are presented in Tables 3 and 4.

Table 3

Emotional Intelligence Scores of Participants by Gender and Sport Participation Status

Gender	Sport Participation	n	M	SD
Female	Yes	93	18.61	4.97
	No	106	18.58	4.61
Male	Yes	103	20.01	4.76
	No	89	19.89	4.53
Female (Total)	—	199	18.59	4.77
Male (Total)	—	192	19.96	4.64
Overall	—	391	19.26	4.75

As shown in Table 3, emotional intelligence (EI) scores varied slightly by both gender and sport participation status. Among male participants, those who engaged in sports (M = 20.01, SD = 4.76) had slightly higher EI scores compared to those who did not (M = 19.89, SD = 4.53). Similarly, among female participants, the mean EI score of those who did sports (M = 18.61, SD = 4.97) was nearly identical to those who did not (M = 18.58, SD = 4.61). Overall, male students reported higher emotional intelligence scores (M = 19.96, SD = 4.64) than female students (M = 18.59, SD = 4.77). The total sample mean EI score was 19.26 (SD = 4.75), suggesting a moderate level of emotional intelligence across the sample.

Table 4

Career Awareness Scores of Participants by Gender and Sport Participation Status

Gender	Sport Participation	n	M	SD
Female	Yes	93	68.19	11.53
	No	106	64.58	11.39
Male	Yes	103	69.71	11.96
	No	89	65.92	10.11
Female (Total)	—	199	66.27	11.57
Male (Total)	—	192	67.95	11.27
Overall	—	391	67.10	11.44

Table 4 presents the career awareness scores of university students by gender and sport participation status. Among male students, those who participated in sports reported the highest mean career awareness (M = 69.71, SD = 11.96), while male non-participants had a lower mean score (M = 65.92, SD = 10.11). Similarly, female students who did sports had higher career awareness (M = 68.19, SD = 11.53) compared to those who did not (M = 64.58, SD = 11.39). When gender is considered independently, male students had slightly higher overall career awareness (M = 67.95, SD = 11.27) than female students (M = 66.27, SD = 11.57). The total sample mean was 67.10 (SD = 11.44), indicating moderately high career awareness across participants.

Research Question 1

Simple linear regression analysis was used to determine the effect of emotional intelligence level on career awareness level in university students. The results of the analysis are presented in Table 5.

Table 5

Simple Linear Regression Analysis Predicting Career Awareness from Emotional Intelligence

Predictor	B	SE	β	t	p
Intercept	41.35	2.02	—	20.51	<.001
Emotional Intelligence	1.33	0.10	.55	13.15	<.001

Model Summary: $R = .55$, $R^2 = .31$, $F(1, 389) = 173.02$, $p < .001$

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized coefficient.

A simple linear regression was conducted to examine whether emotional intelligence significantly predicted career awareness among university students. The model was found to be statistically significant, $F(1, 389) = 173.02$, $p < .001$, and accounted for approximately 31% of the variance in career awareness scores ($R^2 = .31$). Emotional intelligence significantly predicted career awareness ($\beta = .55$, $t = 13.15$, $p < .001$). The unstandardized regression coefficient ($B = 1.33$) indicates that for every one-point increase in emotional intelligence, career awareness increases by approximately 1.33 points. The regression equation is: "Career Awareness = 41.35 + 1.33 × Emotional Intelligence". These findings suggest that emotional intelligence is a strong and positive predictor of students' career awareness.

Research Question 2

Two-Way Analysis of Variance (Two-Way ANOVA) test was used to examine whether there are significant differences in the career awareness levels of university students according to emotional intelligence level, sport participation and the integration of emotional intelligence level and sport participation. The test results are presented in Tables 6 and 7.

Table 6

Career Awareness Scores by Emotional Intelligence Level and Sport Participation Status

Emotional Intelligence Level	Sport Participation	n	M	SD
Low	Yes	32	57.47	11.94
	No	27	57.19	10.38
Moderate	Yes	122	68.99	10.15
	No	132	64.32	9.8
High	Yes	42	77.76	7.91
	No	36	74.42	8.37
Low	**Total**	59	57.34	11.16
Moderate	**Total**	254	66.56	10.22
High	**Total**	78	76.22	8.24

Note. M = mean; SD = standard deviation. EI = emotional intelligence.

Table 7

Two-Way ANOVA Results for the Effects of Emotional Intelligence and Sport Participation on Career Awareness

Source	SS	df	MS	F	p	η^2
Emotional Intelligence Level	1910.29	2	955.15	61.48	< .001	.242
Sport Participation	508.16	1	508.16	5.25	.022	.013
Interaction (EI × Sport)	233.23	2	116.62	1.20	.302	.006
Error	6057.65	385	15.73			
Total	10709.33	390				

Note. SS = sum of squares; df = degrees of freedom; MS = mean square; η^2 = partial eta squared. According to Cohen (1988), η^2 benchmarks: small = .01, medium = .06, large = .14.

Table 7 presents the results of a two-way ANOVA examining the effects of emotional intelligence level and sport participation on students' career awareness. The analysis revealed a statistically significant main effect of emotional intelligence level, $F(2, 385) = 61.48$, $p < .001$, $\eta^2 = .242$, indicating a large effect size. This result suggests that students' levels of emotional intelligence significantly influence their career awareness.

A significant main effect was also found for sport participation, $F(1, 385) = 5.25$, $p = .022$, $\eta^2 = .013$, indicating a small effect size. This suggests that students who participate in sports have significantly higher career awareness scores compared to those who do not.

However, the interaction between emotional intelligence level and sport participation was not statistically significant, $F(2, 385) = 1.20$, $p = .302$, $\eta^2 = .006$, suggesting that the combined influence of these two factors does not significantly explain additional variance in career awareness.

Table 8

The Pairwise Comparison of Career Awareness Levels of Students by Emotional Intelligence

(I) Group	(J) Group	Mean Difference (I-J)	SE	p
Low EI	Moderate EI	-9.22*	1.44	< .001
	High EI	-18.87*	1.72	< .001
Moderate EI	Low EI	9.22*	1.44	< .001
	High EI	-9.65*	1.29	< .001
High EI	Low EI	18.87*	1.72	< .001
	Moderate EI	9.65*	1.29	< .001

Note. EI = emotional Intelligence; SE= standard error

Post-Hoc Tukey test (Table 8) was applied to determine the source of the significant difference in career awareness levels according to emotional intelligence levels of students. According to the results of Tukey test, it was determined that the career awareness levels of students with high emotional intelligence level were significantly higher than other students ($p<0.05$). In parallel with this, it was also seen that the career awareness levels of students with moderate emotional intelligence level were significantly higher than the students with low emotional intelligence level ($p<0.05$).

DISCUSSION

Since the majority of university students (except those who continue postgraduate education) will enter business life after graduation, the concept of career awareness is of great importance for them (Büyükgöze & Gelbal, 2016). In this context examining the interaction of sport participation, emotional intelligence and career awareness is extremely important for university students. On the other hand, emotional intelligence is one of the concepts that affect students' ability to achieve success in both academic and business life after graduation (Chapin, 2015). In addition, when the literature is evaluated, based on the information that sport participation increases emotional intelligence (Laborde et al., 2018; Magrum et al., 2019; Meyer & Zizzi, 2007), this study aimed to investigate the relationship between the concept of emotional intelligence and career awareness and the role of sport participation in this relationship and university students were determined as the sample.

The descriptive findings obtained from the analyses in the study showed that the emotional intelligence levels of university students who participated sport are silghtly higher than those of students who do not. It is known in the literature that participation in sports improves emotional intelligence. (Börekçi, 2002; Eraslan, 2015; Ergin, 2000; Sarıkabak, Karakulak, & Sunay, 2019).

The findings from the analyses in the study showed that the career awareness levels of students who participated sport are higher than those of students who do not. When the studies in the literature are examined, there are studies in which results parallel to our research findings are reported (Yavuz Eroğlu, 2020; Yılmaz, Genç & Safi, 2023).

In our research, it was determined that emotional intelligence positively and significantly affected career awareness. . It was determined that the career awareness levels of students with high and medium level emotional intelligence were higher compared to other students. Accordingly, as students' emotional intelligence increases, their career awareness also increases. This findings demonstrated how important for students to have high emotional intelligence in order to have high career awareness. Pirsoul and colleagues' meta-analysis on the career outcomes of emotional intelligence found that emotional intelligence was significantly related to career adaptability, career decision-making self-efficacy, entrepreneurial self-efficacy, salary, career commitment, career decision-making difficulties, career satisfaction, entrepreneurial intentions, and turnover intentions (Pirsoul et al., 2023).

In the findings of our research, the interaction between emotional intelligence level and sport participation was not statistically significant. This finding shows that although sports participation and emotional intelligence are effective separately, they do not create a significant change in career awareness together.

Conclusion

As a result, the findings obtained in the study provide important evidence to the literature in terms of explaining the relationship between emotional intelligence and career awareness and sport participation. In the relationship between emotional intelligence and career awareness, it was concluded that emotional intelligence accounted for 31% of the change in students' career awareness. This finding shows us how important emotional intelligence is in shaping students' career awareness. In addition, as the emotional intelligence levels of students increase, their career awareness levels also increase, and significant differences were found in the career awareness levels of students with high emotional levels and students with lower emotional intelligence levels. In this context, it is extremely important for students to have high emotional intelligence. It is known that sports increase emotional intelligence. Based on the relationship between emotional intelligence and career awareness, it is possible that participation in sports also affects career awareness. In fact, our research results have also reached the conclusion that participation in sports affects career awareness positively at a significant level. In this context, as students participate in sports, their career awareness levels increase. Since both emotional intelligence and participation in sports affect career awareness separately to this extent, it was finally examined whether they created a change in career

awareness when the two variables were taken together, but no statistically significant result was found.

Recommendations

In the light of all these results, it is seen that the development of emotional intelligence is important for students to increase their career awareness. Since sports positively affect the development of emotional intelligence, it is recommended that students participate in sports in order to increase their career awareness. Because emotional intelligence includes the concept of awareness (Petrides, 2010). Since individuals who participating sports will increase their awareness and their emotional intelligence, they will reflect this awareness to their academic and professional life and will be among individuals with high career awareness.

Researchers in future studies;

- It can collect data from students at different educational levels and compare the results with this research.
- In order to investigate the effect of sport participating more deeply, a longitudinal study can evaluate the change in emotional intelligence and career awareness as pre-test and post-test by having a group of students to do sports for a while.
- The relationship between emotional intelligence and career awareness revealed in this study can be investigated through different independent variables (academic achievement, self-esteem, etc.) other than sport participation.

Limitations

The research is limited to the data to be collected from students' study in Recep Tayyip Erdoğan University in the 2023-2024 Academic Year.

REFERENCES

Aksarayli, M., & Özgen, I. (2008). Akademik kariyer gelişiminde duygusal zekânin rolu üzerine bir araştırma. *Ege Academic Review*, 8(2), 755-770.

Balcı, A. (2010). *Sosyal bilimlerde araştırma: yöntem, teknik ve ilkeler*. 8th Edition. Ankara: Pegem Akademi.

Börekçi, A.G. (2002). *Çalışma ortamlarında duygusal zekâ uygulamadan bir örnek.* Master's Thesis Istanbul University Institute of Social Sciences, Istanbul.

Büyükgöze, H., & Gelbal, S. (2016). Lisansüstü eğitime yönelik tutumda proaktif kişilik ve akademik kontrol odağının rolü In K. Beycioğlu, N. Özer, D. Koşar & I. Şahin (Eds.), *Eğitim Yonetimi Araştirmalari* (pp. 91–110). Ankara: Pegem.

Chapin, K. (2015). The effect of emotional ıntelligence on student success. *Journal of Adult Education, 44*(1), 25-31.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Cohen, J. (1999). *Educating minds and hearts: Social emotional learning and the passage into adolescence*. New York: Teachers College Press.

Çakır, G., & Özdilek, Ç. (2023). Duygusal zekâ ve liderlik özellikleri ilişkisi: antrenörler üzerine türkiye geneli kesitsel bir analiz. *Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *26*(49), 153-170. https://doi.org/10.31795/baunsobed.1171081.

Çevik, M.S. & Çevik, M.N.(2023). Examination ofvariables predicting the emotional intelligence levels of physical education and sports teacher candidates using the CHAID analysis. *Journal of Education and Recreation Patterns (JERP), 4*(2), 507-533. https://doi.org/10.53016/jerp.v4i2.120.

Deniz, M.E., Özer, E., & Işık, E., (2013). Trait emotional ıntelligence questionnaire – short form: validity and reliability studies. Education and Science, 38(169), 407-419.

Di Fabio, A., Palazzeschi, L., & Bar-On, R. (2012). The role of personality traits, core self-evaluation, and emotional intelligence in career decision-making difficulties. *Journal of Employment Counseling*, *49*(3), 118-129. https://doi.org/10.1002/j.2161-1920.2012.00012.x.

Dulewicz V., & Higgs M. (1999). Can emotional ıntelligence be measured and developed?. *Leadership & Organizational Development Journal*, *20*(5), 242-253. https://dx.doi.org/10.1108/01437739910287117.

Eraslan, M. (2015). The analysis of emotional ıntelligence and emphatic tendencey levels of youth according to varibales of age, gender and doing sports. *Kastamonu Education Journal, 24*(4), 1839-1852.

Ergin, F.E. (2000). *Üniversite öğrencilerinin sahip oldukları duygusal zekâ düzeyi ile 16 kişilik özelliği arasında ilişki üzerine bir araştırma*. Master's Thesis. Selçuk University Institute of Social Sciences, Konya.

Gelso, C,, & Fretz, B. (2001). *Counseling psychology*. 2nd Ed. Belmont, CA: Wadsworth.

Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.

İslamoğlu, A.H., & Alnıaçık, Ü. (2019). *Sosyal bilimlerde araştırma yöntemleri*. İstanbul: Beta Yayınevi.

Jiang, Z. (2014). Emotional intelligence and career decision-making self-efficacy: national and gender differences. *Journal of Employment Counseling*, *51*(3), 112-124. https://dx.doi.org/10.1002/j.2161-1920.2014.00046.x.

Karasar, N. (2012). *Bilimsel araştırma yöntemi*. 23rd Ed. Nobel Yayıncılık, Ankara; pp: 75-111.

Kleinberg, J.L. (1976). Adolescent correlates of occupational stability and change. *Journal of Vocational Behavior, 9*(2), 219-232. https://doi.org/10.1016/0001-8791(76)90080-4.

Laborde, S., Dosseville, F., & Allen, M.S. (2016). Emotional intelligence in sport and exercise: A systematic review. *Scandinavian Journal of Medicine & Science in Sports, 26*(8), 862-874. https://doi.org/10.1111/sms.12510.

Laborde, S., Mosley, E., Ackermann, S., Mrsic, A., & Dosseville, F. (2018). Emotional intelligence in sports and physical activity: An intervention focus. In K. V. Keefer, J. D. A. Parker, & D. H. Saklofske (Eds.), *Emotional intelligence in education: Integrating research with practice* (pp. 289–320). Springer International Publishing/Springer Nature. https://doi.org/10.1007/978-3-319-90633-1_11.

Magrum, E.D., Waller, S., Campbell, S., & Schempp, P.G. (2019). Emotional intelligence in sport: A ten-year review (2008-2018). *International Journal of Coaching Science*, *13*(2), 3-32

Martens, M.P., & Felissa K.L. (1998). Promoting lifecareer development in the student athlete: how can career centers help? *Journal of Career Development*, *25*(2), 123-134. https://doi.org/10.1177/089484539802500205.

Mayer, J.D., Roberts, R.D., & Barsade, S.G. (2008). Human abilities: Emotional intelligence. The Annual Review of Psychology, *59*, 507–536. https://doi.org/10.1146/annurev.psych.59.103006.093646.

Meager, N., Tyers, C., Perryman, S., Rick, J., & Willison, R. (2002). *Awareness, knowledge and exercise of individual employment rights*. Employment Relations Research Series: Department of Trade and Industry.

Meyer, B.B., & Zizzi, S. (2007). Emotional intelligence in sport: Conceptual, methodological, and applied issues. In M. L. Andrew (Ed.), *Mood and Human Performance: Conceptual, Measurement and Applied Issues* (pp. 131–152). Nova Science Publishers.

Petrides, K.V. (2010). Trait emotional intelligence theory. *Industrial and Organizational Psychology*, *3*(2), 136-139. https://doi.org/10.1111/j.1754-9434.2010.01213.x.

Petrides, K.V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences*, *29*(2), 313-320. https://doi.org/10.1016/S0191-8869(99)00195-6.

Petrides, K.V., Pita, R., & Kokkinaki, F. (2007). The location of trait emotional intelligence in personality factor space. *The British Psychological Society*, *98*(2), 273–289. https://doi.org/10.1348/000712606x120618.

Pirsoul, T., Parmentier, M., Sovet, L., & Nils, F. (2023). Emotional intelligence and career-related outcomes: A meta-analysis. *Human Resource Management Review, 33*(3), 100967. https://doi.org/10.1016/j.hrmr.2023.100967.

Sarıkabak, M., Karakulak, İ., & Sunay, H. (2019). Lise öğrencilerinin sosyal fizik kaygı durumları ve duygusal zekâ düzeylerinin spor yapma değişkenine göre incelenmesi. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi*, *17*(3), 119-133. https://doi.org/10.33689/spormetre.554925.

Sunay H., & Yaşar O.M. (2019). Spor bilimleri öğrencilerine yönelik kariyer farkındalığı ölçeğinin (KFÖ) geliştirilmesi. *Çanakkale Onsekiz Mart Üniversitesi Spor Bilimleri Dergisi.* 2(1): 7-22.

Tabachnick, B.G. & Fidell, L.S. (2013). *Using multivariate statistics*. 6th ed. Boston: Allyn and Bacon.

Tanrıverdi, H., Yılmaz, A., Pala, B., & Ercan, F.Z. (2019). Kişilik özellikleri, duygusal zekâ, kariyer uyum yeteneği ve turizmde kariyer yapma isteği arasındaki ilişkilerin incelenmesi: İstanbul Üniversitesinde turizm işletmeciliği eğitimi alan öğrenciler üzerine bir araştırma. *Uluslararası Turizm, Ekonomi ve İşletme Bilimleri Dergisi*, 3(1), 41-56.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education*, *2*, 53. https://doi.org/10.5116/ijme.4dfb.8dfd.

Topping, K., Holmes, E.A., & Bremmer, W. (2000). The effectiveness of school-based programs for the promotion of social competence. In R. Bar-On & J.D. Parker (Eds.), *The Handbook of Emotional Intelligence: Theory, Development, Assessment, and Application at Home, School and in the Workplace* (pp. 411-432). San Francisco: Jossey-Bass.

Vandervoort, D.J. (2006). The importance of emotional intelligence in higher education. *Current psychology*, *25(1)*, 4-7. https://doi.org/10.1007/s12144-006-1011-7.

Watson, M.B., & Stead, G.B. (1997). Are career mature students more committed to the ceree choice process?. *Journal of Industrial Psychology*, 23(3), 20-21. https://doi.org/10.4102/sajip.v23i3.634.

Wiroterat, W. (2013). Dynamic audit learning and the antecedents and consequences: Evidence from cpas in Thailand. *International Journal of Business Strategy 13*(2): 93-110. http://dx.doi.org/10.18374/IJBR-13-2.8.

Yavuz Eroğlu, S. (2020). Career plannıng levels: A study on students of physıcal educatıon and sports school. *International Journal of Education Technology & Scientific Researches*, *5*(11), 596-630.

Yıldırım, A. (1999). Nitel araştırma yöntemlerinin temel özellikleri ve eğitim araştırmalarındaki yeri ve önemi. *Eğitim ve Bilim.* 23(112): 7-10.

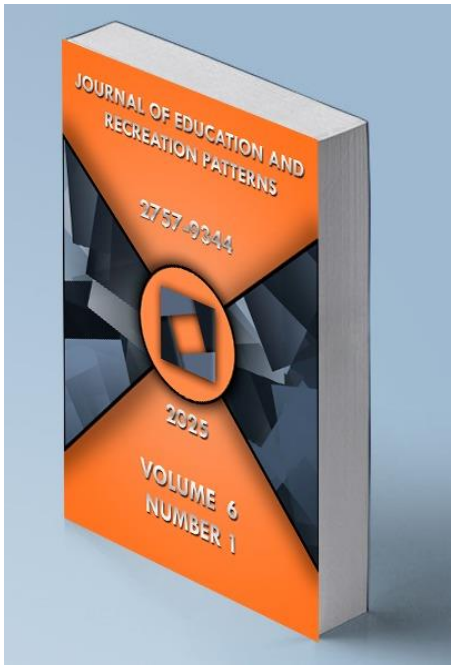
Yılmaz, G., Genç, N., & Safi, Z. (2023). Examination of career awareness of university students studying in the field of sport sciences. *International Journal of Recreation and Sports Science*, *7*(1), 41-49. https://doi.org/10.46463/ijrss.1382636.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Comparison of Endurance and Speed Performance of Soccer Players in Different Divisions

Ebru CEVİZ[1], Abdullah KILCI[2]

To cite this article:

Ceviz, E. & Kılcı, A. (2025). Comparison of endurance and speed performance of soccer players in different divisions. *Journal of Education and Recreation Patterns (JERP), 6 (*1), 86-100. DOI: https://doi.org/10.53016/jerp.v6i1.265

[1] Bingöl University, Facultyof Sports Sciences, Bingöl, Türkiye, eceviz@bingol.edu.tr,

https://orcid.org/0000-0002-8515-0803

[2] Çukurova University, Sport Sciences Faculty, Adana, Türkiye, akilci@cu.edu.tr,

https://orcid.org/0000-0002-5242-1582

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Comparison of Endurance and Speed Performance of Soccer Players in Different Divisions

Ebru Ceviz[1], Abdullah Kılcı[2]

ARTICLE INFORMATION
Original Research Paper

Received 10.11. 2024
Accepted 01.06. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 86-100

ABSTRACT

This study aimed to profile the physical performance of soccer players from various competitive levels in Türkiye based on their 30-15 IFT and sprint test results. A total of 165 male players from different divisions and age categories voluntarily participated. The study included 165 male soccer players from seven competitive groups: 2nd Division (n=23), 3rd Division (n=38), RAD (n=40), U19 (n=18), U17 (n=16), U15 (n=14), and U13 (n=16). The mean (±SD) age, height, and body weight of the participants were as follows: 2nd Division players were 22.8 ± 3.7 years old, 1.81 ± 0.1 m tall, and weighed 73.5 ± 7.5 kg; 3rd Division: 25.2 ± 4.0 years, 1.79 ± 0.0 m, 72.8 ± 8.0 kg; RAD: 23.1 ± 4.8 years, 1.77 ± 0.2 m, 72.8 ± 8.2 kg; U19: 17.9 ± 0.2 years, 1.75 ± 0.0 m, 68.3 ± 6.6 kg; U17: 16.8 ± 0.4 years, 1.74 ± 0.1 m, 66.5 ± 5.6 kg; U15: 15.0 ± 0.0 years, 1.73 ± 0.1 m, 62.5 ± 7.1 kg; and U13: 13.0 ± 0.0 years, 1.58 ± 0.1 m, 50.0 ± 6.1 kg. The study assessed physical performance in soccer players using the 30-15 IFT and 30 m sprint tests. Results showed significantly higher 30-15 IFT performance in all groups except U13 ($p < 0.05$), with no significant differences among the remaining groups ($p > 0.05$). In the sprint test, senior-level players (2nd Division, 3rd Division, and RAD) outperformed younger groups, especially U13 ($p < 0.05$). Among youth players, U19, U17, and U15 performed better than U13, but showed no differences among themselves ($p > 0.05$). Overall, the 30-15 IFT is effective for evaluating aerobic and high-intensity running but limited for sprint-specific assessment, making it suitable for load monitoring in soccer training.

Keywords: Aerobic, Anaerobic, Endurance, Running Economy, Sprint.

INTRODUCTION

Soccer demands high-level performance attributes (Uzunhasan, et al., 2024) and a wide range of skills at different intensities to ensure success (Mainer-Pardos et al., 2021; Bangsbo et al., 2006). The ability to perform high-speed activities in soccer players is an important prerequisite for the successful performance of actions that need to be performed at different speed levels in soccer (Reilly et al., 2000; Nobari et al., 2021). Various studies have reported that positive acceleration and maximum running speed, which are components of high speed, are associated with match performance level in soccer players (Cometti et al., 2001; Reilly, 2005; Little and Williams 2005; Buchheit et al., 2010; Nobari et al., 2021).

Soccer is a highly intense and intermittent physical activity that is affected by multiple dynamic variables and involves aerobic and anaerobic endurance (Orendurff et al., 2010; Dolci et al., 2020; Kılcı et al., 2025). Optimum performance depends on the harmony and systematic functioning of these functions, like musculoskeletal, cardiovascular and respiratory systems (Ceviz, 2024). In addition to basic biomotor skills such as speed, strength and endurance, agility, coordination, flexibility and balance are the main factors affecting performance (Faigenbaum et al., 2024; Oztas et al., 2024). Various factors, including technical and tactical skills, league level, decision-making ability, and environmental conditions, influence high performance in soccer (Hughes & Franks, 2005; Nelson & Groom, 2012). During the match, it is known that aerobic energy systems are predominant, but anaerobic energy systems play an important role in high intensity sections during the match. High-intensity runs, sprinting, jumping, fast and rapid changes of direction, and dual challenges, which affect the score, are performed anaerobically (Silva et al., 2022; Baldi, 2017). It has been reported that VO2max is one of the most important determinants to evaluate aerobic capacity (Hoff et al., 2002; Wagner, 2023). A high VO2max level in players enables them to recover more quickly after sprint or high-intensity activities (Ma et al., 2023). Another component that determines the capacity of performance during high intensity activities is the amount of motor unit recruitment, intermuscular coordination, decreases in electromechanical delay time, speed of transmission in nerve impulses, and muscle stretch-shortening cycles (McKinlay et al., 2018; Sandford et al., 2019). In other words, in order to be ready for a successive exercise after a high intensity session, phosphocreatine stores need to be replenished rapidly and the muscle needs to be replenished with oxygen (Okut et al., 2025). The most important factors determining performance in soccer players are high-speed running, total distance covered and improved aerobic capacity (Buchheit and Ufland, 2011; Turner and Stewart, 2014).

The 30-15 Intermittent Fitness Test (IFT) has become popular in recent years in both applied research and athletic practice. The test requires a short time to complete (approximately 20-30 minutes) and allows large groups of athletes to be tested simultaneously. The test protocol includes 30 seconds of shuttle runs (between 2 lines 40 m apart) separated by 15 seconds of passive recovery started and terminated by audible beeps. The main purpose of using the test today is to determine the maximum aerobic speed and maximal heart rate of athletes (Bucheit et al., 2021; Grgic et al., 2021). Scott et al., (2017) reported in their study that 30-15 IFT has a positive correlation with 300m time shuttle run, repeated sprint time, 505 agility test. The maximal speed measured in the 30-15 IFT is widely used in the planning of high-intensity interval running training and is an important part of the test that is highly attractive to coaches (Viano-Santasmarinas et al., 2018). Performance of athletes is monitored and training programs are designed depending on the results of the tests (Castagna et al., 2010). It is reported that there is a relationship between physical performance and the competition status of soccer players. They report that emotional and physical factors also play a big role and can significantly affect performance levels. There are differences in VO2max levels between high-level professional soccer players and the players from lower competitive leagues and positions within the team (Yücel et al., 2018; Modric et al., 2020; Slimani and Nikolaidis, 2017). The number of

acceleration, sprint and change of direction is even greater in world-class players (Slimani and Nikolaidis, 2017). It was reported that performance during a match is related to the experience and age of the players (Lehance et al., 2009). However, many researchers have reported that some actions of performing during a match, including the motor characteristics of speed, strength, power and endurance (Stolen et al., 2005; Wisløff et al., 2004) are related to the experience and age of the players (Lehance et al., 2009). Mohr et al., (2003) found in their study that 'elite soccer players in the Italian league ranked 1 to 10 in the official FIFA list' performed ~28% more high-intensity running (2.43 km vs. 1.9 km) and ~58% more sprinting distance (650 m vs. 410 m) than lower-level soccer players, and ~28% more high-intensity running (2.43 km vs. 1.9 km) and ~58% more sprinting distance (650 m vs. 410 m) than soccer players in the Danish top league ranked higher than 20 in the official FIFA list'. Gissis et al., (2006) reported positive significant differences in 10m sprint time tests (1.95sec, 2.14sec, 2.21sec, respectively) in young soccer players (≅16 years), elite soccer players in the Greek National Youth Team, compared to sub-elite (participating in regional championships) and amateur soccer players. These findings indicate that the level of strength, especially muscle strength, plays an important role in the performance in soccer. Therefore, it can be suggested that experienced soccer players are able to perform strength-related motor skill tasks better than sub-elite and younger players. In this context, the purpose of the present study is to compare the physical performance profiles of soccer players from different competitive levels in Türkiye, focusing on their 30-15 Intermittent Fitness Test (30-15 IFT) and sprint performances. To the best of our knowledge, no previous study has simultaneously examined 30-15 IFT performance across such a wide range of competitive levels within Türkiye football.

METHOD

Research Model

This study employed a cross-sectional and comparative research design to examine differences in endurance and sprint performance among male soccer players from various competitive divisions and age categories in Türkiye. The primary aim was to compare 30-15 Intermittent Fitness Test (IFT) and 30-meter sprint performances across different competitive levels.

Study Group

A total of 165 male soccer players voluntarily participated in the study. The sample distribution by group is presented in Table 1. Players were recruited from the following categories:

- 2nd Division (n = 23)
- 3rd Division (n = 38)
- Regional Amateur Division (RAD) (n = 40)
- U19 (n = 18)
- U17 (n = 16)
- U15 (n = 14)
- U13 (n = 16)

The inclusion criteria were as follows: (1) active participation in organized soccer competitions, (2) no musculoskeletal injuries within the past six months, and (3) provision of signed informed consent. Ethical approval for the study was obtained from the Bingöl University Health Sciences Scientific Research and Publication Ethics Committee (Decision No. 24/17, dated October 24, 2024).

Table 1

Frequency Distribution of Participants by Team Category

Group	*n*	%
Second Division	23	13.9%
Third Division	38	23.0%
Regional Amateur Division (RAD)	40	24.2%
U19	18	10.9%
U17	16	9.7%
U15	14	8.5%
U13	16	9.7%

Procedure for Data Collection

Testing was conducted on a natural grass field under standardized conditions. Players were familiarized with all procedures prior to data collection. The demographic characteristics of participants are provided in Table 2.

Table 2

Demographic Characteristics (Age, Height and Weight of the Groups (mean±sd)

Group	Age (years)	Height (m)	Body Weight (kg)
Second Division	22.83 ± 3.66	1.81 ± 0.10	73.52 ± 7.45
Third Division	25.21 ± 3.99	1.79 ± 0.04	72.84 ± 8.04
Regional Amateur Division (RAD)	23.05 ± 4.84	1.77 ± 0.20	72.81 ± 8.15
U19	17.94 ± 0.24	1.75 ± 0.04	68.25 ± 6.56
U17	16.81 ± 0.40	1.74 ± 0.07	66.47 ± 5.56
U15	15.00 ± 0.00	1.73 ± 0.06	62.49 ± 7.08
U13	13.00 ± 0.00	1.58 ± 0.08	49.99 ± 6.10

IFT 30-15 Intermittent Fitness Test (IFT)

Endurance performance was assessed using the 30-15 IFT, following the protocol by Buchheit et al., (2010). The test consists of 30-second shuttle runs between two lines 40 meters apart, interspersed with 15-second passive recovery periods. The initial speed was set at 8 km/h, increasing by 0.5 km/h every 30-second stage. Players were instructed to reach the lines in synchrony with auditory signals. The test was terminated when a player failed to reach the line for three consecutive intervals or voluntarily stopped. The final velocity (VIFT) and total distance covered were recorded.

30-Metre Sprint Test

Sprint performance was evaluated using a 30-meter linear sprint test. The timing was captured with precision photocells (±0.01 s accuracy) on a natural grass surface. Players started from 1 meter behind the timing gate. Each player performed two trials with a 3-minute passive recovery, and the best time was recorded (Mor et al., 2021).

Data Analysis

All statistical analyses were performed using IBM SPSS Statistics version 20.0. Descriptive statistics (mean, standard deviation, frequency, and percentage) were calculated for the participants' demographic characteristics and test scores. The normality of the data was assessed using the Shapiro-Wilk test, and homogeneity of variances was evaluated using Levene's test. When these assumptions were met, one-way analysis of variance (ANOVA) was used to compare the 30-15 Intermittent Fitness Test (IFT) and 30m sprint performance across different division levels. When ANOVA indicated a statistically significant difference, post hoc tests were conducted using Tukey's HSD test (for equal variances) or Games-Howell test (for unequal variances) to identify specific group differences. The significance level was set at $p < 0.05$ for all analyses.

FINDINGS

The IFT and sprint performance values of the groups included in our study are presented in Table 3. Statistical analyses of the IFT 30-15 test of players playing at different division levels were given in Graph 1. As a result of the statistical analysis, it was determined that the IFT 30-15 performance was statistically significantly higher in players playing in the 2nd Division and 3rd Division, RAD, U19, U17, U16 and U15 levels compared to the players in the U13 division ($p<0.05$). There was no significant difference between the other groups ($p>0,05$).

Table 3

Intermittent Fitness Test (IFT) and Sprint Performance Values by Team Category (M ± SD)

Group	IFT (km/h)	Sprint (s)
Second Division (2ndDiv)	19.60 ± 1.37	4.00 ± 0.12
Third Division (3rdDiv)	19.88 ± 1.54	3.99 ± 0.16
Regional Amateur Division (RAD)	18.62 ± 1.40	4.02 ± 0.15
U13	16.50 ± 1.72	4.76 ± 0.26
U15	18.56 ± 1.22	4.28 ± 0.27
U17	19.19 ± 1.26	4.26 ± 0.12
U19	19.35 ± 1.90	4.16 ± 0.11

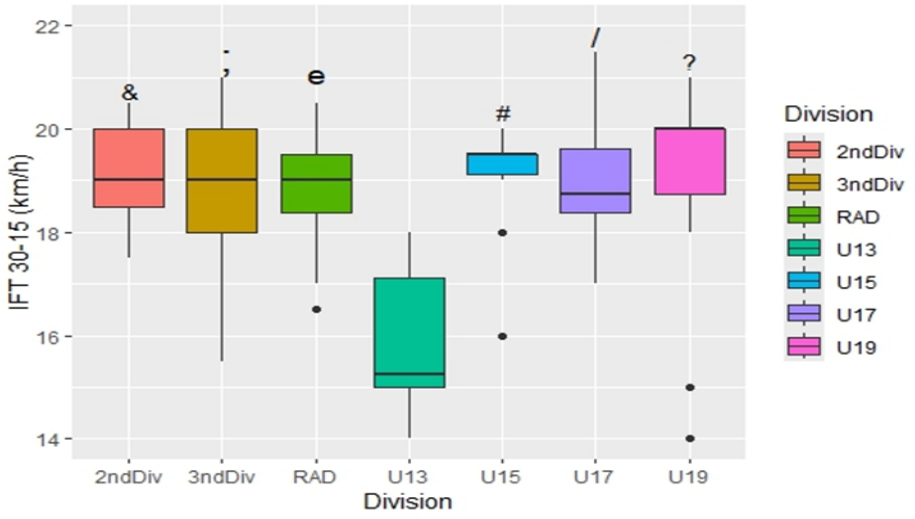


Figure 1

Comparison of 30–15 Intermittent Fitness Test (IFT) Performance Among Players from Different Divisions

Not:& indicates a statistically significant difference between 2nd Division and U13 ($p < 0.05$); **‘,’** indicates a difference between 3rd Division and U13 ($p < 0.05$); **e** indicates a difference between RAD and U13 ($p < 0.05$); **#** indicates a difference between U15 and U13 ($p < 0.05$); **/** indicates a difference between U17 and U13 ($p < 0.05$); **?** indicates a difference between U19 and U13 ($p < 0.05$).

According to Figure 1, statistical analyses of the 30m sprint tests of players competing in different divisions are presented in Figure 2. As a result of the statistical analysis, it is observed that the 30m sprint performance of the players in the 2nd Division is statistically different compared to the U13, U15, U17, and U19 players ($p < .05$). Regarding the 3rd Division players, their performance was statistically higher than that of the U13, U15, and U17 players ($p < .05$). For the RAD players, their performance was statistically higher compared to the U13, U15, U17, and U19 players ($p < .05$). On the other hand, while the sprint performances of the U19, U17, and U15 group players were statistically higher than those of the U13 players ($p < .05$), there was no statistically significant difference among themselves ($p > .05$).

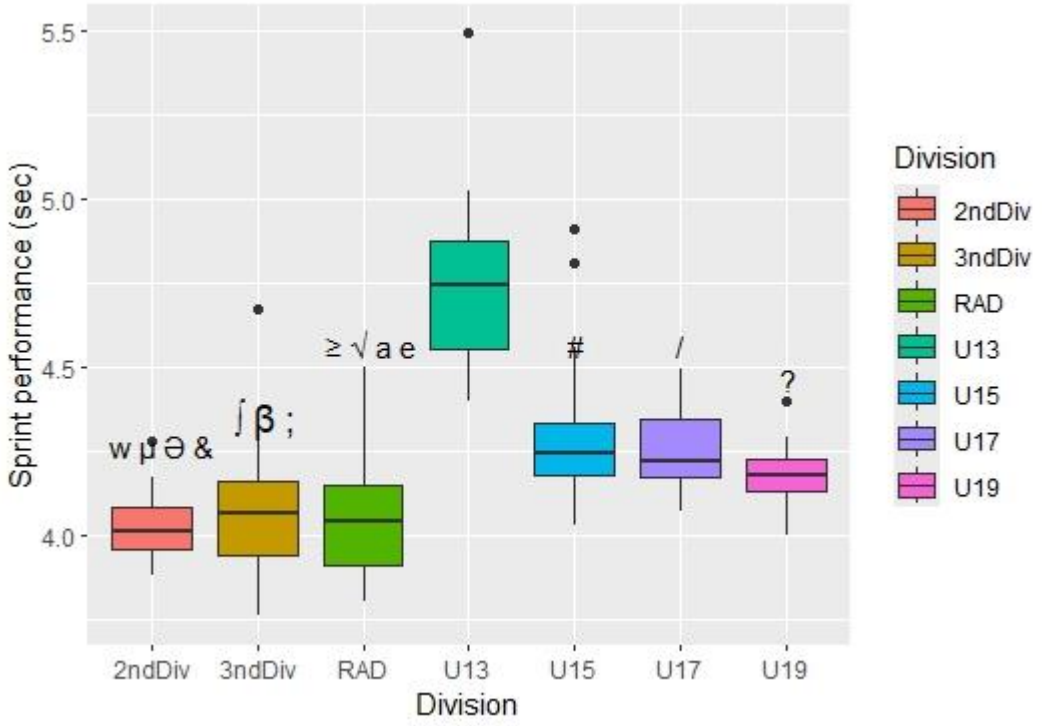


Figure 2

Comparison of 30m Sprint Performances of Players Playing at Different Division Levels

& indicates a statistically significant difference between 2nd Division and U13 ($p < 0.05$); **w** indicates a difference between 2nd Division and U15 ($p < 0.05$); **ə** indicates a difference between 2nd Division and U17 ($p < 0.05$); **µ** indicates a difference between 2nd Division and U19 ($p < 0.05$); ∫ indicates a difference between 3rd Division and U17 ($p < 0.05$); **β** indicates a difference between 3rd Division and U13 ($p < 0.05$); **;** indicates a difference between 3rd Division and U13 ($p < 0.05$); **≥** indicates a difference between RAD and U19 ($p < 0.05$); √ indicates a difference between RAD and U17 ($p < 0.05$); **a** indicates a difference between RAD and U15 ($p < 0.05$); **e** indicates a difference between RAD and U13 ($p < 0.05$); # indicates a difference between U15 and U13 ($p < 0.05$); / indicates a difference between U17 and U13 ($p < 0.05$); **?** indicates a difference between U19 and U13 ($p < 0.05$).

According to Figure 2, players in the 2nd Division demonstrated the fastest sprint

performance, with a median value lower than all other groups. A statistically significant difference was observed between the 2nd Division and the U13, U15, U17, and U19 players ($p < .05$), indicating that senior players perform better in short-distance sprints. Similarly, players in the 3rd Division and RAD had significantly faster times than U13, U15, and U17 players. Although U19, U17, and U15 players outperformed U13 players statistically, there were no significant differences among themselves ($p > .05$). These results suggest a performance hierarchy in sprinting ability aligned with age and competitive level.

DISCUSSION

The aim of this study is to compare the physical performance profiles of players competing in different division levels, especially in terms of 30-15 Interval Fitness Test (IFT) and sprint performances. In this context, the differences between high-intensity running and sprinting performances of high-level professional and playing in lower-level division players were analysed, and the effects of these characteristics on competition level and performance were evaluated. The main result of our study was that IFT 30-15 performance was found to be statistically significantly different ($p<0.05$) in players playing in the 2nd Division and 3rd Division, RAD, U19, U17, U16 and U15 levels compared to players in the U13 Division. There was no significant difference between the other groups ($p>0,05$).

A soccer player must have technical, tactical, physical, fitness, mental and psychological characteristics at a high level for his success in match performance. Although the player's technique, tactical understanding, strength, speed and quickness ability are at a high level, if he gets tired early and recovers late, he may not be able to use these important skills for soccer. Fatigue is one of the main factors that limit and affect the performance of the athlete. If an athlete does not get tired during training or can continue training even when tired, this is an indication that the athlete has endurance. The level of endurance in an athlete can be determined by examining various factors, including an individual's endurance, their basic motoric characteristics, their ability to perform a movement effectively, and their capacity to utilise functional abilities in an economical manner (Bompa, 2011). In this regard, Hoppe et al., (2013) demonstrated that performance in the Intermittent Shuttle Run Test —a test closely reflecting soccer-specific endurance—was significantly correlated with VO_2max and time to exhaustion in continuous endurance protocols, whereas no meaningful relationship was found with running economy or other physiological variables. Their findings emphasize that VO_2max is a key predictor of intermittent endurance capacity in soccer players.

Endurance is evaluated in two categories as aerobic and anaerobic endurance. Aerobic endurance is important in terms of performing low-intensity activities within the general structure of soccer (Bangsbo et al., 2006; Krustrup et al., 2005), performing high intensity movements repetitively and ensuring recovery in shorter times (Bishop et al., 2004, Bradley et al., 2013, Helgerud et al., 2001, McMillan et al., 2005, Mohr et al., 2003, Stølen et al., 2005). The most important indicators of aerobic capacity are maximum oxygen consumption (VO2max) capacity, anaerobic threshold (ANE) level and running economy. In the results of Helgerud et al., (2001) with 19 elite young male players, it was found that there was a direct relationship between VO2max level and characteristics such as total running distance, high intensity workload, number of sprints performed during the competition, and that athletes with high VO2max level during the competition had better performance during the competition compared to athletes with low VO2max level (Altmann et al., 2018).

Altmann et al., (2020) found significant differences in all endurance parameters—including fixed aerobic threshold (v2mmol/l), fixed anaerobic threshold (v4mmol/l), individual aerobic threshold, and individual anaerobic threshold—between goalkeepers and all other playing positions, while no significant differences were observed among wingers, central defenders, forwards, and central midfielders. The study revealed that goalkeepers had the lowest endurance capacity, whereas central midfielders demonstrated the highest aerobic

performance across all lactate-based thresholds, although the effect sizes were reported as small to moderate. Hermosilla-Palma et al., (2024) included a total of 84 male soccer players from 1st division teams A (1A) (n=21; age: 23.5±5.2), 1st division B (1B) (n=42; age: 23.0±5.0) and 2nd professional division (2nd) (n=21; age: 22.9±4.7). VIFT values were significantly higher in 1A teams compared to both 1B and 2nd division teams, and fullbacks showed significantly higher VIFT scores than central defenders. Silva et al., (2022) In the study, 124 young soccer players from different age groups (15, 16, 17, 18 and 19) were included, height and VKİ had high correlations with V IFT and low correlations with ASR (anaerobic speed reserve). CMJ (jump height) showed low correlations with ASR and high correlations with V IFT. Both V IFT and ASR showed moderate correlations with running time at different distances and very high correlations with MSS. COD (time, asymmetry index) time was highly correlated with V IFT and showed low to moderate correlations with ASR. It has been reported that locomotor skills performance at 30-15 V IFT is highly correlated with physical fitness and anthropometric characteristics; ASR is also correlated with these variables, but at a lower level of correlation. Therefore, IFT 30-15 Intermittent Fitness Test performance increased with increasing age, but there was no difference between the ages in our study, which suggests that it is related to the training age.

Scott et al., (2017) showed that V IFT was significantly associated with the 300 m shuttle, repeated sprint, 505 test and 40 m sprint, vertical jump and 10 m sprint tests. These findings demonstrate that different anaerobic properties contribute to intermittent fitness characteristics with V IFT. More specifically, this data suggest that V IFT is useful for monitoring performance on tasks largely determined by anaerobic capacity. Ingebrigtsen et al., (2014) reported that sprint speed at 20 and 35 m correlated with Yo-Yo IR1 test performance, but only 35 m correlated with IR2 test performance, and at 35 m, repeated sprint ability=RSA correlated with both levels of the Yo-Yo IR test, and submaximal HRs after 2 and 4 min were independently related to Yo-Yo IR1 and IR2 performance. Regarding anaerobic efforts, a relationship between repeated sprints, directional changes and anaerobic reserve speed and performance in the 30-15 IFT test has been observed (Ingebrigtsen et al., 2014; Scott et al., 2017; Silva et al., 2022). The IFT 30-15 Intermittent Fitness Test, which is one of the most important test methods among most measurement tests that can be applied in testing field performance and match performance in players, has become widespread today because it has the ability to measure endurance at the fitness level compared to other field tests.

Currie, (2018) studied 93 elite youth soccer players (U11, U12, U13, U14, U15 and U17) with a mean age of (13.0 ± 1.9). Performance, speed (10m and 20m tests), agility (505 tests) and endurance (Yo-Yo IR1) tests 10m and 20m sprint and 505 tests (P>0.05) showed a significant difference between the U11, U12 and U13 teams. However, U14 to U17 had significantly better test results in all measurements compared to U11. Significant differences between all teams were only observed in the Yo-Yo IR1. This suggests that more mature players perform better than their younger competitors. To avoid bias in the physical structure, teams may consider comparing players according to their age of maturity rather than chronological age. Benitez Sillero et al., (2015) found that the endurance performance of 97 young players in the U14-U16-U19 age categories increased with age, but this difference was less in those who were close to each other. Tounsi et al (2021) found that speed performance (10-20-30m sprint) and endurance performance increased with age in young players aged 13-17 years (U13-U19, n=487). Huijgen et al., (2010) reported that sprint performance improved with age in a cohort of 267 young players aged between 12 and 19 years. Similarly, Buchheit et al., (2010) observed a linear increase in sprint performance across age categories (U13 to U18) in 99 youth players. In contrast, Miłek and Perkowski (2024) found no significant relationship between age and 5 m or 10 m sprint times in adult players but reported a weak positive correlation (r = 0.32) between age and 20 m sprint time, suggesting a slight decline in sprint performance with increasing age. Benitez Sillero et al., (2015) observed that aerobic endurance and sprint performance of 97 young players in U14-U16-U19 age categories

increased with age, but this difference was found to be less at ages close to each other. Baydemir and Aksoy (2017), In the study in which a total of 150 soccer players, 17 and 19 years old U17 (n=73) and U19 (n=77), were included, it was reported that the 30m sprint performance of soccer players (19 years old) was more improved than that of soccer players (17 years old). Buchheit (2008) emphasized in his study that individuals with higher VO2max, those with higher maximum sprint speed, have higher anaerobic speed reserve and therefore can reach higher V IFT at the same relative running speed. In order to support this situation, he reported that the 20 m sprint test is associated with high V IFT, while Scott et al., (2017) reported that the relationship between 20 m sprint times and V IFT in the current study indicates that anaerobic speed reserve potentially affects V IFT performance. When the literature is examined; the most important factor affecting endurance performance in soccer is aerobic endurance. During a match, it is necessary to have a good aerobic endurance in order to recover quickly and quickly after a high intensity effort and at the same time to delay fatigue. It is thought that aerobic endurance may be related to total running distances and aerobic endurance may be related with different positions in the match

Conclusion

As a result, it was concluded that the variables obtained from the 30-15 IFT are particularly useful for evaluating total distance and high-intensity movements but are not suitable for assessing sprint characteristics. From a practical perspective, the 30-15 IFT proves effective in monitoring endurance and high-intensity efforts. However, it is recommended to complement this test with additional assessments targeting sprint performance, such as short-distance sprint tests, to capture explosive power and acceleration. Periodic testing of these variables is essential to track player progress, adjust training plans accordingly, and ensure optimal physical preparation throughout the season. These inter-divisional differences or similarities in endurance and speed performance may be attributed to several factors, including variations in training load, tactical roles, and the players' stage of physical development, which are known to differ significantly between professional levels (Bradley et al., 2010).

Recommendations

Training programs should be adapted according to players' division and age levels, as higher-level and older players showed superior aerobic and sprint performance compared to U13 players. For younger age groups, greater emphasis should be placed on developing endurance and sprint capacity. The 30-15 IFT is effective for monitoring aerobic fitness but should be complemented with sprint tests to assess explosive performance. Future studies should include female athletes, increase sample sizes, and adopt longitudinal designs to enhance the validity and generalizability of the findings.

Limitations

This study has several limitations that should be acknowledged. First, the relatively small sample size within certain subgroups may limit the generalizability of the findings. Second, single-center design restricts the applicability of the results to broader populations or different training environments. Third, due to the cross-sectional nature of the study, causal relationships between variables cannot be established. Lastly, potential confounding factors such as playing position, training background, or surface conditions during testing were not controlled, which may have influenced performance outcomes.

REFERENCES

Altmann, S., Kuberczyk, M., Ringhof, S., Neumann, R., & Woll, A. (2018). Relationships between performance test and match-related physical performance parameters. *German Journal of Exercise and Sport Research, 48*(2), 218–227. https://doi.org/10.1007/s12662-018-0519-y

Altmann, S., Neumann, R., Woll, A., & Hartel, S. (2020). Endurance capacities in professional soccer players: Are performance profiles position specific? *Frontiers in Sports and Active Living, 2*, 549897. https://doi.org/10.3389/fspor.2020.549897

Baldi, M., Da Silva, J. F., Buzzachera, C. F., Castagna, C., & Guglielmo, L. G. A. (2017). Repeated sprint ability in soccer players: Associations with physiological and neuromuscular factors. *The Journal of Sports Medicine and Physical Fitness, 57*(1–2), 26–32. https://doi.org/10.23736/S0022-4707.16.05776-5

Bangsbo, J., & Mizuno, M. (2013). Morphological and metabolic alterations in soccer players with detraining and retraining and their relation to performance. In *Science and football (Routledge revivals)* (pp. 114–124). Routledge. https://doi.org/10.4324/9780203720035

Bangsbo, J., Mohr, M., & Krustrup, P. (2006). Physical and metabolic demands of training and match-play in the elite football player. *Journal of Sports Sciences, 24*(7), 665–674. https://doi.org/10.1080/02640410500482529

Baydemir, B., & Aksoy, D. (2019). Comparison of maximum sprint and high-speed change of direction performance of amateur football players aged 17 and 19. *Kilis 7 Aralık Üniversitesi Beden Eğitimi ve Spor Bilimleri Dergisi, 3*(1), 1–7. https://dergipark.org.tr/tr/pub/besbid/issue/47294/563372

Benítez Sillero, J. D., Silva-Grigoletto, D., Muñoz Herrera, E., Morente Montero, A., & Guillén del Castillo, M. (2015). Physical ability of the youth football players of a professional club. *International Journal of Medicine & Science of Physical Activity & Sport, 15*(58). https://doi.org/10.15366/rimcafd2015.58.006

Bishop, D., Edge, J., & Goodman, C. (2004). Muscle buffer capacity and aerobic fitness are associated with repeated-sprint ability in women. *European Journal of Applied Physiology, 92*(4–5), 540–547. https://doi.org/10.1007/s00421-004-1150-1

Bompa, T. O. (2011). *Antrenman kuramı ve yöntemi* (İ. Keskin & A. B. Tuner, Çev.). Bağırgan Yayınevi.

Bradley, P. S., Sheldon, W., Wooster, B., Olsen, P., Boanas, P., & Krustrup, P. (2010). High-intensity running in English FA Premier League soccer matches. *Journal of Sports Sciences, 28*(2), 147–155. https://doi.org/10.1080/02640410802512775

Bradley, P. S., Carling, C., Diaz, A. G., Hood, P., Barnes, C., Ade, J., Mohr, M. (2013). Match performance and physical capacity of players in the top three competitive standards of English professional soccer. *Human Movement Science, 32*(4), 808–821. https://doi.org/10.1016/j.humov.2013.06.002

Buchheit, M. (2008). 30-15 Intermittent Fitness Test et répétition de sprints. *Science & Sports, 23*(1), 26–28. https://doi.org/10.1016/j.scispo.2007.12.002

Buchheit, M., Mendez-Villanueva, A., Simpson, B. M., & Bourdon, P. C. (2010). Repeated-sprint sequences during youth soccer matches. *International Journal of Sports Medicine, 31*(10), 709–716. https://doi.org/10.1055/s-0030-1261897

Buchheit, M., & Brown, M. (2020). Pre-season fitness testing in elite soccer: Integrating the 30-15 Intermittent Fitness Test into the weekly microcycle. *Sport Performance & Science Reports, 1*(111), 1–3. https://doi.org/10.5281/zenodo.3894400

Buchheit, M., & Ufland, P. (2011). Effect of endurance training on performance and muscle reoxygenation rate during repeated-sprint running. *European Journal of Applied Physiology, 111*(2), 293–301. https://doi.org/10.1007/s00421-010-1654-9

Buchheit, M., Dikmen, U., & Vassallo, C. (2021). The 30-15 Intermittent Fitness Test—Two decades of learnings. *Sport Performance & Science Reports, 1*(148), 1–13. https://doi.org/10.5281/zenodo.5722724

Buchheit, M., Mendez-Villanueva, A., Simpson, B. M., & Bourdon, P. C. (2010). Match running performance and fitness in youth soccer. *International Journal of Sports Medicine, 31*(11), 818–825. https://doi.org/10.1055/s-0030-1262838

Castagna, C., Manzi, V., Impellizzeri, F., Weston, M., & Alvarez, J. C. B. (2010). Relationship between endurance field tests and match performance in young soccer players. *The Journal of Strength & Conditioning Research, 24*(12), 3227–3233. https://doi.org/10.1519/JSC.0b013e3181e72709

Cometti, G., Maffiuletti, N. A., Pousson, M., Chatard, J. C., & Maffulli, N. (2001). Isokinetic strength and anaerobic power of elite, subelite and amateur French soccer players. *International Journal of Sports Medicine, 22*(1), 45–51. https://doi.org/10.1055/s-2001-11331

Ceviz, E. (2024). The effect of 3 breathing techniques on 25 m freestyle swimming performance level in swimming branch. *Turkish Journal of Sport and Exercise, 26*(3), 574–583. https://doi.org/10.15314/tsed.1498030

Currie, W. (2018). *Performance profiling of elite youth football players: The effects of age on performance* [Master's thesis, University of Glasgow]. Enlighten Theses. https://theses.gla.ac.uk/8774/

Faigenbaum, A. D., Lloyd, R. S., Myer, G. D., & Oliver, J. L. (2024). Integrative neuromuscular training for athletic performance enhancement in youth: A contemporary perspective. *Sports Medicine - Open, 10*(1), 15. https://doi.org/10.1186/s40798-024-00515-7

Gissis, I., Papadopoulos, C., Kalapotharakos, V. I., Sotiropoulos, A., Komsis, G., & Manolopoulos, E. (2006). Strength and speed characteristics of elite, subelite, and recreational young soccer players. *Research in Sports Medicine, 14*(3), 205–214. https://doi.org/10.1080/15438620600854769

Grgic, J., Lazinica, B., & Pedisic, Z. (2021). Test–retest reliability of the 30–15 Intermittent Fitness Test: A systematic review. *Journal of Sport and Health Science, 10*(4), 413–418. https://doi.org/10.1016/j.jshs.2020.04.010

Helgerud, J., Engen, L. C., Wisløff, U., & Hoff, J. (2001). Aerobic endurance training improves soccer performance. *Medicine & Science in Sports & Exercise, 33*(11), 1925–1931. https://doi.org/10.1097/00005768-200111000-00019

Hermosilla-Palma, F., Villaseca-Vicuña, R., Merino-Muñoz, P., Gómez-Álvarez, N., Pérez-Contreras, J., Salas-Ávila, M., Cerda-Kohler, H., Portes-Junior, M., & Aedo-Muñoz, E. (2024). Differences in 30-15 IFT test performance across playing positions and categories among adult professional soccer players. *Retos: Nuevas Perspectivas de Educación Física, Deporte y Recreación, 61*, 415–420. https://doi.org/10.47197/retos.v61.108413

Hoff, J., Gran, A., & Helgerud, J. (2002). Maximal strength training improves aerobic endurance performance. *Scandinavian Journal of Medicine & Science in Sports, 12*(5), 288–295. https://doi.org/10.1034/j.1600-0838.2002.01140.x

Hoppe, M. W., Baumgart, C., Sperlich, B., Ibrahim, H., Jansen, C., Willis, S. J., & Freiwald, J. (2013). Comparison between three different endurance tests in professional soccer players. *The Journal of Strength & Conditioning Research, 27*(1), 31–37. https://doi.org/10.1519/JSC.0b013e31824e1711

Hughes, M., & Franks, I. (2005). Analysis of passing sequences, shots and goals in soccer. *Journal of Sports Sciences, 23*(5), 509–514. https://doi.org/10.1080/02640410410001716779

Huijgen, B. C., Elferink-Gemser, M. T., Post, W., & Visscher, C. (2010). Development of dribbling in talented youth soccer players aged 12–19 years: A longitudinal study.

Journal of Sports Sciences, 28(7), 689–698. https://doi.org/10.1080/02640411003645679

Ingebrigtsen, J., Brochmann, M., Castagna, C., Bradley, P. S., Ade, J., Krustrup, P., & Holtermann, A. (2014). Relationships between field performance tests in high-level soccer players. *The Journal of Strength & Conditioning Research, 28*(4), 942–949. https://doi.org/10.1519/JSC.0b013e3182a1f861

Kılcı, A., Koç, M. E., Binokay, H., & others. (2025). Does running performance relate to the market value of elite male soccer players? A case study from the FIFA World Cup. *BMC Sports Science, Medicine and Rehabilitation, 17*, 109. https://doi.org/10.1186/s13102-025-01162-x

Krustrup, P., Mohr, M., Ellingsgaard, H. E. L. G. A., & Bangsbo, J. (2005). Physical demands during an elite female soccer game: Importance of training status. *Medicine & Science in Sports & Exercise, 37*(7), 1242–1248. https://doi.org/10.1249/01.mss.0000170062.73981.94

Lehance, C., Binet, J., Bury, T., & Croisier, J. L. (2009). Muscular strength, functional performances and injury risk in professional and junior elite soccer players. *Scandinavian Journal of Medicine & Science in Sports, 19*(2), 243–251. https://doi.org/10.1111/j.1600-0838.2008.00780

Little, T., & Williams, A. G. (2005). Specificity of acceleration, maximum speed, and agility in professional soccer players. *The Journal of Strength & Conditioning Research, 19*(1), 76–78. https://doi.org/10.1519/1533-4287(2005)19

Miłek, M., & Perkowski, R. (2024). Comparison of speed and power of soccer players before the preparation period and during the soccer season. *Journal of Education, Health and Sport, 61*, Article 51847. https://doi.org/10.12775/JEHS.2024.61.51847

Ma, X., Cao, Z., Zhu, Z., Chen, X., Wen, D., & Cao, Z. (2023). VO_2max (VO_2peak) in elite athletes under high-intensity interval training: A meta-analysis. *Heliyon, 9*(6), e16663. https://doi.org/10.1016/j.heliyon.2023.e16663

Mainer-Pardos, E., Gonzalo-Skok, O., Nobari, H., Lozano, D., & Pérez-Gómez, J. (2021). Age-related differences in linear sprint in adolescent female soccer players. *BMC Sports Science, Medicine and Rehabilitation, 13*, 1–7. https://doi.org/10.1186/s13102-021-00327-8

McKinlay, B. J., Wallace, P., Dotan, R., Long, D., Tokuno, C., Gabriel, D. A., & Falk, B. (2018). Effects of plyometric and resistance training on muscle strength, explosiveness, and neuromuscular function in young adolescent soccer players. *The Journal of Strength & Conditioning Research, 32*(11), 3039–3050. https://doi.org/10.1519/JSC.0000000000002428

McMillan, K., Helgerud, J., Grant, S. J., Newell, J., Wilson, J., Macdonald, R., & Hoff, J. (2005). Lactate threshold responses to a season of professional British youth soccer. *British Journal of Sports Medicine, 39*(7), 432–436. https://doi.org/10.1136/bjsm.2004.012260

Modric, T., Versic, S., & Sekulic, D. (2020). Aerobic fitness and game performance indicators in professional football players; playing position specifics and associations. *Heliyon, 6*(11), e05427. https://doi.org/10.1016/j.heliyon.2020.e05427

Mohr, M., Krustrup, P., & Bangsbo, J. (2003). Match performance of high-standard soccer players with special reference to development of fatigue. *Journal of Sports Sciences, 21*(7), 519–528. https://doi.org/10.1080/0264041031000071182

Mor, A., Yurtseven, R., Mor, H., & Acar, K. (2021). The effect of different warm-up protocols on some performance parameters in 11–12-year-old football players. *SPORMETRE Beden Eğitimi ve Spor Bilimleri Dergisi, 19*(4), 72–83. https://doi.org/10.33689/spormetre.907920

Nelson, L. J., & Groom, R. (2012). The analysis of athletic performance: Some practical and philosophical considerations. *Sport, Education and Society, 17*(5), 687–701. https://doi.org/10.1080/13573322.2011.552574

Nobari, H., Oliveira, R., Clemente, F. M., Pérez-Gómez, J., Pardos-Mainer, E., & Ardigò, L. P. (2021). Somatotype, accumulated workload, and fitness parameters in elite youth players: Associations with playing position. *Children, 8*(5), 375. https://doi.org/10.3390/children8050375

Nobari, H., Silva, A. F., Clemente, F. M., Siahkouhian, M., García-Gordillo, M. Á., Adsuar, J. C., & Pérez-Gómez, J. (2021). Analysis of fitness status variations of under-16 soccer players over a season and their relationships with maturational status and training load. *Frontiers in Physiology, 11*, 597697. https://doi.org/10.3389/fphys.2020.597697

Okut, S., & Kahraman, M. Z. (2025). Investigation of the relationship between body composition, maximal oxygen consumption and some biomotor characteristics in young male long-distance runners. *Journal of Sports and Physical Education Studies, 5*(1), 18–24. https://doi.org/10.32996/jspes.2025.5.1.2

Orendurff, M. S., Walker, J. D., Jovanovic, M., Tulchin, K. L., Levy, M., & Hoffmann, D. K. (2010). Intensity and duration of intermittent exercise and recovery during a soccer match. *The Journal of Strength & Conditioning Research, 24*(10), 2683–2692. https://doi.org/10.1519/JSC.0b013e3181bac463

Oztas, M., Kilci, A., Erdoğan, A., & Şirin, E. F. (2024). Adaptation of the Exercise Maintenance Motivation Scale to Turkish culture. *Turkish Journal of Sport and Exercise, 26*(3), 428–433. https://doi.org/10.15314/tsed.1564647

Reilly, T. (2005). An ergonomics model of the soccer training process. *Journal of Sports Sciences, 23*(6), 561–572. https://doi.org/10.1080/02640410400021245

Reilly, T., Bangsbo, J., & Franks, A. (2000). Anthropometric and physiological predispositions for elite soccer. *Journal of Sports Sciences, 18*(9), 669–683. https://doi.org/10.1080/02640410050120050

Sandford, G. N., Allen, S. V., Kilding, A. E., Ross, A., & Laursen, P. B. (2019). Anaerobic speed reserve: A key component of elite male 800-m running. *International Journal of Sports Physiology and Performance, 14*(4), 501–508. https://doi.org/10.1123/ijspp.2018-0163

Scott, B. R., Hodson, J. A., Govus, A. D., & Dascombe, B. J. (2017). The 30–15 intermittent fitness test: Can it predict outcomes in field tests of anaerobic performance? *The Journal of Strength & Conditioning Research, 31*(10), 2825–2831. https://doi.org/10.1519/JSC.0000000000001563

Silva, A. F., Alvurdu, S., Akyildiz, Z., & Clemente, F. M. (2022). Relationships of final velocity at 30–15 intermittent fitness test and anaerobic speed reserve with body composition, sprinting, change-of-direction and vertical jumping performances: A cross-sectional study in youth soccer players. *Biology, 11*(2), 197. https://doi.org/10.3390/biology11020197

Slimani, M., & Nikolaidis, P. T. (2019). Anthropometric and physiological characteristics of male soccer players according to their competitive level, playing position and age group: A systematic review. *Journal of Sports Medicine and Physical Fitness, 59*(1), 141–163. https://doi.org/10.23736/S0022-4707.17.07950-6

Stølen, T., Chamari, K., Castagna, C., & Wisløff, U. (2005). Physiology of soccer: An update. *Sports Medicine, 35*(6), 501–536. https://doi.org/10.2165/00007256-200535060-00004

Tounsi, M., Aouichaoui, C., Tabka, Z., & Trabelsi, Y. (2021). Specific physical performances among male elite youth soccer players: Effect of maturity status. *The Journal of Sports Medicine and Physical Fitness, 61*(10), 1339–1347. https://doi.org/10.23736/S0022-4707.21.11766-9

Turner, A. N., & Stewart, P. F. (2014). Strength and conditioning for soccer players. *Strength & Conditioning Journal, 36*(4), 1–13. https://doi.org/10.1519/SSC.0000000000000054

Uzunhasan, M. B., Kızılet, A., Tekeli, E. S. A., & Kızılet, T. (2024). The effects of 8-week contrast and plyometric training methods on biomotor properties and neuromuscular factors in young male football players. *International Journal of Sport Exercise and Training Sciences (IJSETS), 10*(2), 84–97. https://doi.org/10.18826/useeabd.1320635

Viano-Santasmarinas, J., Rey, E., Carballeira, S., & Padrón-Cabo, A. (2018). Effects of high-intensity interval training with different interval durations on physical performance in handball players. *The Journal of Strength & Conditioning Research, 32*(12), 3389–3397. https://doi.org/10.1519/JSC.0000000000001847

Wagner, P. D. (2023). Determinants of maximal oxygen consumption. *Journal of Muscle Research and Cell Motility, 44*(2), 73–88. https://doi.org/10.1007/s10974-022-09636-y

Wisløff, U., Castagna, C., Helgerud, J., Jones, R., & Hoff, J. (2004). Strong correlation of maximal squat strength with sprint performance and vertical jump height in elite soccer players. *British Journal of Sports Medicine, 38*(3), 285–288. https://doi.org/10.1136/bjsm.2002.002071

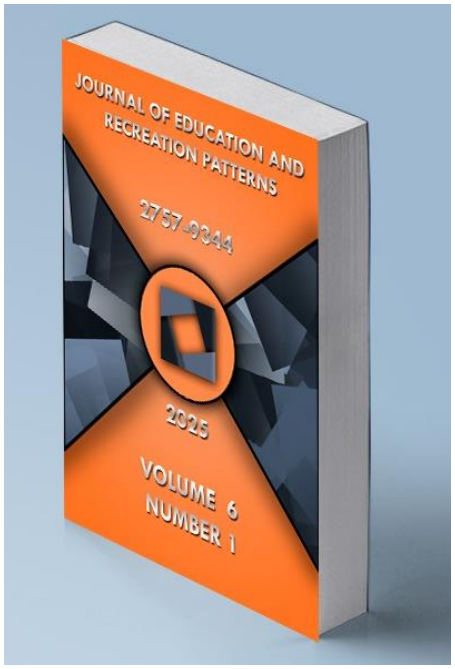
Yücel, A. S., Eskiyecek, C. G., Çiftçi, İ., Çetin, T. A. N., Savucu, Y., & Türkmen, A. (2018). Evaluation of undergraduate students' opinions on sustainability in sports (The case of Firat University). *Mukaddime, 9*(2), 261–292. https://doi.org/10.19059/mukaddime.460781

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Motivation in University Students Participating in Regular Physical Activity: Relationship with Self-Compassion and Psychological Resilience

Yunus Sinan BİRİCİK[1], Mehmet Haluk SİVRİKAYA[2], Vahdet ALAEDDİNOĞLU[3]

To cite this article:

Biricik, Y.S., Sivrikaya, M.H. & Alaeddinoğlu, V. (2025). Motivation in university students participating in regular physical activity: Relationship with self-compassion and psychological resilience. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 101-112. DOI: https://doi.org/10.53016/jerp.v6i1.241

[1] Atatürk Üniversitesi, Spor Bilimleri Fakültesi, Erzurum, Türkiye, sinan.biricik@atauni.edu.tr, https://orcid.org/0000-0002-8579-9514

[2] Atatürk Üniversitesi, Spor Bilimleri Fakültesi, Erzurum, Türkiye, haluk@atauni.edu.tr, https://orcid.org/0000-0001-8268-3391

[2] Atatürk Üniversitesi, Horasan Meslek Yüksekokulu, Erzurum, Türkiye, v.alaeddinoglu@atauni.edu.tr, https://orcid.org/0000-0001-8432-0105

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Motivation in University Students Participating in Regular Physical Activity: Relationship with Self-Compassion and Psychological Resilience

Yunus Sinan Biricik[1], Mehmet Haluk Sivrikaya[2], Vahdet Alaeddinoğlu[3]

ARTICLE INFORMATION
Original Research Paper

Received 04.07. 2024
Accepted 20.06. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 101-112

ABSTRACT

Regular physical activity is known to have many health benefits including cardiovascular health, weight control, improved metabolism, mental health, immune system strengthening and social bonding. Understanding how academic motivation is linked to self-compassion and psychological resilience in university students who engage in regular physical activity may indicate an effective way to increase students' motivation. Therefore, the aim of the study was to obtain the results of the relationship between academic motivation levels and self-compassion and psychological resilience levels of university students who regularly participate in physical activity. In this cross-sectional study, the relationship between the three variables was evaluated. In this context, general and relational survey models were utilized. Measurements of these three constructs were completed with 812 students (521 males, 291 females) studying at Atatürk University who regularly participated in various physical activities (swimming, cycling, fitness or gym exercises, weight lifting, astroturf, hiking, etc.) for at least 150 minutes per week. Academic Motivation, Self-Compassion and Psychological Resilience scales were used in the study. Correlation and regression analysis were used to analyze the data. Significant relationships were found between academic motivation and psychological resilience and self-compassion. Self-compassion and psychological resilience affected intrinsic motivation at the level of .04, extrinsic motivation at the level of .07 and amotivation at the level of .06. In this context, both self-compassion and psychological resilience were identified as significant predictors for all sub-dimension types of academic motivation. In conclusion, this study found that higher levels of motivation were associated with greater feelings of self-compassion and psychological resilience.

Keywords: Academic Motivation, Physical Activity, Psychological Resilience, Self-Compassion.

INTRODUCTION

Regular physical activity provides numerous benefits for various age groups and populations. Regular participation in physical activity has been associated with improved cardiovascular fitness, increased lean mass, improved blood lipid profile, reduced body adiposity and improved psychosocial well-being (Riddell & Iscoe, 2006). Regular physical activity has also been shown to have both physical and mental health benefits, emphasizing its importance for the overall well-being of individuals (Donkor et al., 2021). Engaging in physical activity is linked to minimizing stress, increasing well-being and improving quality of life (Shantakumar et al., 2022; Loprinzi & Cardinal, 2011). Furthermore, regular physical activity plays an important role in mental health. Studies have shown that regular exercise can help reduce depressive symptoms in adults (Kim & Cho, 2021).

Academic motivation is an important factor affecting the performance and success of university students. Academic motivation is shown as a driving force that motivates students to continue higher education and obtain a diploma (Ghorbanzadeh et al., 2018). It has been explained that academic motivation predicts students' academic achievement, learning performance, engagement, attitude, and goal persistence (Hu & Luo, 2021). On the other hand, it shows that participation in regular physical activity can increase academic achievement on academic motivation (Howie & Pate, 2012). The effect of regular physical activity on academic motivation is an important factor that can support students' learning success. Research shows that physical activity improves academic performance and affects students' academic behavior, e.g. study time, and studies have shown that students who participate in 75-150 minutes of aerobic activity each week have increased academic performance and improved academic behavior and cognitive functioning (e.g. concentration) (Hassel et al., 2015).

On the other hand, the relationships between academic motivation, self-compassion and resilience are a multifaceted interaction that has been extensively researched. Academic motivation is crucial for students' engagement and success and has been associated with psychological resilience (Asfahani, 2024). Research has shown that intrinsic motivation significantly contributes to posttraumatic recovery among students and resilience plays a mediating role in this relationship (Yun et al., 2020). Self-compassion and resilience are another important factor strongly linked (Sotiropoulou et al., 2023). Studies have shown that individuals with self-compassion show higher levels of resilience, lower stress, and a greater sense of life meaning (Sotiropoulou et al., 2023). Research also emphasizes the role of academic resilience in improving students' ability to succeed in challenging academic environments (Yang & Wang, 2022). Moreover, the mediating effect of psychological resilience in the relationship between academic motivation and recovery from adverse situations has been underlined, which points to the importance of psychological resilience in promoting positive outcomes (Yun et al., 2020). In addition, intrinsic motivation and psychological resilience have been identified as protective factors against the stress and challenges faced by students and their role in increasing academic achievement has been emphasized (Trigueros et al., 2020). Moreover, the relationship between psychological resilience and academic performance has also been proven and psychological resilience plays an important role in contributing to students' success (Bai et al., 2022).

In conclusion, academic motivation is a multifaceted construct that significantly influences students' learning outcomes, engagement, and overall success in university settings. Understanding the impact of regular participation in physical activity on academic motivation can assist educators and institutions in creating environments that promote positive academic outcomes that can significantly impact motivation, resilience, academic achievement, and mental health among students. Therefore, the current study aimed to examine the specific

associations of academic motivation levels with self-compassion and psychological resilience in college students who regularly participate in physical activity.

In this context, the following research questions are sought to be answered.

1.What is the relationship between academic motivation, self-compassion and psychological resilience in university students who regularly participate in physical activity?

2.What is the relationship between self-compassion and psychological resilience for types of academic motivation in university students who regularly participate in physical activity?

METHOD

Research Design

In this cross-sectional study aiming to determine the academic motivation levels of university students who regularly participate in physical activities and its relationship with self-compassion and psychological resilience, the relationship between the three variables was evaluated. A cross-sectional study is a type of research conducted by collecting data on a group of individuals at one point in time. Such studies are used to determine the prevalence of certain characteristics (e.g., attitudes, behaviors, health status, etc.) in a population. Rather than establishing causal relationships, they aim to identify associations between variables (Büyüköztürk et al., 2022). In this regard, the descriptive and correlational survey models were used in the study. The correlational survey model is a model that aims to determine whether there is a change between two or more variables and, if so, the degree of this change. The goal is to determine if there is a relationship (correlation) between the variables.

In this regard, the descriptive and correlational survey models were used in the study. The correlational survey model is a model that aims to determine whether there is a change between two or more variables and, if so, the degree of this change. The goal is to determine if there is a relationship (correlation) between the variables. (Karasar, 2022).

Population and Sample of the Study

Purposive sampling method was used in this study. In purposive sampling method, the researcher selects the units that are most suitable for the purpose of the research from the universe according to certain criteria (Büyüköztürk et al., 2022).

The measurements of these three constructs were completed with 812 students (mean age=21.67±7.68 years) (521 males, 291 females) from Atatürk University (mean age=21.67±7.68 years) who regularly participated in various physical activities (swimming, cycling, fitness or gym exercises, weightlifting, artificial turf, walking, etc.) for at least 150 minutes per week. Participants agreed to participate in regular physical activities for at least 150 minutes per week. Verbal consent was also obtained from the participants.

Data Collection Tools

In order to collect data in the study, a personal information form developed by the researchers, including the variables of gender, age, participation in physical activity in free time, type of physical activity, and duration of physical activity, was used. In addition, Academic Motivation, Self-Compassion and Psychological Resilience scales were used.

Academic Motivation Scale (AMS): The scale developed by Vallerand et al. (1989) and adapted to Turkish culture by Karagüven (2012) aims to measure the academic motivation levels of university students. The scale is Likert-type and consists of 28 questions. It has a total

of 7 dimensions including 3 intrinsic motivation, 3 extrinsic motivation and one amotivation dimension. For each item of the scale, the participants are expected to choose one of the 7 options ranging from "1=Not at all" to "7=Completely". As a result of the internal consistency test conducted to test the reliability of the AMS, Cronbach's alpha values between .67 and .87 were obtained.

Self-Compassion Scale (SCS): The Self-Compassion Scale Short Form, developed by Neff (2003) and adapted to Turkish culture by Yıldırım and Sarı (2018), consists of 11 items. In order to examine the psychometric properties of the scale, construct validity, criterion-related validity, internal consistency coefficient and test-retest reliability were examined. As a result of EFA, it was seen that the scale showed a single-factor structure and this factor consisted of two subcomponents. The factor structure of the scale was confirmed in the CFA. The internal consistency coefficient of the scale was calculated as .75.

Brief Psychological Resilience Scale (BPRS): The brief psychological resilience scale developed by Smith et al. (2008) was adapted to Turkish culture by Doğan (2015). It is a 6-item, self-report style measurement tool. The CSRS is a 5-point Likert scale. It has an answer key in the form of "Not at all appropriate" (1), "Not appropriate" (2), "Somewhat appropriate" (3), "Appropriate" (4), "Fully appropriate" (5). Items 2, 4, and 6 are reverse coded. High scores obtained after the reverse coded items are translated indicate a high level of psychological resilience. Doğan (2015) found the internal consistency coefficient of the BPRS to be .83. In our study, it showed similar reliability (Cronbach's a = .82).

Data Collection Process and Ethical Procedure

First of all, the participants who regularly participated in various physical activities (walking, running, swimming, cycling, cycling, fitness, various sports branches, etc.) at Atatürk University (3-4 times a week for at least 150 minutes) were given detailed information about the purpose of the study and how to fill out the data collection tool. The permission of the participants who volunteered to participate in the study was obtained with the help of an informed consent form and applied face-to-face. Ethics committee approval was obtained from Atatürk University Ethics Committee Presidency with the number E-70400699-000-2200435358 / 2023. In addition, our study was supported by Atatürk University Scientific Research Projects Coordination Unit (SRP) (SBA-2023-12491).

Data Analysis

Descriptive statistical analyses were conducted to obtain demographic information about the participants. To assess the normality of the data distribution, skewness and kurtosis values were examined. Additionally, Cronbach's alpha coefficients were calculated to assess the internal consistency of the measurement tools used in the study. Since the data showed a normal distribution, parametric tests were preferred in the analyses. First, the relationships between academic motivation (i.e., intrinsic motivation, extrinsic motivation, and amotivation), self-compassion, and resilience were examined using the Pearson product-moment correlation coefficient, which is appropriate for normally distributed and continuous variables. Second, regression analysis was conducted to determine whether self-compassion and resilience independently predict each type of academic motivation. Regression analysis is also based on the assumption of normality and linearity, and therefore was deemed suitable for the data. All analyses were carried out using the SPSS 28 (IBM SPSS Corp., Armonk, NY, USA) statistical software.

FINDINGS

Means of academic motivation, self-compassion and psychological resilience levels of university students participating in regular physical activities.

Table 1

Averages for the Scales

Scale	n	Min.	Mak.	X_{avrg}	SD.
Academic Motivation	812	1	6.98	5.11	.121
Self Compassion	812	1	4.87	2.93	.267
Psychological Resilience	812	1	4.96	3.49	.359

The mean score of the students who participated in the study from the academic motivation scale is 5.11+.121. It is 2.93+.267 for self-compassion and 3.49+.359 for psychological resilience. In general, students have high levels of academic motivation and psychological resilience.

Table 2

Relationships between Academic Motivation, Self-Compassion and Resilience

		M	Sd.	1	2	3	4	5
1	Intrinsic Motivation	5.63	0.53	-				
2	Extrinsic Motivation	6.22	0.36	0.01	-			
3	Amotivation	3,49	1.01	0.05	1.17	-		
4	Self Compassion	2.93	0.27	0.03*	0.04*	0.21	-	
5	Psychological Resilience	3.49	0.36	0.02*	0.03*	0.75	0.05*	-

*p<.05

As a result of the correlation analysis, significant positive relationships were found between intrinsic motivation and extrinsic motivation, which are types of academic motivation, and self-compassion and psychological resilience. Regression analysis was conducted to examine these relationships in more detail. Academic motivation types were analyzed as outcome variables, while self-compassion and psychological resilience were analyzed as predictor variables (Table 3).

Table 3

Regression: Self-Compassion and Psychological Resilience for Types of Academic Motivation in Students Participating in Regular Physical Activity

Intrinsic Motivation					
	B	SE_B	β	95%CI (L, U)	
Self-Compassion	0.45*	0.17	-0.07	-0.51	0.15
Psychological Resilience	0.71**	0.19	0.25	0.20	1.21
Δ Adj. R^2			0.04		
Extrinsic Motivation					
	B	SE_B	β	95%CI (L, U)	
Self-Compassion	0.48*	0.19	-0.20	-0.82	-0.11
Psychological Resilience	0.59*	0.31	0.18	0.12	1.18
Δ Adj. R^2			0.07		
Amotivation					
	B	SE_B	β	95%CI (L, U)	
Self-Compassion	-0.41*	0.29	-0.15	-0.89	-0.03
Psychological Resilience	-0.54*	0.28	-0.19	-1.18	-0.08
Δ Adj. R^2			0.06		

As a result of the regression, self-compassion and psychological resilience affected intrinsic motivation by .04, extrinsic motivation by .07 and amotivation by .06. In this context, both self-compassion and psychological resilience were identified as significant predictors for all sub-dimension types of academic motivation.

DISCUSSION

In this study, a model that can contribute to the academic and social lives of university students through participation in regular physical activities and enable students to be involved in a more effective performance process was evaluated. The study was conducted to determine the relationship between academic motivation, self-compassion and psychological resilience levels of university students who regularly participate in physical activities. The study shows that students who regularly participate in physical activities have high levels of academic motivation and that academic motivation levels have a positive effect on self-compassion and psychological resilience, and psychological resilience has a positive effect on self-compassion. In addition, both self-compassion and psychological resilience were determined as predictors of academic motivation (intrinsic and extrinsic).

Firstly, students who participated in regular physical activities had higher levels of academic motivation. Regular physical activity has been a topic of interest in academic research due to its potential impact on academic motivation and performance. Several studies have examined the relationship between physical activity and academic outcomes, shedding light on the various mechanisms through which participation in physical activities can affect students' motivation and achievement levels. Kayani et al. (2018) emphasized the mediating effects of self-esteem and depression in the relationship between physical activity and academic

performance, highlighting the importance of psychological factors in this relationship. Similarly, Xiang (2023) discussed how physical activity can increase working memory, information processing speed, physical health, and mental state, and ultimately lead to improved learning motivation and academic performance. These findings suggest a multifaceted link between physical activity, psychological well-being, and academic motivation. Moreover, the study by Keeley and Fox (2009) focused on the impact of physical activity and fitness on academic achievement and cognitive performance in children and highlighted the positive effects of physical activity on cognitive functions necessary for academic success. Similarly, Baños et al. (2023) found that academic motivation improved after implementing an integrated physical activity program in various subjects, demonstrating the positive impact of physical activity on students' motivation levels. These results show the impact of regular participation in physical activity on academic motivation. Therefore, physical activity can indirectly increase students' academic motivation by improving cognitive functions, facilitating their learning process and academic engagement.

Secondly, in our study, significant positive relationships were found between academic motivation (intrinsic - extrinsic motivation) and self-compassion and psychological resilience. Studies have found that self-compassion is positively related to academic motivation, suggesting that being kind to oneself can increase motivation (Shahid & Farhan, 2022). In addition, self-compassion has been found to be an important factor in reducing academic stress, especially when supported by family dynamics (Pertiwi, 2024). In her study, Fleming (2021) found that self-compassion created a satisfactory level of variance on life satisfaction levels. It was also emphasized that psychological resilience is an important intrinsic factor in academic motivation (Asfahani, 2024). Research has shown that psychological resilience is necessary for academic success and acts as a protective factor against burnout and stress (Chen et al., 2022). Psychological resilience has been found to mediate the relationship between academic motivation and posttraumatic growth, which points to its importance in students' ability to succeed despite adversity (Yun et al., 2020). There are also studies showing that psychological resilience has positive results on psychological adjustment (Biricik et al., 2023). Academic resilience has been associated with a variety of psychological and educational outcomes, such as enjoyment of school, class participation, and self-esteem (Martin & Marsh, 2006). While academic motivation serves as a driving force for university students, self-compassion and psychological resilience can be considered as supportive mechanisms that provide protection against stress that increases motivation. Understanding these concepts and nurturing them through physical activity may lead to increased social and academic success of university students.

Third, psychological resilience and self-compassion were found to be significant predictors of academic motivation type, except that psychological resilience predicted intrinsic motivation. Kotera et al. (2021) emphasize the role of self-compassion in increasing motivation by showing how it guides the path from extrinsic to intrinsic motivation among students. In addition, Kotera et al. (2022a, 2022b) and Kotera et al. (2021) examine the relationships between self-compassion, resilience, and intrinsic motivation, suggesting that self-compassion plays an important role in enhancing mental well-being and intrinsic motivation among college students. Trigueros et al. (2020) reveal that intrinsic motivation and resilience act as protective factors against the stress and challenges faced by students, emphasizing the importance of these psychological resources in enhancing academic achievement. Similarly, Park et al. (2023) emphasize that psychological resilience is a crucial factor in reducing stress and increasing academic motivation. These findings suggest that students who regularly participate in physical activities can use the experiences they gain through sports to increase their academic motivation, self-compassion and psychological resilience levels and to shape their relationships with each other.

Conclusion

In conclusion, it can be said that academic motivation serves as an element that directs students who participate in regular physical activity towards success, while self-compassion and psychological resilience act as supportive factors that increase motivation. Understanding the effects of these concepts is important for families and educators to create environments that foster student development and success.

Recommendation

In this context, it is recommended within the scope of our study to encourage and enable students to benefit from the gyms or sports centers in universities, and for educators to potentially increase students' motivation and academic performance by incorporating physical activities into academic contexts.

Limitations

The limitations of this study require careful consideration of its findings. First, the study is limited in its ability to establish cause and effect as a result of its correlational and cross-sectional design as well as its reliance on convenience sampling methods. Furthermore, the absence of a clinical group in the sample should also be recognized as a limitation. In addition, the qualities of university students who regularly participated in physical activities were only assessed through self-report, thus introducing another limitation. Consequently, in future research, the use of a mixed research approach that includes the perspectives of both students regularly engaged in physical activities and sedentary students through triangulation may provide a more comprehensive view. Finally, it is important to note that the study only focused on university students who participated in regular physical activities in the Turkish sample.

Acknowledgements and Notes

We would like to thank Atatürk University Scientific Research Projects Coordination Unit for supporting our study (SBA-2023-12491). We also thank the study group for their participation in our study. This study was presented as an oral presentation at the 5th International Recreation and Sport Management Congress 2024.

REFERENCES

Asfahani, A. M. (2024). Nurturing the scientific mind: resilience and job satisfaction among saudi faculty. *Frontiers in Psychology*, 15:1341888. https://doi.org/10.3389/fpsyg.2024.1341888

Bai, M., Yao, S., Ma, Q., Wang, X., Liu, C., & K, G. (2022). The relationship between physical exercise and school adaptation of junior students: a chain mediating model. *Frontiers in Psychology*, 13. https://doi.org/10.3389/fpsyg.2022.977663

Baños, R., Espinoza-Gutiérrez, R., Calleja-Núñez, J. J., & Rodríguez-Cifuentes, G. (2023). Analysis of academic psychological variables, physical education, and physical activity levels of Mexican students. Behavioral Sciences, 13(3), 271. https://doi.org/10.3390/bs13030271

Biricik, Y.S., Karababa, B. & Sivrikaya, M. H. (2023). The relationships between emotional reactivity and psychological adaptation skills: a study on elite level athletes. *Journal of Education and Recreation Patterns (JERP), 4*(2), 573-586. https://doi.org/10.53016/jerp.v4i2.139

Büyüköztürk, Ş., Çakmak, E. K., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2022). *Bilimsel araştırma yöntemleri* (30. Baskı), Pegem Akademi.

Chen, H. L., Wang, H. Y., Lai, S. F., & Ye, Z. J. (2022). The associations between psychological distress and academic burnout: A mediation and moderation analysis. *Psychology Research and Behavior Management*, 15, 1271-1282. https://doi.org/10.2147/prbm.s360363

Doğan, T. (2015). Kısa psikolojik sağlamlık ölçeği'nin Türkçe uyarlaması: Geçerlik ve güvenirlik çalışması. *The Journal of Happiness & Well-Being, 3*(1), 93-102.

Donkor, S. K., Appiah, M., Nyavor, L. G., Atsu, F. S., Avornyo, G. K., & Ocansey, R. (2021). Engagement in physical activity for health and well-being: Self-rated activity level, perception of the value of physical activity and differences among teachers in public primary schools of six selected educational circuits. *International Journal of Physical Education, Sports and Health, 8*(5), 186-191. https://doi.org/10.22271/kheljournal.2021.v8.i5c.2285

Fleming, K. (2021). Examining life satisfaction and self-compassion among students attending a historically black college and university in the U.S. *Journal of Education and Recreation Patterns (JERP), 2*(2),12-20

Ghorbanzadeh, K., Hosseini, M., Dalvandi, A., & Hajar, S. (2018). Exploring perceptions of students' academic motivation by university professors - a qualitative study. *Educational Research in Medical Sciences*, 7,2. https://doi.org/10.5812/erms.69363

Hassel, G., Milroy, J. J., & Orsini, M. M. (2015). Investigating motivation for physical activity among minority college females using the breq-2. *Journal of Student Research, 4*(1), 40-44. https://doi.org/10.47611/jsr.v4i1.155

Howie, E. K., & Pate, R. R. (2012). Physical activity and academic achievement in children: A historical perspective. *Journal of Sport and Health Science, 1*(3), 160-169. https://doi.org/10.1016/j.jshs.2012.09.003

Hu, H. & Luo, H. (2021). Academic motivation among senior students majoring in rehabilitation related professions in china. *BMC Medical Education, 21*(1). https://doi.org/10.1186/s12909-021-03016-9

Karagüven, M. H. (2012). Akademik motivasyon ölçeğinin Türkçeye adaptasyonu. *Kuram ve Uygulamada Eğitim Bilimleri, 12*(4), 2599-2620.

Karasar, N. (2022). *Bilimsel araştırma yöntemi* (36. baskı). Nobel Yayıncılık.

Kayani, S., Kiyani, T., Jin, W., Zagalaz-Sánchez, M. L., Kayani, S., & Qurban, H. (2018). Physical activity and academic performance: the mediating effect of self-esteem and depression. *Sustainability, 10*(10), 3633. https://doi.org/10.3390/su10103633

Keeley, T. J. & Fox, K. R. (2009). The impact of physical activity and fitness on academic achievement and cognitive performance in children. *International Review of Sport and Exercise Psychology, 2*(2), 198-214. https://doi.org/10.1080/17509840903233822

Kim, Y. & Cho, S. (2021). Regular exercise and depressive symptoms in korean older adults. *International Journal of Environmental Research and Public Health, 18*(1), 303. https://doi.org/10.3390/ijerph18010303

Kotera, Y., Aledeh, M., Barnes, K., Rushforth, A., Adam, H., & Riswani, R. (2022b). Academic motivation of Indonesian University students: relationship with self-compassion and resilience. *Healthcare 10*(10), 2092. https://doi.org/10.3390/healthcare10102092

Kotera, Y., Maybury, S., Liu, G., Colman, R., Lieu, J., & Dosedlová, J. (2022a). Mental well-being of Czech university students: academic motivation, self-compassion, and self-criticism. *Healthcare, 10*(11), 2135. https://doi.org/10.3390/healthcare10112135

Kotera, Y., Taylor, E., Fido, D., Williams, D., & Tsuda-McCaie, F. (2021). Motivation of uk graduate students in education: self-compassion moderates pathway from extrinsic motivation to intrinsic motivation. *Current Psychology, 42*(12), 10163-10176. https://doi.org/10.1007/s12144-021-02301-6

Martin, A. J. & Marsh, H. W. (2006). Academic resilience and its psychological and educational correlates: a construct validity approach. *Psychology in the Schools, 43*(3), 267-281. https://doi.org/10.1002/pits.20149

Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223-250.

Park, M., Hong, J., Park, J., & Chung, S. (2023). Impact of resilience and viral anxiety on psychological well-being, intrinsic motivation, and academic stress in medical students during the covid-19 pandemic. *Psychiatry Investigation, 20*(6), 524-530. https://doi.org/10.30773/pi.2023.0019

Pertiwi, M. A., Herdian, H., Wulandari, D. A., & Wahidah, F. R. N. (2024). Supportive families and self-compassion: keys to alleviating academic stress in thesis-engaged undergraduate students in Indonesia. *International Journal of Innovative Research in Multidisciplinary Education, 03*(3). https://doi.org/10.58806/ijirme.2024.v3i3n23

Riddell, M. & Iscoe, K. (2006), Physical activity, sport, and pediatric diabetes. *Pediatric Diabetes,* 7: 60-70. https://doi.org/10.1111/j.1399-543X.2006.00146.x

Shahid, W. & Farhan, S. (2022). The effect of self-compassion intervention on academic motivation and academic stress on mental health of students in hybrid learning. *Journal of Professional & Amp; Applied Psychology, 3*(2), 165-181. https://doi.org/10.52053/jpap.v3i2.101

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine,* 15, 194-200. https://doi.org/10.1080/10705500802222972

Sotiropoulou, K., Patitsa, C., Giannakouli, V., Galanakis, M., Koundourou, C., & Tsitsas, G. (2023). Self-compassion as a key factor of subjective happiness and psychological well-being among greek adults during covid-19 lockdowns. *International Journal of Environmental Research and Public Health, 20*(15), 6464. https://doi.org/10.3390/ijerph20156464

Trigueros, R., Padilla, A., Aguilar-Parra, J. M., Mercader, I., Liria, R. L., & Rocamora-Pérez, P. (2020). The influence of transformational teacher leadership on academic motivation and resilience, burnout and academic performance. *International Journal of Environmental Research and Public Health, 17*(20), 7687. https://doi.org/10.3390/ijerph17207687

Vallerand, R. J., Blais, M. R., Brière, N. M., & Pelletier, L. G. (1989). Construction et validation de l'Échelle de Motivation en Éducation (EME). *Revue Canadienne Des Sciences Du Comportement*, 21, 323–349.

Xiang, J., Gao, J., & Gao, Y. (2023). The relationship between physical activity and academic achievement in middle school students: the chain mediating role of social support and learning engagement. *Research Square*. https://doi.org/10.21203/rs.3.rs-3338210/v1

Yang, S. & Wang, W. (2022). The role of academic resilience, motivational intensity and their relationship in efl learners' academic achievement. *Frontiers in Psychology*, 12. https://doi.org/10.3389/fpsyg.2021.82353 7

Yıldırım, M. & Sarı, T. (2018). Öz-şefkat ölçeği kısa formu'nun Türkçe uyarlaması: geçerlik ve güvenirlik çalışması. *Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 18*(4), 2502-2517. https://doi.org/10.17240/aibuefd.2018.18.41844-452171

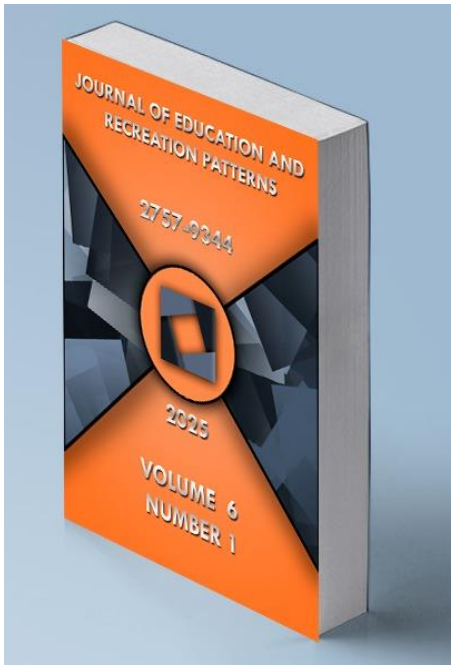
Yun, M. R., Lim, E. J., Yu, B., & Choi, S. (2020). Effects of academic motivation on clinical practice-related post-traumatic growth among nursing students in south korea: mediating effect of resilience. *International Journal of Environmental Research and Public Health, 17*(13), 4901. https://doi.org/10.3390/ijerph17134901

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: We would like to thank Atatürk University Scientific Research Projects Coordination Unit for supporting our study (SBA-2023-12491).



Journal of Education and RecreationPatterns (JERP)

www.jerpatterns.com

The Effect of a 4-Week Quick Strength Training Program on Body Composition, Strength, and Jumping Performance in Kickboxers

Serkan KIZILCA[1], Sedat OKUT[2]

To cite this article:

Kızılca, S., Okut, S. (2025). The effect of a 4-week quick strength training program on body composition, strength, and jumping performance in kickboxers. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 113-125. DOI: https://doi.org/10.53016/jerp.v6i1.279

[1]Bitlis Eren University, Faculty of Sport Sciences, Bitlis/ Türkiye, serkankizilca@hotmail.com, https://orcid.org/0000-0002-0030-7999

[2]Muş Alparslan University, Faculty of Sport Sciences, Muş/ Türkiye, sedatokut@hotmail.com, https://orcid.org/0000-0002-8194-5844

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

The Effect of a 4-Week Quick Strength Training Program on Body Composition, Strength, and Jumping Performance in Kickboxers

Serkan Kızılca[1], Sedat Okut[2]

ARTICLE INFORMATION
Original Research Paper

Received 21.02. 2025
Accepted 21.06. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 113-125

ABSTRACT

The aim of this study is to determine the effects of a four-week quick strength training program on body composition parameters, strength, and jumping performance in kickboxers. The study was designed as pre-test post-test experimental research with a control group, employing quantitative research methods. A total of 20 kickboxers (15.75±1.29), ten male and ten female, voluntarily participated in the study. The athletes were randomly assigned into two groups based on gender, with five athletes in each group: an experimental group (n=10) and a control group (n=10). The experimental group underwent quick strength training three times a week in addition to their routine kickboxing training, while the control group continued with only routine kickboxing training. Before and after the four-week training period, body composition analysis, countermovement jump (CMJ), back strength, and handgrip strength tests were conducted on the participants. The normality of the data was assessed using the Shapiro-Wilk test. For normally distributed data, the Independent Sample T-Test was used for comparisons between groups, while the Paired Sample T-Test was employed for within-group comparisons. According to the findings, significant improvements were observed in the back strength ($t = -2.336$; $p = 0.044$) and dominant handgrip strength ($t = -2.877$; $p = 0.018$) of the experimental group, favoring the post-test results. However, no statistically significant differences were found in CMJ, non-dominant handgrip strength, or body composition parameters between pre-test and post-test measurements ($p>0.05$). As a result, it was determined that a four-week explosive strength training program had positive effects on back strength performance and dominant hand grip strength in kickboxing athletes.

Keywords: Body Composition, CMJ, Strength, Quick Strength Training.

INTRODUCTION

Kickboxing is a highly dynamic combat sport that emphasizes speed, agility, strength, and endurance. One of the key factors determining success in this sport is the athletes' ability to effectively utilize their anaerobic capacity and generate quick strength (Slimani et al., 2017). Quick strength refers to the ability of skeletal muscles to produce maximum force in a very short time and is a crucial factor influencing the speed of kicks, punches, and defensive movements in kickboxers (Suchomel et al., 2018). While technical and tactical training is often prioritized in kickboxing training programs, the impact of quick strength training has not been sufficiently investigated. However, existing literature suggests that quick strength training has positive effects on body composition, muscle strength, and jumping performance. Studies have shown that such training can increase muscle mass while reducing body fat percentage, thereby enhancing athletes' movement efficiency (Cormie et al., 2011; Loturco et al., 2014).

Body composition is one of the key components influencing athletic performance. In particular, an increase in lean muscle mass and a decrease in body fat percentage can enhance movement energy levels, thereby improving athletic performance (Malina et al., 2004). Studies have shown that maximal resistance and jump strength training can reduce body fat percentage while promoting muscle hypertrophy (Newton & Kraemer, 1994). In kickboxers, maintaining a low body fat percentage and a high muscle mass ratio enhances both anaerobic endurance and power output, leading to improved performance (Franchini et al., 2013). Recent studies have suggested that high-intensity combined exercise may be the most effective exercise modality for improving cardiovascular fitness and reducing body mass index (Ceviz, 2024). A lower body fat percentage and higher lean muscle mass provide kickboxers with advantages in terms of speed and power generation (Slimani et al., 2017).

Sports performance is largely shaped by well-developed aerobic and anaerobic capacity, strength, speed, and agility (Feito et al., 2018). Physiological and psychological characteristics, physical performance capacity and anthropometric characteristics are important factors in achieving success in sports branches (Ünver et al., 2024). Sportive performance refers to the level of development in sport-specific motor abilities. Owing to its complex nature, it encompasses numerous specific components that influence overall performance. This complexity necessitates a multifaceted approach to training programs aimed at performance enhancement. Achieving peak performance depends on the balanced and harmonious development of all contributing factors (Aslan & Kahraman, 2023).Post-exercise performance enhancement is a principle that posits that following an acute period of high-intensity voluntary exercise, there will be an improvement in strength, power, jumping, and speed on the subsequent task (Sari et al., 2024). Since kickboxing challenges both aerobic and anaerobic systems, the development of these two energy systems increases a kickboxer’s chances of success (Buse, 2009). Muscle strength and jumping performance are critical factors in combat sports, particularly in determining lower limb power. A high jumping capacity is essential for delivering powerful kicks and executing quick movements (Turner et al., 2011). In high-level championship kickboxing competitions, athletes frequently perform rapid attacks lasting between one to five seconds, followed by longer periods of lower-intensity activity. However, transitioning to lower intensity for extended durations can negatively impact performance (Volodchenko, 2017). These competitions push athletes' maximum heart rates to approximately 90%, leading to significantly high lactic acid levels. This exposure indicates that athletes experience substantial physiological stress on both their aerobic and anaerobic systems throughout the match (Øvretveit, 2018).

Quick strength training can enhance neuromuscular adaptations, thereby increasing athletes' maximal force production capacity (Suchomel et al., 2018). Well-developed jumping performance is crucial for delivering more effective strikes and generating quick power. A high

jumping capacity is essential for executing powerful kicks and dynamic movements. Quick strength training improves neuromuscular adaptations, ultimately enhancing athletes' maximal force production performance (Markovic, 2007). However, specific studies on kickboxers remain limited, and the effects of short term, four-week quick strength training programs have not been fully elucidated.

This study aims to determine the effects of a four-week quick strength training program on body composition, muscle strength, and jumping performance in kickboxers.The 4 week training program to be implemented in this study is considered to be significant for the rapid performance enhancement of athletes. The findings are expected to make significant contributions to the development of kickboxing training programs. Identifying the impact of quick strength training on athletic performance will provide valuable practical insights for both coaches and athletes.

METHOD

Research Design

This study is designed as a pre-test post-test control group experimental research using quantitative research methods. The athletes were randomly assigned to two groups: the experimental group (n: 10) and the control group (n: 10). The experimental group received quick strength training in addition to the regular kickboxing training for four weeks, with sessions conducted three times a week. The control group only performed the regular kickboxing training.

Research Group

Research Group The population of this study consists of young kickboxers, while the sample includes 20 kickboxers aged 15–17 who voluntarily participated in the study under the Tatvan District Directorate of Youth and Sports. The participants were randomly assigned into two groups: an experimental group (5 male, 5 female, n=10) and a control group (5 male, 5 female, n=10). Before the study, detailed information about the research was provided to both the athletes and their parents. Participation was entirely voluntary, and only athletes who agreed to participate were included. Written informed consent forms were obtained from the athletes, while parental consent forms were signed by their legal guardians. Participants with chronic illnesses, musculoskeletal injuries in the past year, or those requiring continuous medication were excluded from the study. All participants were instructed to maintain a regular sleep schedule and a balanced diet throughout the study and to avoid any ergogenic aids or stimulants during the experimental period. Additionally, they were advised to refrain from intense physical activity and caffeine consumption within 24 hours prior to testing.

Training Protocol

The quick strength training protocol applied to the athletes was conducted three times a week for four weeks in the experimental group (Table 1).

Table 1

Quick Strength Training Program (Bilici and Alp 2024)

Days	Quick Strenght Drilleri	Duration of Load/Repetition Count	Rest (Between Repetitions)	Number of Sets	Rest (Between Sets)
Three days per week	-Jump Squat -Push Up -Russian Twins -Cooperative Pummeling -Shadow Boxing -Sprow -Bridge and Stretch	30 sec/1x	30 sec.	3-4	5 min. active

sec; second, min; minute

Data Collection Tools & Process

Measurement: The participants' height measurements were taken using a stadiometer (SECA, Germany) with a precision of 0.01 meters (m), while the subjects were barefoot and wearing shorts and a t-shirt.

***Body Weight Measurement*:** The body weights (BW) of the participants were measured using an electronic scale (Tanita BC-418 MA, Japan) with a precision of 0.1 kilograms (kg), while the subjects were barefoot and wearing shorts and a t-shirt.

Body Composition Measurement: For the athletes who met the inclusion and exclusion criteria, body composition components such as body weight, body mass index, body fat percentage, body water percentage, muscle mass, and body visceral fat percentage were measured using bioelectrical impedance analysis (Tanita BC-418 MA, Japan). The participants' previously determined height, age, and gender were entered into the device's data screen to obtain the measurements (Kara & Özal, 2022). After the device completed the measurements, the output values were recorded. Participants were instructed not to take a shower or use the sauna at least 24 hours prior to the measurements and not to consume any food at least 4 hours before the measurement. The measurements were conducted between 08:00 and 10:00 AM, and participants were not asked to engage in exercise on the day of the measurement. During the measurement, care was taken to ensure the feet were dry, and the electrodes were placed on the hands and heels. The participants held onto the handles attached to the electrodes throughout the measurement process.

Countermovement Jump (CMJ) Test: The Countermovement Jump (CMJ) test is used to assess leg quick strength, jump power, and alactic anaerobic power levels. The vertical jump measurements of the athletes were recorded using the electronic Fusion Smart Jump mat. All athletes were instructed to stand on the mat with their hands on their hips, and when ready, they were asked to jump as high as possible. After jumping, athletes were instructed to land back on the mat. Two trials were conducted for each athlete, and the jump heights were measured in centimeters, with the best performance recorded (Atan, 2019).

Back Strength Test: After a five-minute warm-up, the participants positioned their feet on the dynamometer bench with their knees slightly bent. With their arms extended, their back straight, and their torso slightly leaning forward, they were instructed to grip the dynamometer bar with their hands and pull it vertically upward using maximum force, primarily with their legs.

Grip Strength Test

The participant could either be in a standing or seated position. The dynamometer was adjusted according to each participant's hand size. With their arm straight and shoulders positioned at a 10-15° angle from the body, the participant first measured the maximum grip strength with their right hand. The participant was asked to perform a total of four trials, two with the right hand and two with the left hand. Adequate rest was provided between each trial. After each trial, the dial was reset to zero before moving on to the next attempt. All results were recorded, and the best performances were included in the results section for comparison purposes. A table was created to reflect the strong and weak hands' performance. The highest value recorded from the trials was registered as the final result.

Ethics of the Study

Before starting the study, ethical approval was obtained from the Bitlis Eren University Non-Interventional Clinical Research Ethics Committee with the decision number 2024/9-15, E.6803, dated 02.01.2025. Additionally, the study was conducted in accordance with the principles of the Helsinki Declaration.

Data Analysis

The data analysis was conducted using the SPSS software package. The normality of the data was determined using the Shapiro-Wilk test. Parametric tests were applied to data that followed a normal distribution. The Independent Samples T-test was used for comparing two independent groups, while the Paired Sample T-test was used for within-group comparisons.The magnitude of differences or effect size (ES) was interpreted using Cohen's d, where values of 0.2-0.49, 0.5-0.79, and ≥0.8 indicate small, medium, and large effects, respectively. A significant level of 0.05 was accepted for the study.

FINDINGS

Descriptive statistics regarding the general characteristics of the kickboxing athletes who participated in the study are presented in Table 2.

Table 2

Descriptive Statistical Results Related to the General Characteristics of the Participants

General Features	N	Mean	Std. Deviation	Min.	Max.
Age (year)	20	15.75	1.29	13.00	17.00
Height (cm)	20	168.10	9.89	153.00	186.00
Body Weight (kg)	20	59.71	11.20	45.00	86.00
BMI ($kg/m^{2)}$	20	21.00	2.46	16.59	26.25

Table 3

Independent Samples t-Test Results for the Pre-Test Values of the Groups

Parameters	Groups	N	Mean	Std. Deviation	t	p
CMJ (cm)	EG	10	28.49	5.64	.678	.507
	CG	10	27.13	2.96		
Back Strength (kg)	EG	10	98.65	26.69	-.069	.945
	CG	10	99.45	24.81		
Dominant Hand Grip Strength (kg)	EG	10	34.34	10.10	-.361	.722
	CG	10	35.99	10.33		
Non-dominant Hand Grip Strength (kg)	EG	10	31.06	7.17	-.451	.657
	CG	10	32.83	10.12		
Fat-free Mass Percentage (%)	EG	10	80.52	5.11	.503	.621
	CG	10	79.30	5.72		
Fat Percentage (%)	EG	10	19.49	5.11	-1.162	.261
	CG	10	24.64	13.06		

EG: Experimental group. CG: Control group. t: t-test value. p: statistical significance value

According to the findings in Table 3, there was no statistically significant difference in the pre-test values of jump, strength, and body composition parameters between the experimental and control groups of kickboxing athletes ($p>0.05$). Based on these findings, it can be stated that the groups are similar.

Table 4

The Results of the Paired Sample T-Test for the Pre-Test and Post-Test Values of the Experimental Group

Parameters	Tests	N	Mean	Std. Deviation	t	p	Cohen's d
CMJ (cm)	Pre-test	10	28.49	5.64	-1.307	.223	0.109
	Post-test	10	29.08	5.09			
Back Strength (kg)	Pre-test	10	98.65	26.69	-2.336	.044*	0.229
	Post-test	10	105.40	31.94			
Dominant Hand Grip Strength (kg)	Pre-test	10	34.34	10.10	-2.877	.018*	0.337
	Post-test	10	35.73	9.99			
Non-dominant Hand Grip Strength (kg)	Pre-test	10	31.06	7.17	-1.280	.233	0.253
	Post-test	10	33.04	8.43			
Fat-free Mass Percentage (%)	Pre-test	10	80.52	5.11	-0.245	.812	0.015
	Post-test	10	80.60	5.57			
Fat Percentage (%)	Pre-test	10	19.49	5.11	0.096	.925	0.006
	Post-test	10	19.46	5.46			

t: t-test value. p: statistical significance value. ES: effect size expressed as Cohen's d. *$p<0.05$.

According to the findings in Table 4, a statistically significant difference was found between the pre-test and post-test values of back strength (t=-2.336; p=0.044; Cohen's *d* =0.229) and dominant hand grip strength (t=-2.877; p=0.018; Cohen's *d* =0.337) in favor of the post-tests, at a small level. However, no statistically significant difference was found between the pre-test and post-test values for CMJ, non-dominant hand grip strength, and body

composition parameters (p>0.05).

Table 5

Results of the Paired Sample T-Test for the Pre-Test and Post-Test Values of the Control Group.

Parameters	Tests	N	Mean	Std. Deviation	t	p
CMJ (cm)	Pre-test	10	27.13	2.96	-1.067	.314
	Post-test	10	27.78	3.35		
Back Strength (kg)	Pre-test	10	99.45	24.81	-1.286	.230
	Post-test	10	103.60	26.06		
Dominant Hand Grip Strength (kg)	Pre-test	10	35.99	10.33	-0.408	.693
	Post-test	10	36.28	10.42		
Non-dominant Hand Grip Strength (kg)	Pre-test	10	32.83	10.12	0.913	.385
	Post-test	10	32.27	8.60		
Fat-free Mass Percentage (%)	Pre-test	10	79.30	5.72	0.055	.958
	Post-test	10	79.29	5.69		
Fat Percentage (%)	Pre-test	10	24.64	13.06	0.769	.462
	Post-test	10	24.45	12.53		

t: t-test value. p: statistical significance value.

According to the findings in Table 5, there was no statistically significant difference between the pre-test and post-test values for jump, strength, and body composition parameters in the control group of kickboxing athletes (p>0.05)

DISCUSSION

In this study, the effects of a 4-week quick strength training protocol on body composition, strength, and vertical jump performance were investigated in kickboxing athletes aged 15-17. According to the results of the study, a statistically significant difference was found between the pre-test and post-test values of back strength and dominant hand grip strength in favor of the post-tests, at a small level. However, no statistically significant difference was observed between the pre-test and post-test values for CMJ, non-dominant hand grip strength, and body composition parameters.

When reviewing the literature on similar studies, the positive effects of quick strength training on muscle strength are highlighted in several studies (Erdoğan & Pulur, 2000; Cengizhan & Günay, 2020; Koźlenia et al., 2024). Similarly, a study involving football players revealed significant improvements in the athletes' back strength following the implementation of various strength exercises (Ghigiarelli et al., 2009). A study examining the impact of strength training on young wrestlers found improvements in strength parameters (Arabacı, 2003). In another study, after an 8-week training program applied to university-level boxers, improvements in anaerobic power and hand grip strength were observed (Savaş & Uğraş, 2004). A different study, focusing on female boxers, identified significant improvements in hand grip strength and back strength parameters in the post-test following an 8-week pre-competition training program (Söyler & Çingöz, 2022). In a study that examined the effects of an 8-week quick strength training program on university students' athletic performance, improvements in hand grip and back strength were noted in the post-test results (Polat, 2000). A similar study found that after 6 weeks of strength training, there were improvements in hand grip and back strength, as well as a reduction in body fat percentage (Harbili et al., 2005). While the results

of the current study support findings related to back strength and hand grip strength, they do not align with the body fat percentage results. This discrepancy is likely due to the longer duration of the training program in the referenced study. Additionally, it is important to note that fat loss can be highly specific and that individual differences in fat loss may also contribute to the variation in results. The fact that our study period is limited to 4 weeks and the number of participants is not very high limits our study to a certain extent.

One noteworthy aspect of our study results is the absence of a significant change in CMJ, non-dominant handgrip strength, and body composition parameters. The greater strength of the dominant hand compared to the non-dominant hand is thought to be related to grip ability. In a study conducted by Peterson et al., it was found that the right dominant hand had approximately 10% greater grip strength than the non-dominant hand (Petersen et al., 1989). In a similar study examining the effects of hand grip strength on shooting accuracy in basketball players, it was determined that the grip strength of the dominant hand was greater than that of the non-dominant hand (Gencer et al., 2019).This finding suggests that short-term training programs may have limited effects on certain performance and body composition parameters. Indeed, the literature indicates that noticeable changes in body composition may require training programs lasting at least six weeks or employing different training approaches (Cengizhan & Günay, 2015). In another study, rapid strength exercises applied to athletes aged 16-18 led to improvements in handgrip and back strength in post-test measurements, while no changes were observed in body fat percentage (Erol & Sevim, 1993). Similarly, a specific study investigating performance improvements in basketball players following rapid strength training found that the applied training protocols significantly improved dominant hand and back strength, whereas no significant improvement was detected in the non-dominant hand (Cengizhan & Günay, 2015).

In a study examining the effects of quick strength training on athlete performance, significant improvements in back strength were observed in the post-test results after 6 weeks of training (Tokgöz, 2023). In another study comparing high-intensity quick strength training with traditional strength training in 52 adolescent individuals with no prior sport training, significant differences in strength development and vertical jump performance were found in the group that underwent 6 weeks of quick strength training (Gavanda et al., 2022). However, the vertical jump performance results from this study do not align with the findings of our study. It is believed that the difference is due to the longer 6-week training duration and the differing levels of readiness among the participants in the two studies.

In another study, following 8 weeks of pre-season intensive training with 29 boxers, significant differences in hand grip strength and vertical jump performance were identified, while no significant differences were found in body fat percentage (Pala & Savucu, 2011). The results related to grip strength and body fat percentage in this study support our findings, but vertical jump performance values differ from our study. This discrepancy is likely attributed to the difference in sample groups, as the participants in the other study were adults and at the national team level, which may contribute to variations in performance.

A study investigating the physical fitness changes in kickboxers following a modified Crossfit training protocol found improvements in hand grip strength (Ambroży et al., 2022). Additionally, another study examining body composition and performance values after a 5-week training period in kickboxers showed no significant difference in body fat percentage or CMJ values (Ouergui et al., 2014), which supports the findings of our study.

Conclusion

This study was conducted to determine the effects of a 4-week quick strength training protocol on body composition, muscle strength, and CMJ performance in kickboxers. The

findings are expected to provide significant contributions to the development of kickboxing as a sport and the improvement of training programs for kickboxers. In conclusion, the 4-week quick strength training protocol led to significant improvements in back strength and dominant hand grip strength, but it did not have a notable impact on vertical jump performance or body composition.

Recommendation

- Based on the results of this study, the following recommendations are made to contribute to the literature:
- Future studies should consider increasing the training duration and examine the effects of quick strength training conducted over different time periods (e.g., 8-12 weeks).
- The study focused only on strength and vertical jump parameters; therefore, it would be beneficial to assess the effects on motor skills such as flexibility, balance, and reaction time in future research.
- Since no significant change was observed in body composition, it is recommended to incorporate nutritional habits and supplemental nutrition into the training process for a more comprehensive evaluation of this variable.
- Comparative studies involving different age groups and genders could provide a broader perspective on the effects of the training protocol.

Limitations

The study duration was limited to only 4 weeks; thus, long-term adaptations could not be assessed. Longer training protocols may yield different results. The sample group consists solely of kickboxers aged 15-17. Conducting similar research into different age groups and sports could increase the generalizability of the results. Specific performance parameters (strength, vertical jump, body composition) were evaluated in the study, while other performance components such as flexibility, endurance, or technical development were not analyzed. Individual factors such as nutrition and sleep were not controlled. These factors could influence the athletes' adaptation to the training process. Measurements were conducted under field conditions rather than in a laboratory environment. For more precise evaluations, advanced laboratory analyses could be utilized.

REFERENCES

Ambroży, T., Rydzik, Ł., Kwiatkowski, A., Spieszny, M., Ambroży, D., Rejman, A., & Czarny, W. (2022). Effect of CrossFit training on physical fitness of kickboxers. *International Journal of Environmental Research and Public Health, 19*(8), 4526. https://doi.org/10.3390/ijerph19084526

Arabacı, R. (2003). The effect of a model training program on strength and endurance development in 15–16 year-old wrestlers. *Journal of Physical Education and Sport Sciences, 5*(2), 15–22.

Aslan, T. V., & Kahraman, M. Z. (2023). The effect of core exercise program on vertical jump, speed, agility and strength parameters in junior male soccer players. *Journal of Education and Recreation Patterns, 4*(2), 610–627. https://doi.org/10.53016/jerp.v4i2.192

Atan, T. (2019). The effect of different warm-up protocols on range of motion, jumping and sprint performance. *OPUS International Journal of Society Researches, 13*(19), 621–635. https://doi.org/10.26466/opus.574260

Bilici, S., & Alp, M. (2024). The effect of explosive strength training on upper extremity anaerobic power in elite male boxers. *Çanakkale Onsekiz Mart University Journal of Sports Sciences, 7*(1), 25–33.

Buse, G. J. (2006). No holds barred sport fighting: A 10-year review of mixed martial arts competition. *British Journal of Sports Medicine, 40*(2), 169–172. https://doi.org/10.1007/978-1-84800-354-5_19

Cengizhan, P. A., & Günay, M. (2015). The effect of explosive strength and strength endurance training methods on some technical and motor features and muscle damage in male basketball players. *Journal of Physical Education and Sport Sciences, 17*(1), 43–57.

Ceviz, E. (2024). Relationship between visceral fat tissue and exercise. *Turkish Journal of Sports Sciences, 7*(1), 10–20. https://doi.org/10.46385/tsbd.1448060

Cormie, P., McGuigan, M. R., & Newton, R. U. (2011). Developing maximal neuromuscular power: Part 1 – Biological basis of maximal power production. *Sports Medicine, 41*(1), 17–38. https://doi.org/10.2165/11537690-000000000-00000

Erdoğan, M., & Pulur, A. (2000). The effect of explosive strength training performed in the pool and in the gym on the physical development of 15–18 age group subjects. *Gazi Journal of Physical Education and Sport Sciences, 5*(1), 13–20.

Erol, A. E., & Sevim, Y. (1993). Investigation of the effect of explosive strength training on motoric characteristics of 16–18 age group basketball players. *Journal of Sports Sciences, 4*(3), 25–37.

Feito, Y., Heinrich, K. M., Butcher, S. J., & Poston, W. S. (2018). High-intensity functional training (HIFT): Definition and research implications for improved fitness. *Sports, 6*(3), 76. https://doi.org/10.3390/sports6030076

Franchini, E., Del Vecchio, F. B., Matsushigue, K. A., & Artioli, G. G. (2013). Physiological profiles of elite combat sport athletes. *Sports Medicine, 43*(6), 417–431.

Gavanda, S., Isenmann, E., Geisler, S., Faigenbaum, A., & Zinner, C. (2022). The effects of high-intensity functional training compared with traditional strength or endurance training on physical performance in adolescents: A randomized controlled trial. *Journal of Strength and Conditioning Research, 36*(3), 624–632. https://doi.org/10.1519/JSC.0000000000004221

Gencer, Y. G., Iğdır, E. C., Temur, H. B., Sarıkaya, M., & Seyhan, S. (2019). Does hand grip strength affect shooting accuracy in basketball? *Electronic Turkish Studies, 14*(1). https://doi.org/10.7827/TurkishStudies.13432

Ghigiarelli, J. J., Nagle, E. F., Gross, F. L., Robertson, R. J., Irrgang, J. J., & Myslinski, T. (2009). The effects of a 7-week heavy elastic band and weight chain program on upper-body strength and power in Division 1-AA football players. *Journal of Strength and Conditioning Research, 23*(3), 756–764. https://doi.org/10.1519/JSC.0b013e3181a2b8a2

Harbili, S., Özergin, U., Harbili, E., & Akkuş, H. (2005). The effect of strength training on body composition and some hormones. *Journal of Sports Sciences, 16*(2), 64–76.

Kara, S., & Özal, M. (2022). Investigation and interpretation of maximal and reactive strength index characteristics of 16–17 age group wrestlers. *Journal of ROL Sport Sciences, 3*(1), 165–178. https://doi.org/10.29228/roljournal.58063

Koźlenia, D., Popowczak, M., Szafraniec, R., Alvarez, C., & Domaradzki, J. (2024). Changes in muscle mass and strength in adolescents following high-intensity functional training with bodyweight resistance exercises in physical education lessons. *Journal of Clinical Medicine, 13*(12), 3400. https://doi.org/10.3390/jcm13123400

Loturco, I., Ugrinowitsch, C., Roschel, H., Tricoli, V., Fernandes, V., & Kobal, R. (2014). Training for power and speed: Effects of increasing or decreasing jump squat velocity in elite young soccer players. *Journal of Strength and Conditioning Research, 28*(10), 2815–2823. https://doi.org/10.1519/JSC.0000000000000951

Malina, R. M., Bouchard, C., & Bar-Or, O. (2004). *Growth, maturation, and physical activity*. Human Kinetics. https://doi.org/10.5040/9781492596837

Markovic, G. (2007). Does plyometric training improve vertical jump height? A meta-analytical review. *British Journal of Sports Medicine, 41*(6), 349–355. https://doi.org/10.1136/bjsm.2007.035113

Newton, R. U., & Kraemer, W. J. (1994). Developing explosive muscular power: Implications for a mixed methods training strategy. *Strength & Conditioning Journal, 16*(5), 20–31.

Ouergui, I., Hssin, N., Haddad, M., Padulo, J., Franchini, E., Gmada, N., & Bouhlel, E. (2014). The effects of five weeks of kickboxing training on physical fitness. *Muscles, Ligaments and Tendons Journal, 4*(2), 106. https://doi.org/10.32098/mltj.02.2014.03

Øvretveit, K. (2018). Anthropometric and physiological characteristics of Brazilian Jiu-Jitsu athletes. *Journal of Strength and Conditioning Research, 32*(4), 997–1004. https://doi.org/10.1519/JSC.0000000000002471

Pala, R., & Savucu, Y. (2011). Examination of some physical and oxidative stress parameters during the European Championship preparation camps of the national boxing team. *Fırat University Medical Journal of Health Sciences, 25*(3), 115–120.

Petersen, P., Patrick, M., Connor, H., & Conklin, D. (1989). Grip strength and hand dominance: Challenging the 10% rule. *American Journal of Occupational Therapy, 43*(7), 444–447. https://doi.org/10.5014/ajot.43.7.444

Polat, Y. (2000). The effect of explosive strength and sprint training on reaction time [Master's thesis, Selçuk University, Health Sciences Institute].

Sari, C., Aytac, T., Koc, H., Buzdagli, Y., Esen, O., & Karayigit, R. (2024). Post-activation performance enhancement effect of two tuck-jump protocols with different volumes on 15-s vertical jump performance. *Kinesiologia Slovenica: Scientific Journal on Sport, 30*(2), 105–120. https://doi.org/10.52165/kinsi.30.2.105-120

Savaş, S., & Uğraş, A. (2004). The effects of an eight-week pre-season training program on physical and physiological characteristics of university male boxers, taekwondo and karate athletes. *Gazi University Journal of Gazi Educational Faculty, 24*(3), 257–274.

Slimani, M., Chaabene, H., Miarka, B., Franchini, E., Chamari, K., & Cheour, F. (2017). Kickboxing review: Anthropometric, physiological, and performance characteristics. *Biology of Sport, 34*(3), 185–196. https://doi.org/10.5114/biolsport.2017.65338

Söyler, M., & Çingöz, Y. E. (2022). Physical and physiological factors in the athletic performance process of star female boxers during preparation for the Turkish Individual Boxing Championship. *Gümüşhane University Journal of Health Sciences, 11*(3), 1182–1190. https://doi.org/10.37989/gumussagbil.1136240

Suchomel, T. J., Nimphius, S., & Stone, M. H. (2018). The importance of muscular strength: Training considerations. *Sports Medicine, 48*(4), 765–785. https://doi.org/10.1007/s40279-018-0862-z

Tokgöz, G. (2023). The effect of strength training involving post-activation potentiation (PAP) on shot speed and some performance values of football players. *Akdeniz Journal of Sport Sciences, 6*(1, Special Issue of the 100th Anniversary of the Republic), 377–388. https://doi.org/10.38021/asbid.1342540

Turner, A. N., Tobin, D. P., & Delahunt, E. (2011). Strength training and neuromuscular adaptation in athletes. *Sports Medicine, 41*(2), 101–116.

Ünver, R., Ilkım, M., Koç, M., Çeviker, A., & Ünlü, Ç. (2024). Determination of anaerobic power, agility, and some physical characteristics of Turkish elite Greco-Roman style young wrestlers. *Journal of Education and Recreation Patterns (JERP), 5*(1), 23–36. https://doi.org/10.53016/jerp.v5i1.219

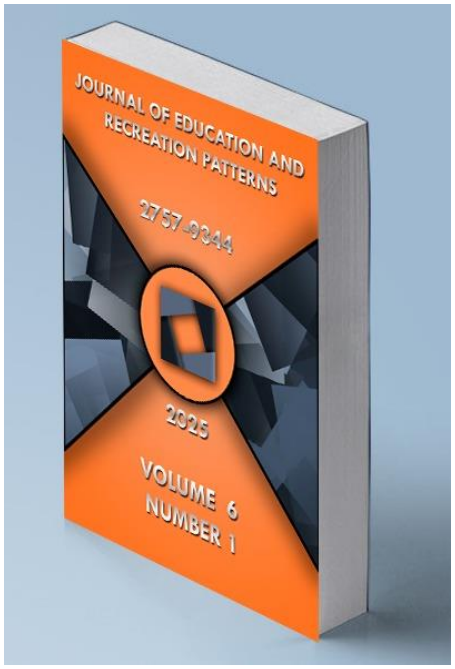
Volodchenko, O. (2017). An investigation of functional state of the kickboxing athlete respiratory system. *Slobozhanskyi Herald of Science and Sport, 3*(59), 72–76. https://doi.org/10.15391/snsv.2017-3.003

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Investigation of Nutrition and Exercise Behaviors in Fırat University Sports Sciences Students

Baha Engin ÇELİKEL[1], Suriye TAN[2]

To cite this article:

Çelikel, B.E. & Tan, S. (2025). Investigation of nutrition and exercise behaviors in fırat university sports sciences students. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 126-137. DOI: https://doi.org/10.53016/jerp.v6i1.276

[1] Fırat Üniversitesi, bahaecelikel23@gmail.com, https://orcid.org/0000-0002-8429-969X
[2] Fırat Üniversitesi, stan@firat.edu.tr, https://orcid.org/0000-0003-0293-2779

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Investigation of Nutrition and Exercise Behaviors in Fırat University Sports Sciences Students

Baha Engin Çelikel[1], Suriye Tan[2]

ARTICLE INFORMATION
Original Research Paper

Received 12.02. 2025
Accepted 21.06. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 126-137

ABSTRACT

Objective: The aim of this study is to examine the nutrition and exercise behaviors of students at Fırat University's Faculty of Sport Sciences. This research aims to evaluate the level of students' dietary and physical activity habits.

Methods: A relational survey model, one of the quantitative research methods, was used in the study. The study population consisted of students from Fırat University, and the sample included a total of 120 students (62 male, 58 female) studying at the Faculty of Sport Sciences during the 2024–2025 academic year. Data were collected using a "Demographic Information Form" and the "Nutrition and Exercise Behavior Scale." Data analysis was conducted using the SPSS 22 software program, with a significance level set at $p < 0.05$. Percentages, frequencies, Independent Samples T-Test, and ANOVA tests were applied.

Results: The results showed that male students scored higher than female students, with the highest scores observed in the unhealthy eating sub-dimension ($p>0.05$). Additionally, students who were taller scored higher than other groups, and height was found to have a significant effect only on the meal regularity sub-dimension ($p=0.027$). It was observed that taller individuals had more regular meal habits. it was determined that there was no statistically significant difference in the Nutrition and Exercise Behaviors sub-dimensions based on the weight variable ($p>0.05$).

Conclusion: It was determined that the nutritional habits of sport sciences students were at a moderate level and male students had better nutritional habits than female students. It is recommended that education programs related to nutrition should be increased for the students of the Faculty of Sports Sciences.

Keywords: Exercise Behaviors, Nutrition, Exercise, Student.

INTRODUCTION

Nutrition plays a critical role in improving individuals' health and well-being, as well as in maintaining their physical activities in a healthy manner (Nazni & Vimala, 2010). Every individual aims for a healthy lifestyle and a high quality of life. However, in today's world, a sedentary lifestyle, lack of adequate nutritional knowledge, the convenience brought by technology, and time management challenges due to a busy work schedule have led to an increase in many health issues such as obesity and diabetes (Bayrakdar & Zorba, 2020).

Students who start university in a different city suddenly find themselves in a new academic and social environment. This new life experience is significantly different from their previous life in terms of education, human relationships, and social life. In this unfamiliar setting, where the support of their families and close friends is suddenly cut off, students must quickly adapt and sustain this process by making the most of their potential (Karahan et al., 2005).

Exercise is a habit that offers countless benefits for both physical and mental health. Physically, regular exercise protects heart health, improves blood circulation, and strengthens muscles and bones. Additionally, it boosts metabolism, supports weight management, and strengthens the immune system (Erkan, 2011). Its contributions to mental health are also significant; endorphins released during exercise reduce stress, improve mood, and help alleviate mental health issues such as depression. Furthermore, it enhances sleep quality, regulates energy levels, and supports brain function. In short, regular exercise is an indispensable healthy lifestyle habit that strengthens both the body and mind while improving overall quality of life (Powell et al., 2018).

Exercise behavior refers to the process of developing a regular physical activity habit. This behavior can turn into a habit that positively affects an individual's physical health, mood, social relationships, and overall quality of life (Sezer & Üçgül, 2022). However, for many people, initiating or maintaining regular exercise habits can be challenging. A healthy lifestyle is fundamentally based on a balanced diet and regular physical activity. Proper nutrition helps strengthen the immune system, balance energy levels, protect skin health, and improve mood (Best et al., 2017).

Nutrition plays a crucial role in exercise performance and the body's response to exercise. Proper intake of the necessary energy and nutrients helps improve performance during workouts and accelerates recovery afterward (Dietz, 2001). Nutrition is one of the key factors that directly influence exercise performance. While the body uses carbohydrates as an energy source, it requires protein for muscle repair and growth, and healthy fats for endurance and hormone balance (Eker et al., 2017). Consuming an adequate amount of carbohydrates before exercise helps maintain energy levels, enhances performance, and delays muscle fatigue (Bayrakdar & Zorba, 2020). After exercise, protein intake aids in rapid muscle recovery and strengthening. Additionally, hydration is extremely important; adequate water consumption ensures more efficient muscle function and prevents cramps. Moreover, vitamins and minerals support muscle and nervous system function, increasing endurance. A proper and balanced diet not only helps individuals become physically stronger and more resilient but also enhances mental focus, making exercise more efficient (Dietz, 2001).

METHOD

Research Design

In this study, the quantitative research method was preferred. Quantitative research, which is a reflection of positive science, considers reality as an objective phenomenon independent of the individual. The researcher adopts an objective approach by observing events and phenomena from an external perspective. Quantitative research requires precisely determining and measuring the effects of variables on each other; otherwise, it would not be possible to test the hypotheses established in the study (Yıldırım & Şimşek, 2021).

H1: The mean scores of male students in terms of nutrition and exercise behaviors differ significantly from those of female students.

H2: The mean scores of male students in terms of nutrition and exercise behaviors differ significantly from those of female students.

This research is based on a descriptive and correlational design, which is one of the quantitative methods. The aim of the study is to examine the nutrition and exercise behaviors of students in the Faculty of Sports Sciences.

Universe and Sample

The universe of this study consists of students studying at the Faculty of Sports Sciences at Firat University. The sample consists of students who are actively studying in the year 2024-2025.

Research process

This study, conducted on students of Elazığ Fırat University Faculty of Sports Sciences, was carried out in December 2024. Convenience sampling was used as the research sample. Convenience sampling is a non-random sampling method in which the sample to be selected from the main mass is determined by the judgment of the researcher. Permission was obtained from the Faculty of Sports Sciences at Fırat University for the implementation of the scale. The scale was administered face-to-face to voluntarily selected students, and information about the Nutrition and Exercise Behavior Scale was provided to them.

Data Collection Tools

The "Nutrition and Exercise Behavior Scale" (NEBS), developed by Yurt (2008), is a 45-item, 5-point Likert-type scale with four sub-dimensions. The sub-dimensions of the scale include psychological eating behavior (11 items, minimum 11, maximum 55), healthy nutrition-exercise behavior (14 items, minimum 14, maximum 70), unhealthy nutrition-exercise behavior (14 items, minimum 11, maximum 55), and meal regularity (6 items, minimum 6, maximum 30) (Yurt, 2008)

The validity of the scale, developed by Yurt in 2008, was assessed through language and content validity (Kendall's W test concordance coefficient = .19, $p < 0.001$). Item correlation analysis was conducted, and the Cronbach's alpha reliability coefficient was found to be .85. The scale is evaluated based on sub-dimension scores. In this study, the alpha reliability of the scale, when applied to high school students, was found to be 0.76 (Yurt et al., 2016).

Data Analysis

The statistical analysis of the data was conducted using the SPSS 22 software package. Frequency and percentage distribution measures were used to examine the demographic characteristics of the students. The normality of the distribution of the data was evaluated with skewness and kurtosis (-1.5, +1.5) tests and the results showed that the data had a normal

distribution.

In the study, the "Independent Samples t-Test" was used for comparisons between two groups, while "ANOVA" tests were applied for comparisons involving more than two groups. The significance level was set at $p < 0.05$. When ANOVA results were significant, Tukey's test was used as a post hoc analysis to determine specific group differences.

Research Ethics

The ethical approval for this study was obtained from the Ethics Committee of Social and Human Sciences Research at Fırat University with Decision No. 22, dated 07.11.2024.

FINDINGS

This section presents the descriptive and inferential statistical findings obtained from the analysis of data collected from 120 participants. The first table provides an overview of the demographic characteristics of the participants, including variables such as gender, height, weight, exercise participation status, nutrition education, and weekly exercise frequency.

Table 1

Demographic İnformation of students Participating in the NEBS

Variables		**f**	**%**
Gender	Male	62	51,7
	Female	58	48,3
Height	150-160 cm	13	10,8
	161-170 cm	51	42,5
	171-180 cm	39	32,5
	181cm and over	17	14,2
Weight	50-60 kg	21	17,5
	61-70 kg	55	45,8
	71-80 kg	32	26,7
	81-90 kg	5	4,2
	91 kg and over	7	5,8
Exercise Status	Yes	36	30,0
	No	63	52,5
	Partially	21	17,5
Have You Received Nutrition Education?	Yes	65	54,2
	No	55	45,8
Weekly Exercise Frequency	One Day	13	10,8
	Two Day	36	30,0
	Three Day	49	40,8
	Four Day	22	18,3

Table 1 presents the demographic characteristics of the participants (N = 120). Among the students, 51.7% (n = 62) were male, and 48.3% (n = 58) were female. In terms of height, 10.8% (n = 13) of participants were between 150-160 cm, 42.5% (n = 51) between 161-170 cm, 32.5% (n = 39) between 171-180 cm, and 14.2% (n = 17) were 181 cm or taller. Regarding weight, 17.5% (n = 21) of the participants weighed between 50-60 kg, 45.8% (n = 55) weighed 61-70 kg, 26.7% (n = 32) weighed 71-80 kg, 4.2% (n = 5) weighed 81-90 kg, and 5.8% (n = 7) weighed over 91 kg. When asked about their exercise participation status, 30.0% (n = 36) reported exercising regularly, 52.5% (n = 63) reported not exercising, and 17.5% (n = 21) indicated partial participation. Additionally, 54.2% (n = 65) of participants reported having

received nutrition education, while 45.8% (n = 55) had not. Concerning weekly exercise frequency, 10.8% (n = 13) exercised once a week, 30.0% (n = 36) exercised twice, 40.8% (n = 49) exercised three times, and 18.3% (n = 22) exercised four or more times per week.

Table 2

Examining Sports Sciences Students According to NEBS Gender Variable

Variables	Gender	N	Mean	sd	t	p
Psychological/Addicted Eating Behavior	Male	62	44,40	4,81	1,119	0,265
	Female	58	43,41	4,85		
Healthy Nutrition Exercise Behavior	Male	62	56,45	6,30	0,153	0,879
	Female	58	56,27	6,28		
Unhealthy Diet-Exercise Behavior	Male	62	57,24	7,15	0,898	0,371
	Female	58	56,05	7,37		
Meal Plan	Male	62	23,90	3,45	1,436	0,151
	Female	58	22,89	4,16		

Note. *p<0,05

Upon examining Table 2, it was determined that there was no statistically significant difference in the students' NEBS sub-dimensions based on the gender variable. It was found that the total scores of male students were higher than those of female students.

Table 3

Examination of Sports Sciences Students' NEBS According to Height Variable

Variables	*Height*	N	Mean	sd	f	p	Difference	n^2
Psychological /Addicted Eating Behavior	150-160 cm[a]	13	42,46	4,78	0,610	0,610		0,016
	161-170 cm[b]	51	43,96	5,62				
	171-180 cm[c]	39	44,51	4,06				
	181cm and over[d]	17	43,58	4,03				
Healthy Nutrition Exercise Behavior	150-160 cm[a]	13	55,53	4,66	1,140	0,336		0,029
	161-170 cm[b]	51	55,96	5,95				
	171-180 cm[c]	39	56,05	6,81				
	181cm and over[d]	17	58,94	6,82				
Unhealthy Diet-Exercise Behavior	150-160 cm[a]	13	55,76	6,22	0,600	0,616		0.015
	161-170 cm[b]	51	56,21	7,91				
	171-180 cm[c]	39	56,64	7,36				
	181cm and over[d]	17	58,76	5,60				
Meal Plan	150-160 cm[a]	13	22,69	5,20	3,179	**0,027** *	b,d	0.076
	161-170 cm[b]	51	22,64	3,18				
	171-180 cm[c]	39	23,64	3,95				
	181cm and over[d]	17	25,76	3,45				

Note. *p<0,05 a = 150–160 cm; b = 161–170 cm; c = 171–180 cm; d = 181 cm and over.

Upon examining Table 3, it was found that there was a statistically significant difference in the NEBS Meal plan sub-dimension based on the height variable ($p < 0.05$). No statistically significant differences were found in the NEBS sub-dimensions of Psychological/Compulsive Eating Behavior, Healthy Nutrition-Exercise Behavior, and Unhealthy Nutrition-Exercise Behavior.

Table 4
Examination of Sports Sciences Students' NEBS According to Weight Variable

Variables	Weight	N	Mean	sd	f	p	Difference
Psychological/ Addicted Eating Behavior	50-60 kg	21	45,09	5,41	0,901	0,466	
	61-70 kg	55	44,00	4,96			
	71-80 kg	32	43,78	4,30			
	81-90 kg	5	42,80	5,44			
	91 kg and over	7	41,28	4,02			
Healthy Nutrition Exercise Behavior	50-60 kg	21	57,04	5,55	0,112	0,978	
	61-70 kg	55	56,16	5,93			
	71-80 kg	32	56,25	6,58			
	81-90 kg	5	55,60	7,34			
	91 kg and over	7	57,00	8,60			
Unhealthy Diet-Exercise Behavior	50-60 kg	21	58,00	9,74	0,291	0,883	
	61-70 kg	55	56,56	6,95			
	71-80 kg	32	56,12	6,11			
	81-90 kg	5	55,00	8,51			
	91 kg and over	7	57,14	6,25			
Meal Plan	50-60 kg	21	23,23	4,24	1,597	0,180	
	61-70 kg	55	23,90	3,45			
	71-80 kg	32	22,53	3,84			
	81-90 kg	5	21,40	4,87			
	91 kg and over	7	25,57	4,03			

Note. *p<0,05

Upon examining Table 4, it was determined that there was no statistically significant difference in the NEBS sub-dimensions based on the weight variable.

Table 5
Examination of Sports Sciences Students' NEBS According to Exercise Participation Status Variable

Variables	Exercise Status	N	Mean	Sd	F	P	Difference
Psychological/Addicted Eating Behavior	Yes	36	43,66	5,47	0,116	0,890	
	No	63	44,12	4,51			
	Partially	21	43,76	4,85			
Healthy Nutrition Exercise Behavior	Yes	36	56,52	6,46	0,202	0,817	
	No	63	56,53	5,68			
	Partially	21	55,57	7,72			
	Yes	36	57,30	7,30	0,266	0,767	

Unhealthy Diet-Exercise Behavior	No	63	56,22	6,56		
	Partially	21	56,90	9,19		
Meal Plan	Yes	36	23,33	3,97		
	No	63	23,36	3,96	0,076	0,927
	Partially	21	23,71	3,28		

Note. *p<0,05

Upon examining Table 5, it was found that there was no statistically significant difference in the NEBS sub-dimensions based on the exercise participation status variable.

Table 6

Examination of Sports Sciences Students' NEBS According to Nutrition Education Variable

Variables	Did you receive Nutrition Education?	N	Mean	Ss	t	p
Psychological/Addicted Eating Behavior	Yes	65	43,81	5,01	-0,270	0,788
	No	55	44,05	4,67		
Healthy Nutrition Exercise Behavior	Yes	65	56,73	6,34	0,706	0,482
	No	55	55,92	6,20		
Unhealthy Diet-Exercise Behavior	Yes	65	57,41	6,99	1,225	0,223
	No	55	55,78	7,51		
Meal Plan	Yes	65	23,13	3,84	-0,864	0,389
	No	55	23,74	3,82		

Note. *p<0,05

When Table 6 is examined, it was found that there was no statistically significant difference in the subdimensions of NEBS in the nutrition education variable of the research group.

Table 7

Examination of Sports Sciences Students' NEBS According to Weekly Exercise Participation Variable

Variables	Weekly Exercise Frequency	N	Mean	sd	f	p
Psychological/Addicted Eating Behavior	One Day	13	43,53	3,04	1,942	0,127
	Two Day	36	45,38	4,91		
	Three Day	49	42,87	4,82		
	Four Day	22	44,09	5,28		
Healthy Nutrition Exercise Behavior	One Day	13	55,38	4,85	0,527	0,664
	Two Day	36	57,02	6,63		
	Three Day	49	55,75	5,87		
	Four Day	22	57,22	7,34		
Unhealthy Diet-Exercise Behavior	One Day	13	55,15	7,43	1,031	0,382
	Two Day	36	58,38	7,58		
	Three Day	49	56,00	6,44		
	Four Day	22	56,22	8,23		

Meal Plan	One Day	13	22,53	3,45	1,271	0,288
	Two Day	36	23,47	4,03		
	Three Day	49	23,02	3,84		
	Four Day	22	24,72	3,58		

Note. *p<0,05

Upon examining Table 7, it was determined that there was no statistically significant difference in the NEBS sub-dimensions based on the weekly exercise participation variable.

DISCUSSION

Recent advancements in technology have led to noticeable changes in exercise and nutrition habits. While there is no definitive information regarding university students' nutrition and exercise habits, their impact on daily life remains unclear. The aim of this study was to examine the NEBS behaviors of students in the Faculty of Sports Sciences. A total of 120 students participated in the study, with 62 (51%) male and 58 (48.3%) female students. Analyzing the gender variable of the research group, it was determined that there was no statistically significant difference in the sub-dimensions of the nutrition and exercise behavior scale. It was found that male students had higher total scores than female students. This suggests that gender does not have a significant effect on psychological dependent eating behaviors, healthy and unhealthy eating-exercise behaviors, and meal regularity. Erdoğan (2023) studied university students' nutrition and exercise behaviors and found no significant differences between male and female students. The literature suggests that male children tend to have unhealthier eating habits compared to female children, and male children are more likely to be obese (Tümer et al., 2014; Taşdemir et al., 2014). In a study by Park et al. (2013), it was observed that the school's nutritional environment did not significantly impact students' healthy eating habits or weight status. However, it was noted that students from high-income families, who spent less time in front of screens and whose parents were housewives, had higher healthy eating scores. Some studies have found that male adolescent students had higher scores compared to female adolescents (Kalay & Türkmen, 2015). According to the research by Yurt and Özdemir (2020), no statistically significant differences were found between males and females in terms of nutrition and exercise scale scores. This study also found that students' overall health status was not at the expected level. It was determined that there was no significant relationship between participants' height and psychological dependent eating behaviors, healthy eating-exercise behaviors, and unhealthy eating-exercise behaviors. However, height had a significant effect on meal regularity, with taller individuals observed to have more regular meal patterns (Hasanpouri et al., 2023). In Aykut et al.'s (2021) study on high school students' nutrition and exercise habits, no significant difference was found between height and NEBS. Adolescent eating, exercise, and psychological eating behaviors were examined, and a low correlation between body mass index and unhealthy eating behaviors was found. This study concluded that height, as a physiological development factor, is related to eating behaviors (Tayhan et al., 2019). In this study, no significant difference was found in the NEBS sub-dimensions based on different weight groups. The results of the study suggest that the psychological/dependent eating behavior, healthy or unhealthy eating-exercise habits, and meal regularity variables are similar across different weight groups. Based on these findings, it was concluded that weight groups have no significant impact on the NEBS sub-dimensions. Sarı and Ceylan (2022) conducted a study examining the relationship between adolescents' weight status and their nutrition and exercise habits, and found a weak negative relationship between NEBS and body mass index. They observed that individuals at risk of obesity had unhealthy eating habits and performed low levels of exercise, which made it difficult for them to manage weight control. Hendekçi and Avcı (2020) examined the relationship between

adolescents' weight status and their meal regularity and exercise habits, finding that overweight and obese adolescents had more irregular meal patterns and exercised less. In a study by Kostak et al. (2014), healthy lifestyle behaviors of nursing and classroom teaching students were examined, and it was observed that most of them did not exercise or did not have exercise habits when given the opportunity. The study also found that students' health status, gender, academic performance, and their department of study influenced healthy lifestyle behaviors. In our study, no statistically significant difference was found in the NEBS sub-dimensions based on exercise participation status. Many studies have shown that individuals who engage in regular exercise tend to have healthier eating habits (Yasul et. al. 2024). It has been emphasized that exercise can positively affect individuals' eating behaviors, and athletes generally prefer more balanced, nutritious, and performance-enhancing diets (Yilmaz et al., 2021). In our study, no statistically significant difference was found in the NEBS sub-dimensions based on nutrition education. In studies conducted with adolescents and young adults, it has been observed that athletes, in particular, face challenges in their exercise and eating behaviors due to their developmental stage. Intense training and poor eating behaviors may negatively affect growth and development. In this context, it has been observed that individuals who exercise regularly tend to have healthier eating habits (Yurt & Ozdemir, 2020).

Conclusion

In conclusion, when examining the nutrition and exercise behaviors of students in the Faculty of Sports Sciences, it was determined that their eating habits were at a moderate level. It was found that male students had better eating habits compared to female students, and taller individuals were more likely to pay attention to their eating and exercise habits. It is recommended that nutrition education for students in the Faculty of Sports Sciences be increased.

Limitations

Although this study presents some important findings, it also has several limitations. First of all, the study was limited to students of Fırat University Faculty of Sports Sciences. This makes it difficult to generalize the results to students from different universities or departments. Secondly, the data were collected using the self-report method; in other words, the participants' own statements were taken as basis. This may be limiting in terms of data accuracy, which may be affected by factors such as social desirability bias or recall error. In addition, since the study has a cross-sectional design, the results obtained only reflect the situation at the time the data were collected; it does not allow for the establishment of cause-effect relationships. In addition, variables such as socioeconomic level, psychological status, environmental factors or academic stress level that may affect the students' nutrition and exercise behaviors were not included in the study. Finally, the research sample was selected using the convenience sampling method. Since this may create a potential bias in representing the universe, it is thought that studies conducted with larger and random sample groups will produce more reliable and generalizable results.

Recommendations

As a result of this study, it is recommended that informative training programs on nutrition and exercise be increased for students of the Faculty of Sports Sciences. In the future, similar studies can be conducted with larger samples from different universities. Longitudinal studies should be conducted to monitor the behavioral changes of students over time. In addition, influential variables such as psychological and socioeconomic factors should be evaluated in future studies.

REFERENCES

Aykut, T., Avcı, P., Kılınçarslan, G., & Bayrakdar, A. (2021). Determining the nutrition and exercise behaviors of high school students. *Journal of Physical Education and Sports Sciences,23*(4), 33-45. https://dergipark.org.tr/tr/pub/ataunibesyo/issue/67477/1026486

Bayrakdar, A., & Zorba, E. (2020). *Exercise and nutrition* (Vol. 47518). Akademisyen Publishing House.

Best, K., Ball, K., Zarnowiecki, D., Stanley, R., & Dollman, J. (2017). In search of consistent predictors of children's physical activity. *International Journal of Environmental Research and Public Health, 14*(10), 1258. https://doi.org/10.3390/ijerph14101258

Dietz, W. H. (2001). The obesity epidemic in young children: Reduce television viewing and promote playing. *BMJ, 322*(7282), 313-314. https://doi.org/10.1136/bmj.322.7282.313

Eker, H. H., Taşdemir, M., Mercan, S., & Mücaz, M. (2014). Obesity in adolescents and factors affecting it. In *17th National Public Health Congress Proceedings* (p. 760). Edirne. 10.5606/tftrd.2018.1402

Erdoğan, R. (2023). Examination of exercise and nutrition habits of students studying in health departments. *International Online Journal of Educational Sciences, 15*(2). https://doi.org/10.15345/iojes.2023.02.002

Erkan, T. (2011). Nutrition in adolescents. *Turkish Pediatric Archives, 46*(Special Issue), 49-53. https://doi.org/10.4274/tpa.46.34

Hasanpouri, A., Rahmani, B., Gharakhanlou, B. J., Solimanian, S., Shahsavari, S., Rasouli, A., & Abbasi, S. (2023). Nutritional knowledge, attitude, and practice of professional athletes in an Iranian population: A cross-sectional study. BMC Sports Science, Medicine and Rehabilitation, 15, 164. https://doi.org/10.1186/s13102-023-00776-3

Hendekçi, A., & Aydın Avcı, İ. (2020). The relationship between internet addiction and nutrition-exercise behaviors in adolescents. *Ankara Medical Journal, 20*(2), 315-326. 10.5505/amj.2020.52533

Kalay, R., & Türkmen, A. S. (2015). Determining the factors affecting nutrition and exercise behaviors in adolescents. *International Peer-Reviewed Nutrition Research Journal, 5*, 69-80. https://doi.org/10.17362/DBHAD.2015514268

Karahan, F., Sardoğan, M. E., Özkamalı, E., & Dicle, A. N. (2005). Examination of the adaptation levels of first-year university students in terms of socio-cultural activities. *Çukurova University Faculty of Education Journal, 2*(30), 63-71. https://doi.org/10.29333/iji.2019.1249a

Kostak, M. A., Kurt, S., Süt, N., Akarsu, Ö., & Ergül, G. D. (2014). Healthy lifestyle behaviors of nursing and classroom teacher students. *TAF Preventive Medicine Bulletin, 13*(3), 189-96. https://doi.org/10.5455/pmb.1-1362174271

Nazni, P., & Vimala, S. (2010). Nutrition knowledge, attitude, and practice of college sportsmen. *Asian Journal of Sports Medicine, 1*(2), 93. https://doi.org/10.5812/asjsm.34866

Park, S., Choi, B. Y., Wang, Y., Colantuoni, E., & Gittelsohn, J. (2013). School and neighborhood nutrition environment and their association with students' nutrition behaviors and weight status in Seoul, South Korea. *Journal of Adolescent Health, 53*(5), 655-662. https://doi.org/10.1016/j.jadohealth.2013.06.002

Powell, K. E., King, A. C., Buchner, D. M., Campbell, W. W., Dipietro, L., Erickson, K. I., ... & Whitt-Glover, M. C. (2018). The scientific foundation for the physical activity guidelines for Americans. *Journal of Physical Activity and Health, 16*(1), 1-11. https://doi.org/10.1123/jpah.2018-0618

Sarı, Ç., & Ceylan, Ç. (2022). Determination of nutrition and exercise behaviors of adolescents and young adults in the COVID-19 pandemic. *Mersin University Faculty of Medicine Lokman Hekim Journal of Medical History and Folkloric Medicine, 12*(2), 390-399. https://doi.org/10.31020/mutftd.1076101

Sezer, S. Y., & Üçgül, G. (2022). Examination of physical activity levels of youth during the pandemic process. *Journal of Sports, Health, and Education Research, 1*(1), 9-17.

Tayhan Kartal, F., Arslan Burnaz, N., Yaşar, B., Sağlam, S., & Kıymaz, M. (2019). Examination of the effect of adolescents' nutrition knowledge levels on their nutrition and exercise habits. *CBU Journal of Physical Education and Sports Sciences, 14*(2), 280-295. https://doi.org/10.33459/cbubesbd.590620

Tümer, A., Gök, F., & Evren, M. (2014, September). Examination of middle school students' nutrition and exercise behaviors. In *Public Health Congress*.

Yasul, M. E., Akbulut, T., Yasul, Y., & Çınar, V. (2024). The Effects of Short-Term Electromyostimulation Exercises and Different Diet Types on Body Composition in Obese Women. *Journal of Education and Recreation Patterns*, *5*(2), 130-142. https://doi.org/10.53016/jerp.v5i2.230

Yıldırım, A., & Şimşek, H. (2021). *Qualitative research methods in social sciences*. Seçkin Publishing.

Yılmaz Akyüz, E., Konan, M. N. & Alatlı, R. (2021). Comparison of food preferences of 1st and 4th year students of Nutrition and Dietetics department. Journal of Health Academicians, 8 (1), 43-48.

Yurt, S., Save, D., & Yıldız, A. (2016). Developing an evalution scale of nutrition exercise behaviours foradolescents; it's validity and reliability. Türkiye Klinikleri J Public Health Nurs-Special Topics, 2(1), 19–25.

Yurt, S., & Özdemir, T. (2020). Determination of nutrition and exercise behaviors of university students. *Koç University Journal of Nursing Education and Research, 17*(3), 238-243. https://doi.org/10.5222/HEAD.2020.58234

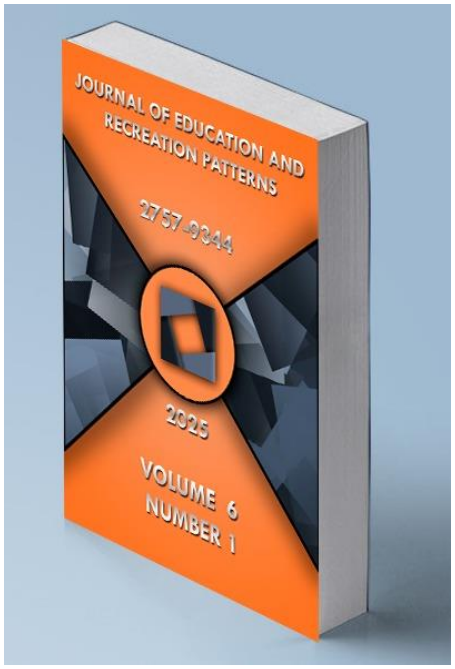
Yurt, S. (2008). *The impact of the motivation interviews with the adolescents on eating habits, behaviours and weight* (Doctoral dissertation, Marmara University, Institute of Health Sciences, Department of Public Health Nursing). Council of Higher Education Thesis Center.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Career Stress and the Role of Family Among Students of the Faculty of Sports Sciences

Edanur DEMİRCİ[1], Tolga ESKİ[2]

To cite this article:

Demirci, E. & Eski, T. (2025). Career stress and the role of family among students of the faculty of sports sciences. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 138-150. DOI: https://doi.org/10.53016/jerp.v6i1.268

[1]Kastamonu University, Health Sciences Institute, Department of Physical Education and Sports, Kastamonu, Türkiye, dmrciedaa@gmail.com , https://orcid.org/0009-0003-6512-2893
[2]Kastamonu University, Faculty of Sports Sciences, Physical Education and Sports Teaching Department, Kastamonu, Türkiye, teski@kastamonu.edu.tr , https://orcid.org/0000-0002-2905-5457

Note: This study was presented as an oral presentation at the 8th International Academic Sports Studies Congress in Trabzon on 7 – 9 October 2024.

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Career Stress and the Role of Family Among Students of the Faculty of Sports Sciences

Edanur Demirci[1], Tolga Eski[2]

ARTICLE INFORMATION
Original Research Paper

Received 21.11. 2024
Accepted 28.06. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 138-150

ABSTRACT

This study aims to examine the relationship between career stress and the influence of family on career choice among students of the Faculty of Sports Sciences by evaluating these two factors in terms of different variables. The correlational survey model, one of the quantitative research methods, was used in the research model. The sample of the study consists of 249 students, who are first and second grade students of Kastamonu University Faculty of Sports Sciences. As data collection tools, the Career Stress Scale (CSS), adapted into Turkish by Özden and Sertel-Berk (2017), and the Family Influence on Career Choice Scale (FICCS), adapted into Turkish by Özünlü and Bacanlı (2015), were used. The data were analyzed using the SPSS 20 program, with descriptive statistics, the Kolmogorov-Smirnov Normality Test, non-parametric tests such as the Mann-Whitney U Test, Kruskal-Wallis Test, Spearman Correlation Test and Cronbach's Alpha internal consistency analysis. According to the analysis of the sub-dimensions of the Career Stress Scale, significant differences were observed in grade variables ($p<.05$). According to the analysis of the sub-dimensions of the Family Influence on Career Choice Scale, significant differences were found in terms of gender, grade, and paternal education variables ($p<.05$). No significant difference was found in the relationship analysis conducted between the career stress and the influence of family on career choice among students ($r= .053$; $p>0.05$). In conclusion, it was observed that career stress influences students' career choices, while the role of the family was not. It was noted that students chose the Faculty of Sports Sciences based on their preferences. It may be recommended that departments provide training to improve their professional self-confidence and work to reduce stress.

Keywords: Career Stress, Career Choice, Family Influence, Sports Sciences, University Students.

INTRODUCTION

In life, individuals undergo various processes to achieve specific goals. Career choice is one of the crucial steps in this process, and it has become increasingly important due to changing job conditions. Career choice secures financial independence and directly impacts personal satisfaction and success. It is widely recognized that the most influential factors in career choice are an individual's interests, abilities, and social background (Türkkahraman & Şahin, 2010). The contribution of university years in determining these factors is substantial. University education is critical in shaping individuals' careers and setting their goals. The skills and knowledge acquired during this period prepare individuals for professional life. At the same time, this period is also a time of self-discovery. Career development and career stress are critical factors that may arise as challenges during this process of self-discovery.

Career stress is the anxiety, pressure, and difficulty experienced by individuals when choosing a profession. It has been described as a psychological and physical state that negatively affects the individual and their surroundings (Choi et al., 2011; Emirel & Bozkurt, 2022). Along with career stress, feelings of uncertainty can diminish self-confidence and narrow one’s perspective. Research on career stress has shown that it significantly affects individuals' quality of life. The responsibility of securing a job and the increasing variability in professions have been noted as key factors contributing to stress (Bozyiğit & Gökbaraz, 2020; Güler et al., 2023; Gümüştekin & Gültekin, 2015). Another significant variable that influences the limitations caused by career stress is the family factor. Parents' desire to ensure their child's future or their expectation that the child will pursue the profession they envision can create pressure that affects career choices.

Studies have shown that excessive parental involvement in career decisions increases decision-making difficulties, impacts career competence, and shapes the individual's self-awareness based on parental guidance (Eraslan Çapan & Korkut Owen, 2020; Marcionetti & Rossier, 2017; Öztürk, 2014; Taş & Özmen, 2019). In addition to these two significant factors, societal expectations of what careers should be pursued can further complicate the situation. This is especially true for students pursuing careers in sports, as they may not be fully aware of the breadth of opportunities within the field, leading to increased stress and influence from parental expectations.

Career stress and the family effect that occurs in this process are two important psychosocial variables that directly affect the professional orientation process of the individual. Career stress is generally used to measure the uncertainty, conflict, and pressure experienced by the individual in the career decision-making process, while the family effect is used to evaluate the effect of family members' expectations, guidance, and support levels on an individual's career decisions. In this context, Holland's Personality Types Theory argues that making career choices suitable for individuals' personality traits will increase career satisfaction; maladaptive choices can increase stress levels (Holland, 1997, as cited in Spokane et al., 2002). On the other hand, Social Cognitive Career Theory (SCCT), based on Bandura's concepts of self-efficacy and expectation of results, suggests that an individual's career orientation is shaped by both intrinsic motivations and external factors such as family and peers (Lent et al., 1994). Another theory, Donald Super's Developmental Career Theory, sees the career development of individuals as a lifelong process. In particular, the Life-Span, Life-Space approach emphasizes not only the professional development of the individual but also his relationship with other roles in his life (e.g., student, parent, employee, citizen) (Super, 1980). Especially in young individuals, the conflict between family expectations and individual interests and talents can be one of the primary sources of career stress. For this reason, the data obtained through these two scales allow us to analyze the career development processes of individuals in a multidimensional way. At the same time, they provide an important theoretical

basis for determining the direction of vocational guidance services.

However, in the current literature, there are limited studies that examine the family influence and professional awareness levels in the career choice processes of students studying in the field of sports. This study aims to fill this gap in the literature by revealing the family factors that affect the career decisions of students in physical education and sports sciences and the uncertainties they experience regarding this process. Thus, it aims to contribute to both families and educators in managing this process more healthily by determining the specific problems encountered by teacher candidates who show a career orientation in sports.

Understanding the differences in how students navigate their career paths, their confidence in their professional choices, and the role of family support is crucial. With this in mind, this article aims to examine the career stress on career choice and the influence of family support, considering various variables and determining whether there is a relationship between family support and career stress. This article seeks answers to the following questions.

H 1: Does family influence on career choice?

H 2: Does career stress have an impact on career choice?

H 3: Is there a significant relationship between family influence on career choice and career stress?

METHOD

Research Ethics

Prior to the start of our study, ethical approval was granted by the Social and Human Sciences Scientific Research and Publication Ethics Board of Kastamonu University as the fifth decision of meeting number 4 dated 03.04.2024.

Research Design

The correlational survey model, a quantitative research method, was employed in this study. Correlational survey models aim to explore the relationships between two or more variables and to reveal the effects of these relationships (Fraenkel & Wallen, 2009).

Participants

The study population consists of 909 students studying at Kastamonu University Faculty of Sports Sciences in the 2023-2024 Academic Year. The sample group of the study consists of 249 sports science students, 121 females and 128 males, selected by purposive sampling method from within the universe. The preferred purposive sampling method is seen as ―the shortest way to obtain data in a fast and cheap way (Patton, 1987).

Table 1

Statistical Distributions of Participants Based on Demographic Characteristics

Variable	Group	n	%
Gender	Female	121	48.6
	Male	128	51.4
	Total	249	100.0
Age	19 and under	86	34.5
	20 and above	163	65.5
	Total	249	100.0
Grade Level	1st Grade	114	45.8
	2nd Grade	135	54.2
	Total	249	100.0
Department	Physical Education and Sports Teaching	28	11.2
	Coaching Education	112	45.0
	Sports Management	109	43.8
	Total	249	100.0
Perceived Family Income	Low	20	8.0
	Middle	204	81.9
	High	25	10.0
	Total	249	100.0
Perceived Personal Income	Low	77	30.9
	Middle	154	61.8
	High	18	7.2
	Total	249	100.0
Maternal Education Level	Illiterate or Primary School	99	39.8
	Middle School	70	28.1
	High School	62	24.9
	University or Higher	18	7.2
	Total	249	100.0
Paternal Education Level	Illiterate or Primary School	64	25.7
	Middle School	63	25.3
	High School	90	36.1
	University or Higher	32	12.9
	Total	249	100.0

Table 1 shows that out of the 249 participants, 48.6% are female (n = 121) and 51.4% are male (n = 128). It was determined that 34.5% of participants (n = 86) were aged 19 or younger, while 65.5% (n = 163) were aged 20 or older. The number of first-grade students was 114 (45.8%), and the number of second-grade students was 135 (54.2%). The department with the most participants was Coaching Education (45.0%, n = 112), while Physical Education and Sports Teaching had the fewest participants (11.2%, n = 28). Most participants rated their family income as middle (81.9%, n = 204), and a similar trend was observed for personal income, with the middle-income group being the most represented (61.8%, n = 154). Regarding parents' education, most mothers had either no formal education or only a primary school education (39.8%, n = 99), while the most common level of education among fathers was high school (36.1%, n = 90).

Data Collection Tools

Personal Information Form: This form includes questions on gender, age, grade level, department, perceived family income, perceived personal income (the student's income), maternal and parental education level.

Career Stress Scale (CSS): The Career Stress Scale used in this research was developed by Choi et al. (2011) to measure the stress and difficulties experienced by university students regarding their career choices. The scale was adapted into Turkish by Özden and Sertel Berg (2017). It consists of 20 items divided into three sub-dimensions (career ambiguity & lacking information, external conflict and employment pressure). Respondents are asked to rate the degree to which they relate to the statements on a 5-point Likert scale, ranging from "Strongly Disagree (1)" to "Strongly Agree (5)." The lowest possible score on the scale is 20, and the highest is 100, with higher scores indicating a higher level of career stress. Cronbach's Alpha internal consistency coefficient calculated on the data collected within the scope of this study was .929 for the "Career Ambiguity & Lacking Information" subscale, .792 for the "External Conflict" subscale and .881 for the "Employment Pressure" subscale. Cronbach's Alpha internal consistency coefficient obtained from the total score of the scale was determined as .949.

Family Influence on Career Choice Scale (FICCS): Originally developed by Fouad et al. (2010) and adapted into Turkish by Özünlü and Bacanlı (2015), the Family Influence on Career Choice Scale is a 21-item, 5-point Likert scale. It includes four sub-dimensions: Informational Support, Financial Support, Family Expectations, and Values & Beliefs. The items were developed based on research findings and suggestions in the literature on the influence of family in career decision-making. Cronbach's Alpha internal consistency coefficient calculated on the data collected within the scope of this study was .909 for the "Informational Support" subscale, .512 for the "Financial Support" subscale, .809 for the "Family Expectations" subscale and .847 for the "Values & Beliefs" subscale. In addition, Cronbach's Alpha internal consistency coefficient obtained from the total score of the scale was found to be .824.

Data Collection Process

Data were collected face-to-face from Faculty of Sports Sciences students during the Spring semester of the 2023-2024 Academic Year. Before data collection, participants were informed about the research topic and the scales they were asked to complete. Participants contributed to the study voluntarily. Data were collected by the principal investigator.

Data Analysis

The data were analyzed using the SPSS 20 statistical software package. Frequency and percentage analyses were performed for the variables. Kolmogorov Smirnov test was applied first in relation to the normality distribution of the data in the analyzes. Since the results of the Kolmogorov-Smirnov test indicated that the data were not normally distributed ($p<.05$), non-parametric tests were applied. The Mann-Whitney U test was used for gender, age, and grade variables, while the Kruskal-Wallis test was used for department, perceived family income, perceived personal income, maternal education, and parental education variables. When the Kruskall-Wallis test was significant, Dunn's Test with Bonferroni Correction was applied, which is one of the post hoc tests. The reliability of the scales was checked using Cronbach's Alpha internal consistency analysis. The effect size for pairwise comparisons was classified according to the rank biserial correlation and classified as 0.20 small, 0.50 medium and 0.80 large (Green & Salkind, 2005).

FINDINGS

In this section, the findings obtained as a result of the analysis of the data collected from the participants through data collection tools and comments on the findings are given.

Table 2

Comparison of Career Stress and Family Influence on Career Choice Scores according to Participants' Gender Variables

Scale	Sub-dimensions	Gender	n	Md	$\bar{X}$	Sum of Ranks	U	p
Career Stress Scale	Career Ambiguity & Lacking Information	Female	121	2.10	129.65	15688.00	7181.00	.321
		Male	128	2.10	120.60	15437.00		
	External Conflict	Female	121	2.00	127.12	15381.50	7487.50	.650
		Male	128	2.00	123.00	15743.50		
	Employment Pressure	Female	121	2.83	133.90	16202.50	6666.50	.057
		Male	128	2.67	116.58	14922.50		
	Total	Female	121	2.35	131.30	15887.00	6982.00	.180
		Male	128	2.28	119.05	15238.00		
Family Influence on Career Choice Scale	Informational Support	Female	121	3.88	125.16	15144.50	7724.50	.972
		Male	128	3.88	124.85	15980.50		
	Financial Support	Female	121	3.67	129.82	15708.50	7160.50	.301
		Male	128	3.67	120.44	15416.50		
	Family Expectations	Female	121	2.25	123.20	14907.50	7526.50	.701
		Male	128	2.25	126.70	16217.50		
	Values & Beliefs	Female	121	3.00	115.60	13987.00	6606.00	**.044***
		Male	128	3.33	133.89	17138.00		
	Total	Female	121	3.33	123.18	14904.00	7523.50	.698
		Male	128	3.38	126.72	16220.00		

*p < .05

Table 2 shows no significant difference between genders in the sub-dimensions of career ambiguity and lacking information, external conflict, and employment pressure. However, a significant difference was found between females (Md= 3.00, n= 121) and males (Md= 3.33, n= 128) in the values and beliefs sub-dimension of the Family Influence on Career Choice Scale, with females scoring lower than males ($U = 6606.00$; $p < .05$, $r = -0.13$; small).

According to the analysis results on the influence of age on career stress and family influence on career choice, no significant differences were observed in the sub-dimensions of career ambiguity and lacking information, external conflict, employment pressure informational support, financial support, family expectations, and values and beliefs. It was determined that age does not significantly impact these scales.

Table 3

Comparison of Career Stress and Family Influence on Career Choice Scores according to Participants' Grade Level Variables

Scale	Sub-dimensions	Grade Level	n	Md	X̄	Sum of Ranks	U	p
Career Stress Scale	Career Ambiguity & Lacking Information	1st Grade	114	1.95	116.50	13281.00	6726.000	.87
		2nd Grade	135	2.40	132.18	17844.00		
	External Conflict	1st Grade	114	1.75	114.66	13071.50	6516.500	**.037***
		2nd Grade	135	2.00	133.73	18053.50		
	Employment Pressure	1st Grade	114	2.50	119.12	13580.00	7025.000	.236
		2nd Grade	135	3.00	129.96	17545.00		
	Total	1st Grade	114	2.13	116.44	13274.00	6719.000	.85
		2nd Grade	135	2.50	132.23	17851.00		
Family Influence on Career Choice Scale	Informational Support	1st Grade	114	4.00	127.01	14479.50	7465.500	.684
		2nd Grade	135	3.88	123.30	16645.50		
	Financial Support	1st Grade	114	3.67	124.41	14183.00	7628.000	.905
		2nd Grade	135	3.67	125.50	16942.00		
	Family Expectations	1st Grade	114	2.00	112.54	12829.50	6274.500	**.012***
		2nd Grade	135	2.50	135.52	18295.50		
	Values & Beliefs	1st Grade	114	3.00	122.82	14002.00	7447.000	.660
		2nd Grade	135	3.33	126.84	17123.00		
	Total	1st Grade	114	3.33	121.22	13819.00	7264.000	.446
		2nd Grade	135	3.38	128.19	17306.00		

*p < .05

According to findings in Table 3, significant differences were found between first grade (Md= 1.75, n= 114) and second grade (Md= 2.00, n= 135) in the sub-dimensions of external conflict (U = 6516.50; p < .05, r = .13; Small). At the same time, a significant difference was found between first grade (Md= 2.00, n= 114) and second grade (Md= 2.50, n= 135) in the sub-dimension of family expectations (U = 6274.50; p < .05, r = .16; Small). Second-grade students reported higher scores in these sub-dimensions compared to first-grade students, indicating that second-grade students experience more external conflict and perceive higher family expectations.

Table 4

Comparison of Career Stress and Family Influence on Career Choice Scores according to Participants' Paternal Education Level

Scale	Sub-dimensions	Paternal Education Level	n	Mean Rank	sd	χ^2	p	Sig.
Career Stress Scale	Career Ambiguity & Lacking Information	Illiterate or Primary School[a]	64	137.25	3	5.924	.115	-
		Middle School[b]	63	133.27				
		High School[c]	90	111.45				
		University or Higher[d]	32	122.33				
	External Conflict	Illiterate or Primary School[a]	64	135.15	3	2.124	.547	-
		Middle School[b]	63	125.45				

		High School[c]	90	118.17				
		University or Higher[d]	32	123.02				
	Employment Pressure	Illiterate or Primary School[a]	64	132.57	3	1.349	.718	-
		Middle School[b]	63	123.68				
		High School[c]	90	119.37				
		University or Higher[d]	32	128.28				
	Total	Illiterate or Primary School[a]	64	135.76	3	3.424	.331	-
		Middle School[b]	63	128.99				
		High School[c]	90	114.82				
		University or Higher[d]	32	124.25				
Family Influence on Career Choice Scale	Informational Support	Illiterate or Primary School[a]	64	109.25	3	4.615	.202	-
		Middle School[b]	63	125.72				
		High School[c]	90	133.64				
		University or Higher[d]	32	130.77				
	Financial Support	Illiterate or Primary School[a]	64	104.65	3	9.757	**.021***	a<c
		Middle School[b]	63	122.10				
		High School[c]	90	140.91				
		University or Higher[d]	32	126.67				
	Family Expectations	Illiterate or Primary School[a]	64	125.35	3	1.117	.773	-
		Middle School[b]	63	121.55				
		High School[c]	90	122.91				
		University or Higher[d]	32	136.98				
	Values & Beliefs	Illiterate or Primary School[a]	64	116.40	3	6.316	.097	-
		Middle School[b]	63	115.56				
		High School[c]	90	128.63				
		University or Higher[d]	32	150.56				
	Total	Illiterate or Primary School[a]	64	106.49	3	8.424	**.038***	a<c a<d
		Middle School[b]	63	120.14				
		High School[c]	90	134.79				
		University or Higher[d]	32	144.05				

Note. *p < .05; a = Illiterate or Primary School; b = Middle School; c = High School; d = University or Higher.

Upon examining Table 4 no significant difference was found in the sub-dimensions of informational support, family expectations, and values and beliefs within the Family Influence Scale on Career Choice based on paternal educational level. However, a significant difference was observed in the financial support sub-dimension ($\chi 2$ (3, N=249) = 9.757, p < .021, $\varepsilon 2$ =

.04; Small). After applying Dunn's Test with Bonferroni Correction for multiple comparisons indicated that this difference was between the A<C groups. The Kruskal-Wallis test, applied generally to the Family Influence Scale on Career Choice related to paternal educational level, revealed a significant difference ($\chi 2$ (3, N= 249) = 8.424, p = .038, $\varepsilon 2$ = .03; Small). Applying Dunn's Test with Bonferroni Correction, group comparisons showed that this difference existed between the A<C and A<D groups. No significant difference was found in the career ambiguity and lacking information, external conflict, and employment pressure sub-dimensions of the Career Stress Scale.

According to the analysis results regarding the age variable in relation to the sub-dimensions of family influence on career choice and career stress, no significant differences were observed in the sub-dimensions of informational support, financial support, family expectations, values and beliefs, career uncertainty and lacking information, external conflict, and job search pressure. It was determined that the age variable did not have a significant impact on the scales, and therefore, no table was included. Additionally, the analyses conducted for the variables of academic department, family income, personal income, and maternal education level revealed insufficient sample size. Consequently, these variables were excluded from the study.

Table 5

Correlation Analysis Performed on Career Stress and Family Influence on Career Choice

Variables	r	p
Career Stress **Family Influence on Career Choice**	.053	.402

When Table 5 is examined, it was seen that there was no positive and significant relationship in the Spearman Correlation test, which was conducted to reveal whether there was a relationship between career stress in students' career choice and family influence in career choice (r = .053, p> .05).

DISCUSSION & CONCLUSION

This study examined the relationship between family influence on career choice and career stress among students of the Faculty of Sports Sciences. In addition to this investigation, findings related to variables such as gender, grade level, and paternal education level, and the results of the correlational analysis between the two scales, were also presented.

The results showed no significant difference between males and females regarding family support in career choice, particularly in the sub-dimensions of informational support, financial support, and family expectations. This suggests that families provide similar levels of support regardless of gender. This finding aligns with research by Guan et al. (2016), which demonstrated the positive impact of family support on career decisions across genders.

However, a significant difference was found in the Values and Beliefs sub-dimension, indicating that societal norms and gender roles may create differing expectations in career decisions. Females, in particular, may place more emphasis on family values in their career choices than males. Previous research by Taş and Özmen (2019) supports this finding, showing that women prioritize family support more than men when making career decisions. Moreover, studies by Lamsa, Sakinen, and Turjanmaa (2000) suggest that gender-specific values influence career paths.

Regarding Career Stress, no significant differences were found between genders in the sub-dimensions of career ambiguity and lacking information, external conflict, and

employment pressure. This indicates that both males and females experience similar levels of career stress. Previous studies have yielded similar findings (Bayrakçeken & Buztepe, 2021; Güner et al., 2024), suggesting that career-related pressures and opportunities in the labor market affect both genders equally.

The findings showed that age did not significantly affect family influence or career stress. This indicates that family support and career stress can occur at any age, regardless of whether individuals are younger or older university students. Esen (2019) reached a similar conclusion in her research, while Özgeldi and Kılıç (2019) found some variations, suggesting that further studies are needed. The homogeneity and narrow distribution of the participants' ages may have reduced the likelihood of detecting potential age-related differences. Consequently, it can be concluded that age alone may not be a determining factor.

The findings related to the grade level variable revealed a significant difference was found in the family expectations sub-dimension. Although statistically significant, the effect size ($\varepsilon^2 = .02$) was small, indicating limited practical implications. This may be explained by the increasing pressure students face as they advance to higher grades, such as finding a job, making career decisions, and transitioning into professional life. As a result, they may feel family expectations more intensely. Regarding career stress, the significant difference found in the external conflict sub-dimension suggests that individuals may be more influenced by society, social environment, and family, leading to increased stress levels. Factors such as uncertain career paths, competitive job markets, and concerns about unemployment may expose students to greater external pressures. Several studies align with these findings and support similar conclusions (Picker-Roesch & Lang, 2024; Wang, 2023).

According to the results obtained from the paternal education variable, a significant difference was found in the financial support sub-dimension and the overall scale score. This suggests that the father's role is significant in career decision-making. When the parent has a higher level of education, the associated financial means are likely to be greater, allowing for increased support to the individual, which may positively influence career decisions. Consistent with this study, previous research has also demonstrated that educational attainment is important in this context (Obot et al., 2020; Özcan & Sarıoğlu Kemer, 2021).

The study had no statistically significant relationship between family influence and career stress. This finding shows that the family factor is not a direct source of stress on students. However, it can be said that family expectations have both positive and negative aspects. On the positive side, it is possible for students who grow up in supportive and encouraging family structures to increase their self-confidence and facilitate the process of determining their career goals more clearly. This situation can have a reducing effect on career stress by improving students' decision-making skills. From a negative point of view, the high level of expectation of families or the fact that they are overly directive in their career choice can increase the level of pressure and stress in students. In particular, directing the student to an area far from their interests and abilities can cause negative situations such as indecision, anxiety and burnout. In this context, the absence of a significant relationship in the statistical analysis suggests that although the direct effect of the family effect on stress is limited, its indirect effects should not be ignored. Overall, the findings highlight the complex and independent nature of family influence and career stress among sports science students and indicate the need for individualized and context-sensitive career support strategies.

Seminars and informational sessions involving families could be organized to support students in both realizing their individual potential and coping more effectively with stress factors originating from their families. In addition, mentorship systems may be established to guide students through their career planning process, and psychological counseling services could be strengthened to help develop coping strategies against family-related pressures. Such

holistic approaches would promote both greater autonomy in students' career decisions and a healthier balance in their relationships with their families. Furthermore, while this study aligns with the findings of some previous research, it contradicts others. Considering the limitation regarding the class level of the participants, future studies could be conducted across different universities and academic levels to examine potential regional differences in this area.

Limitations

The research is limited to the data be collected from students' study in Kastamonu University in the 2023 – 2024 Academic Year.

REFERENCES

Bayrakçeken, E., & Buztepe, S. (2021). Examination of career stress of vocational school of health services students in terms of some variables. *Balıkesir Journal of Health Sciences, 10*(3), 260–266. https://doi.org/10.53424/balikesirsbd.890243

Bozyiğit, E., & Gökbaraz, N. (2020). Determinants of career stress among faculty of sports sciences students. *Journal of Computer and Education Research, 8*(15), 181–200. https://doi.org/10.18009/jcer.679874

Choi, B. Y., Park, H. R., Nam, S. K., Lee, J., Cho, D., & Lee, S. M. (2011). The development and initial psychometric evaluation of the Korean Career Stress Inventory for college students. *Career Development Quarterly, 59*(6), 559–572. https://doi.org/10.1002/j.2161-0045.2011.tb00976.x

Emirel, M., & Bozkurt, Ö. (2022). Examining the relationship between career stress and uncertainty avoidance: A study on insurance and social security department students. *Journal of Labor Relations, 13*(1), 1–16.

Eraslan Çapan, B., & Korkut Owen, F. (2020). STEM students' career selection reasons, career information sources, and needs. *Journal of Career Counseling, 3*(1), 1–31.

Fouad, N., Cotter, W., Fitzpatrick, M., Kantamneni, M., Carter, L., & Bernfeld, S. (2010). Development and validation of the Family Influence Scale. *Journal of Career Assessment, 18*(3), 276–291. https://doi.org/10.1177/1069072710364793

Fraenkel, R. J., & Wallen, E. N. (2009). *How to design and evaluate research in education* (7th ed.). McGraw-Hill.

Green, S. B., & Salkind, N. J. (2005). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (4th ed.). Pearson.

Guan, P., Capazio, A., Restubog, S. L. D., Read, S., Lajom, J. A. L., & Li, M. (2016). The role of traditionality in the relationships among parental support, career decision-making self-efficacy, and career adaptability. *Journal of Vocational Behavior, 94*, 114–123. https://doi.org/10.1016/j.jvb.2016.02.018

Güler, C., Siyahtaş, A., & Çakır, V. O. (2023). A factor predicting life satisfaction in sports sciences faculty students: Career stress. *Turkiye Klinikleri Journal of Sports Sciences, 15*(1), 159–168. https://doi.org/10.5336/sportsci.2022-92755

Gümüstekin, G. E., & Gültekin, F. (2015). The effects of stress sources on career management. *Dumlupınar University Journal of Social Sciences, 23*.

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd ed.). Psychological Assessment Resources.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior, 45*(1), 79–122. https://doi.org/10.1006/jvbe.1994.1027

Lamsa, A. M., Sakinen, A., & Turjanmaa, P. (2000). Values and their change during the business education: A gender perspective. *International Journal of Value-Based Management, 13*, 203–213. https://doi.org/10.1023/A:1007884005732

Marcionetti, J., & Rossier, J. (2017). The mediating impact of parental support on the relationship between personality and career indecision in adolescents. *Journal of Career Assessment, 25*(4), 601–615. https://doi.org/10.1177/1069072716652890

Obot, I. M., Apebende, J. B., Okon, A. E., & Bekomson, A. N. (2020). Parental level of education and students' career aspiration: Philosophical contributions for education towards learners' skills for autonomy in decision making. *European Journal of Scientific Research, 156*(1), 40–49.

Özcan, S., & Sarıoğlu-Kemer, A. (2021). Evaluation of family influence on nursing students' career selection. *MAS Journal of Applied Sciences, 6*(4), 899–908. http://dx.doi.org/10.52520/masjaps.123

Özden, K., & Sertel-Berk, Ö. (2017). Turkish adaptation and psychometric evaluation of the Career Stress Scale (CSS). *Psychological Studies, 37*(1), 35–51.

Özgeldi, M., & Kılıç, E. (2019). The role of family influence in career choice. In G. T. Yamamoto (Ed.), *International Congress on Business and Marketing* (pp. 453–466). Maltepe University.

Öztürk, A. (2014). The role and effect of responsibility attitude and perceived social support from family in predicting social anxiety. *Hacettepe University Journal of Education, 29*(3), 137–152.

Özünlü, M. B., & Bacanlı, F. (2015). Turkish adaptation of the Family Influence Scale for high school students: A validity and reliability study. *Turkish Journal of Educational Sciences, 13*(1), 13–32.

Patton, Q. M. (1987). *How to use qualitative methods in evaluation*. Sage Publications.

Picker-Roesch, C., & Lang, J. (2024). Stress and career aspirations: A longitudinal study with medical students. *Frontiers in Psychology, 15*, Article 1449111. https://doi.org/10.3389/fpsyg.2024.1449111

Spokane, A. R., Luchetta, E. J., & Richwine, M. H. (2002). Holland's theory of personalities in work environments. In D. Brown (Ed.), *Career choice and development* (4th ed.). Jossey-Bass.

Super, D. E. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior, 16*(3), 282–298. https://doi.org/10.1016/0001-8791(80)90056-1

Taş, M. A., & Özmen, M. (2019). The relationship between family support in career choice and career adaptability: The mediating role of positive future expectations. *Eurasian Journal of Researches in Social Sciences, 7*(16), 736–761. https://doi.org/10.33692/avrasyad.543865

Türkkahraman, M., & Şahin, K. (2010). Women and career. *International Journal of Alanya Faculty of Business, 2*(1), 75–88.

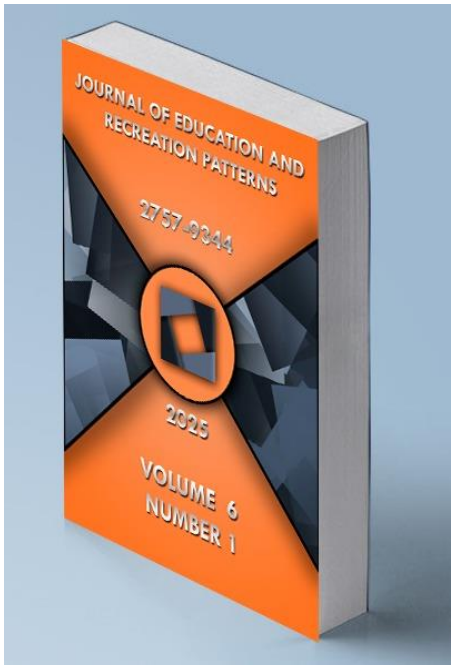
Wang, Y. (2023). The influence of overparenting on college students' career indecision: A moderated mediation analysis. *Psychology Research and Behavior Management, 16*, 4569–4582. https://doi.org/10.2147/PRBM.S436675

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for the content of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Investigation of Job Performance and Physical Activity Levels of University Staff

Savaş AYDIN[1], Oğuzhan ÇALI[2]

To cite this article:

Aydın, S. & Çalı, O. (2025). Investigation of job performance and physical activity levels of university staff. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 151-167. DOI: https://doi.org/10.53016/jerp.v6i1.287

[1]Van Yüzüncü Yıl University Faculty of Sports Sciences, Van, Türkiye, savasaydin@yyu.edu.tr
https://orcid.org/0000-0003-2224-3997
[2]Sivas Cumhuriyet University Faculty of Sports Sciences, Sivas, Türkiye, oguzhancali@cumhuriyet.edu.tr
https://orcid.org/0000-0001-6521-9714

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Investigation of Job Performance and Physical Activity Levels of University Staff

Savaş Aydın[1], Oğuzhan Çalı[2]

ARTICLE INFORMATION
Original Research Paper

Received 09.03. 2025
Accepted 21.06. 2025

https://jerpatterns.com

June, 2025

Volume: 6, No: 1

Pages: 151-167

ABSTRACT

The aim of this study is to examine the job performance and physical activity levels of university staff according to various variables. A descriptive survey model based on the quantitative research method was used in the study. A total of 504 personnel working at Van Yüzüncü Yıl University, including 65 academic, 122 administrative, 89 security, and 228 health staff, selected by random sampling method, participated in the study. Data collection tools included the International Physical Activity Questionnaire (IPAQ), the Job Performance Scale, and a demographic information form prepared by the researcher. The data were analyzed using the SPSS program. Since the data did not meet normality assumptions, the Mann-Whitney U test was used for pairwise group comparisons, the Kruskal-Wallis H test for multiple group comparisons, and the Spearman Correlation test to examine relationships between variables. Eta squared and r (rank-biserial correlation) analyses were performed to assess effect sizes. According to the findings, significant differences were found in the scores of the physical activity scale (IPAQ) and job performance scale according to the variables of gender, marital status, position, educational status, and working time. Additionally, a significant positive relationship was detected between the physical activity levels and job performance of the university staff. The study concluded that these variables affected the physical activity levels and job performance of the university personnel, and that job performance increased as the physical activity levels of the personnel increased.

Keywords: Job Performance, Physical Activity, University Personnel.

INTRODUCTION

The effective functioning of universities, which are considered the cornerstones of knowledge production and social progress, is largely based on the performance of their employees. The job representations of university staff are critical in achieving the mission of the institution, both in academic and administrative roles (Bakker & Demerouti, 2023). Performance is expressed as what is expected of an individual and has organizational value (Koley & Baksi, 2024). Job performance, on the other hand, is shaped by factors such as job satisfaction, stress management, and organizational commitment rather than individual productivity, and these factors directly affect the overall success of the organization (Bakker & Demerouti, 2023).

Developments in science and technology are changing people's daily lives. Although it is thought that the opportunities offered to the service of humanity with these developments facilitate daily life and increase the quality of life, they have led to a less active sedentary lifestyle (Dere & Günay, 2021). In recent years, the impact of employees' physical and mental health status on job performance has been intensively studied, especially in occupational groups where sedentary lifestyles are common. In this context, the relationship between physical activity levels and job performance has become a topic of attention in both health sciences and organizational psychology (Proper et al., 2022; Warburton & Bredin, 2021).

Physical inactivity is recognized as a significant public health issue, with approximately 60% of the global population failing to meet physical activity guidelines (Safi et al., 2021). According to the World Health Organization's (WHO) definition, health is not merely the absence of disease or disability but a state of complete physical, mental, and social well-being (Szarek et al., 2024). Physical activity has been shown to have positive effects not only on cardiovascular health and the musculoskeletal system but also on cognitive functions, emotional resilience, and stress coping mechanisms (Ratey & Hagerman, 2018). The positive impact of physical activity on health is extensively documented in the literature. The WHO recommends at least 150-300 minutes of moderate-intensity aerobic activity per week for adults, with activities exceeding this level offering additional health benefits (World Health Organization, 2024). Regular physical activity and exercise have been shown to not only improve individual health but also enhance productivity in the workplace across all occupational groups (Szarek et al., 2024). On the other hand, there has been a significant rise in physical inactivity in modern professions, and work-related health problems have become more common. Moreover, there is limited clarity regarding the work and physical activity levels of university staff across various job roles in this population (Safi et al., 2021).

Lack of physical activity can lead to problems such as burnout, distraction, and loss of motivation in individuals who work long hours at a desk and often concentrate on jobs that require high mental effort, such as university staff (Holtermann et al., 2023). On the other hand, regular physical activity is stated to improve employees' problem-solving abilities, increase creativity in the workplace, and support emotional well-being (Chekroud et al., 2018). Time constraints, lack of managerial support, inadequate resources or facilitators, imbalanced workloads, and organizational culture are frequently identified as significant barriers to participation in workplace physical activity. These factors not only hinder individuals' ability to engage in regular physical activity, but also reflect deeper systemic challenges within organizational structures. The absence of sufficient support from management, for instance, may limit the prioritization of health-related initiatives within the workplace. Similarly, an imbalance in workload and insufficient resources can make it difficult for employees to allocate time or access the necessary facilities for physical activity. Furthermore, the organizational culture itself often shapes attitudes towards physical activity, with a lack of emphasis on well-being potentially contributing to lower participation rates. Addressing these barriers requires

comprehensive strategies that involve leadership commitment, the provision of adequate resources, and fostering a culture that supports health and well-being. Identifying facilitators of workplace physical activity is rare. The "one-size-fits-all" approach to overcoming barriers may also fail in university settings with a multidisciplinary workforce due to the heterogeneous nature of job roles (Safi et al., 2022).

The body of research exploring the relationship between job performance and physical activity levels among university staff in Türkiye remains relatively scarce. For instance, although Yıldız and Koçaman (2023) examined physical activity among academicians, their focus was primarily on burnout, job satisfaction, and quality of life rather than direct measures of job performance. University employees face factors such as a heavy workload, bureaucratic processes, and academic expectations, which can negatively impact the time allocated to physical activity and motivation (Acar & Şahin, 2020). However, with the increasing implementation of workplace wellness programs in recent years, the potential contributions of physical activity to job performance have gained more attention (Chen et al., 2025). For example, an international meta-analysis confirmed that physical activity positively influences employees' cognitive performance and job satisfaction (Reed & Buck, 2015).

This study aims to examine the relationship between job performance and physical activity levels among university staff. While existing research generally focuses on broader employee groups, such as office or factory workers, there is limited exploration of this relationship within the context of academic staff. This study seeks to fill this gap and provide insights into how physical activity influences job performance in higher education settings. However, studies specifically focusing on university staff, who engage in high levels of mental effort and have heterogeneous workloads, remain limited (Proper et al., 2022; Holtermann et al., 2023). While the relationship between job performance and physical activity among university staff is gaining increasing attention in international literature, studies focusing on this topic within the Türkiye context are still scarce. This research is unique in that it offers a localized perspective by considering the working conditions of university staff in Türkiye. Additionally, the study contributes to the literature by separately examining the physical activity levels of different staff groups, including academic, administrative, security, and healthcare personnel, as there are only a limited number of studies exploring differences among these groups. Furthermore, by focusing not only on the general health effects of physical activity but also on its specific components related to job performance, this study stands out in the literature. The findings of this study aim to provide a scientific basis for university administrations to develop policies that enhance employee well-being and institutional productivity. In this way, a sustainable state of well-being and performance improvement can be achieved at both individual and organizational levels.

METHOD

Research Model

This study employs a descriptive survey model based on quantitative research methods. The descriptive survey model is a research design aimed at identifying the characteristics of individuals within a specific population and revealing the current situation (Karasar, 2009). In this study, the job performance and physical activity levels of university staff were analyzed in relation to various variables.

Population and Sample

A total of 504 personnel from Van Yüzüncü Yıl University participated in the study, including 65 academic, 122 administrative, 89 security, and 228 healthcare staff. The study sample was determined on a voluntary basis. The non-random, purposive sampling method has

been adopted as the sampling method. Büyüköztürk et al. (2010) define purposive sampling as selecting units from easily accessible and applicable ones in the sample due to limitations such as time and labor. Prior to the commencement of the research, ethical approval was obtained from the Van Yüzüncü Yıl University Social and Humanities Research Ethics Committee with the decision number 23 from session 2024/26, dated 23/12/2024. The demographic information of the participants is presented in the table below.

Table 1

Descriptive Statistics of the Participants.

	Gender	**N**	**Mean**	**SD**	**SE**
Age	Female	169	33,08	7,94	0,61
	Male	335	37,44	9,24	0,50
Height (cm)	Female	169	163,97	10,52	0,80
	Male	335	175,01	12,43	0,67
Weight (kg)	Female	169	63,47	9,65	0,74
	Male	335	79,32	12,77	0,69
	Feature	**N**		**%**	
Marital status	Married	322		63,7	
	Single	182		36,1	
Education status	High school	112		22,2	
	Bachelor	284		56,3	
	Master	55		10,9	
	Doctorate	53		10,5	
Position	Security	89		17,7	
	Academic Staff	65		12,9	
	Administrative Staff	122		24,2	
	Healthcare Staff	228		45,2	

It is observed that the male university staff (N=335) who participated in the study have an average age of 37.44±9.244, an average height of 175.01±12.438, and an average weight of 79.32±12.776. The female staff (N=169) have an average age of 33.08±7.947, an average height of 163.97±10.526, and an average weight of 63.47±9.653.

Data Collection Tools

Personal Information Form: A personal information form was created by the researcher to collect descriptive and professional information about the participants. This form includes variables such as age, gender, height, weight, marital status, education level, years of professional experience at the institution, seniority, and physical activity habits.

International Physical Activity Questionnaire (IPAQ): The International Physical Activity Questionnaire (IPAQ) was used to assess participants' physical activity levels. This questionnaire is a tool designed to measure individuals' physical activities over the past week, including vigorous physical activities, moderate activities, and walking. IPAQ is recommended

by the World Health Organization (WHO) and has undergone validity and reliability studies. The scale was developed by Craig et al. (2003) and was adapted for Türkiye by Öztürk (2005). Participants' physical activity levels were classified based on their weekly MET (Metabolic Equivalent) values. Thus, energy expenditures related to vigorous activity, moderate activity, walking, sitting, and total physical activity were obtained in MET-min/week units for each individual. Physical activity levels were categorized as follows: Physically inactive: (<600 MET-min/week), Minimally active: (600–3000 MET-min/week), Highly active (beneficial for health): (>3000 MET-min/week).

Job Performance Scale: The Job Performance Scale was used as a data collection tool in the study. The scale was developed by Çalışkan and Köroğlu (2022) and aims to measure key dimensions such as contextual performance, task performance, and overall job performance. The scale consists of 11 statements and includes two sub-dimensions: Task Performance (5 items): e.g., "I have the competencies required for my job." Contextual Performance (6 items): e.g., "I contribute to a positive work environment in my institution." The scale is rated using a 5-point Likert scale, ranging from "1 = Strongly Disagree" to "5 = Strongly Agree." There are no reverse-coded items, and higher scores indicate a higher level of the respective variable. The validity and reliability analyses of the scale have been thoroughly presented in the original study, confirming that the measurement tool is valid and reliable. Although the scale was initially designed to be used as a whole, the high internal consistency values of its sub-dimensions allow for separate applications of each sub-dimension. Within the scope of the present study, the internal consistency (Cronbach's Alpha) reliability coefficient was calculated as 0.959. An alpha value of 0.70 or above is considered acceptable for internal consistency (Özdamar, 2004).

Data Analysis

The SPSS software package was used for data analysis in this study. Various statistical methods were applied when normality and homogeneity of variances were not met. The Mann-Whitney U test was used for pairwise comparisons, while the Kruskal-Wallis H test was applied for multiple comparisons. The Mann-Whitney U test was also re-applied to analyze differences between groups. Tukey's test was preferred for post hoc analyses to further examine pairwise group comparisons. To examine relationships between variables, the Spearman Correlation Test was conducted. Additionally, descriptive statistics were utilized in all analyses. Eta square and r (rank-biserial correlation) analyses were applied for effect size. According to Cohen (1988), an Eta squared (η^2) value between .01 and .06 indicates a small effect size, values between .06 and .14 indicate a medium effect size, and values equal to or greater than .14 indicate a large effect size. Similarly, the rank-biserial correlation (r) can be interpreted as follows: values between 0.00 and 0.10 represent a negligible effect, between 0.10 and 0.30 a small effect, between 0.30 and 0.50 a medium effect, and values of 0.50 or greater indicate a large effect (Rosenthal and Rubin, 2003). A significance level of $p < 0.05$ was considered for all statistical tests.

FINDINGS

Table 2

U-Test Results of the Physical Activity Scale (IPAQ) and Job Performance Scale by Gender Variable Among University Staff

	Gender	N	Mean Rank	Total Rank	U	p	r
IPAQ	Female	169	269,50	45,00	25435,00	**0,046**	**0,08**
	Male	335	243,93	81,00			
Task Sub-dimension	Female	169	258,26	43,00	27334,00	0,512	-
	Male	335	249,59	83,00			
Contextual Sub-dimension	Female	169	250,54	42,00	27977,00	0,827	-
	Male	335	253,49	84,00			
Total Job Performance Score	Female	169	252,82	42,00	28254,00	0,972	-
	Male	335	252,34	84,00			
	Total	504	269,50	45,00			

N: Number of people, U: Mann-Whitney U Test score, p: Significant difference

In Table 2, the Mann-Whitney U test results for physical activity and job performance scores by gender among university staff are presented. The findings show a significant difference in IPAQ scores in favor of female university staff ($U = 25435.000$; $p < 0.05$). Considering the mean ranks, it is observed that female university staff have better physical activity levels (269.50) compared to their male counterparts. When we look at the effect size ($r=0.08$), we can say that it is negligible effect. No significant difference was found in the job performance scores between university staff based on gender ($p > 0.05$).

Table 3

U-Test Results of the Physical Activity Scale (IPAQ) and Job Performance Scale by Marital Status Variable Among University Staff

	Martial Statüs	N	Mean Rank	Total Rank	U	p	r
IPAQ	Married	322	235,04	75,00	23766,00	**0,001**	0,16
	Single	182	281,92	51,00			
Task Sub-dimension	Married	322	251,92	80,50	29184,50	0,986	-
	Single	182	252,15	45,50			
Contextual Sub-dimension	Married	322	244,05	78,00	26658,00	0,096	-
	Single	182	266,03	48,00			
Total Job Performance Score	Married	322	245,46	78,00	27111,00	0,176	-
	Single	182	263,54	47,00			
	Total	504	235,04	75,00			

N: Number of people, U: Mann-Whitney U Test score, p: Significant difference

In Table 3, the Mann-Whitney U test results for physical activity and job performance scores by marital status among university staff are presented. The findings show a significant difference in IPAQ scores in favor of single university staff ($U = 23766.000$; $p < 0.05$). Considering the mean ranks, it is observed that single university staff have better physical activity levels (281.92) compared to married staff. When we look at the effect size ($r=0.16$), we can say that it is small effect. No significant difference was found in the job performance scores between university staff based on marital status ($p > 0.05$).

Table 4

Kruskal-Wallis Test Results of the Job Performance Scale by Position Among University Staff

	Position	N	Mean Rank	sd	X^2	p	Tukey	η2
Task Sub-dimension	Academic (a)	65	280,42	3	28,276	**0,001**	d>a,c,b	0,8
	Administrative (b)	122	261,25					
	Health (c)	228	219,36					
	Security (d)	89	305,01					
Contextual Sub-dimension	Academic (a)	65	271,95	3	57,752	**0,001**	d>a,c,b	0,09
	Administrative (b)	122	274,62					
	Health (c)	228	204,15					
	Security (d)	89	331,83					
Total Job Performance Score	Academic (a)	65	277,29	3	59,387	**0,001**	d>a,c,b	0,11
	Administrative (b)	122	274,43					
	Health (c)	228	202,54					
	Security (d)	89	332,31					
	Total	504						

N: Number of people, sd: Degrees of freedom, X^2: Kruskal-Wallis score, p: Significance different

In Table 4, the Kruskal-Wallis test results for Job Performance Scale by position among university staff are presented. The findings indicate that there is a significant difference in the task sub-dimension (Mean Rank = 305,01), contextual sub-dimension (Mean Rank = 331,83) and total job performance (Mean Rank = 332,31) scores, in favor of security personnel ($p<0.05$). When the effect sizes are examined, it can be stated that the effects for the Task Sub-dimension ($\eta^2 = 0.08$), the Contextual Sub-dimension ($\eta^2 = 0.09$), and the Total Job Performance Score ($\eta^2 = 0.11$) are between moderate and large. This finding shows that security staff have higher task, contextual, and overall job performance compared to academic, administrative, and healthcare staff. Additionally, a significant difference in Total Job Performance scores was found between academic (Mean Rank=277.29) and administrative (Mean Rank =274.43) staff, in favor of academic and administrative personnel, compared to healthcare staff (Mean Rank=202.54) ($p<0.05$). Furthermore, academic and administrative staff were found to have higher job performance than healthcare staff.

Table 5

Kruskal-Wallis Test Results of the Physical Activity Scale (IPAQ) and Job Performance Scale by Education Level Among University Staff

	Educational Status	N	Mean Rank	sd	X^2	p	Tukey	η2
IPAQ	High School (a)	112	238,08	3	8,119	**0,044**	b>c,d	0,05
	Bachelor's (b)	284	267,35					
	Master's (c)	55	230,64					
	Doctorate (d)	53	226,08					
Task Sub-dimension	High School (a)	112	237,14	3	6,936	0,074	-	-
	Bachelor's (b)	284	262,01					
	Master's (c)	55	217,50					
	Doctorate (d)	53	270,33					
Contextual Sub-dimension	High School (a)	112	252,57	3	3,232	0,357	-	-
	Bachelor's (b)	284	259,82					
	Master's (c)	55	223,57					
	Doctorate (d)	53	243,14					
	High School (a)	112	246,04	3	5,718	0,126	-	-
	Bachelor's (b)	284	262,88					

Total Job Performance Score	Master's (c)	55	213,55
	Doctorate (d)	53	250,95
	Total	504	238,08

N: Number of people, sd: Degrees of freedom, X^2: Kruskal-Wallis score, p: Significance different

In Table 5, the Kruskal-Wallis test results for the Physical Activity Scale (IPAQ) and Job Performance Scale based on the education level of university staff are presented. The findings indicate a significant difference in IPAQ scores ($p < 0.05$), favoring those with a bachelor's degree (Mean Rank = 267.35). This suggests that university staff with a bachelor's degree have higher physical activity levels compared to those with a master's or doctoral degree. Regarding the effect size, it can be interpreted as small to moderate ($\eta^2 = 0.05$).

Table 6

Kruskal-Wallis Test Results of the Physical Activity Scale (IPAQ) and Job Performance Scale by Length of Service at the Institution Among University Staff

	Working Time	N	Mean Rank	sd	X^2	p	Tukey	η2
IPAQ	0-5 year (a)	203	275,10	3	9,701	**0,021**	a>b,c,d	0,04
	6-10 year (b)	102	237,92					
	11-15 year (c)	114	241,07					
	16 and above (d)	85	231,35					
Task Sub-dimension	0-5 year (a)	203	266,20	3	9,008	**0,029**	b>a a>c,d	0,05
	6-10 year (b)	102	268,72					
	11-15 year (c)	114	237,24					
	16 and above (d)	85	220,78					
Contextual Sub-dimension	0-5 year (a)	203	273,83	3	9,019	**0,029**	a>b,c,d	0,05
	6-10 year (b)	102	250,18					
	11-15 year (c)	114	236,94					
	16 and above (d)	85	225,20					
Total Job Performance Score	0-5 year (a)	203	275,76	3	12,471	**0,006**	a>b,c,d	0,06
	6-10 year (b)	102	256,73					
	11-15 year (c)	114	233,62					
	16 and above (d)	85	217,19					
	Total	504						

N: Number of people, sd: Degrees of freedom, X^2: Kruskal-Wallis score, p: Significance different

In Table 6, the Kruskal-Wallis test results for the Physical Activity Scale (IPAQ) and Job Performance Scale by length of service at the institution among university staff are presented. The findings show significant differences in IPAQ, task sub-dimension, contextual sub-dimension, and total job performance scores, favoring staff with 0-5 years of service ($p<0.05$). This indicates that university staff with 0-5 years of service have higher physical activity levels and better task, contextual, and overall job performance compared to those with 6-10 years, 11-15 years, and 16 or more years of service. When looking at effect sizes, the effect is low for IPAQ ($\eta^2 = 0.04$), task sub-dimension ($\eta^2 = 0.04$), and contextual sub-dimension ($\eta^2 = 0.05$), while it is moderate for the total job performance score ($\eta^2 = 0.06$).

Table 7

Kruskal-Wallis Test Results of the Physical Activity Scale (IPAQ) and Job Performance Scale by Income Status Among University Staff

	Income Status	N	Mean Rank	sd	X^2	p	Tukey	η2
IPAQ	Income is less than expenses (a)	238	255,32	2	8,515	**0,014**	b>a,c	0,06
	Income equals expenses (b)	204	263,20					
	Income exceeds expenses(c)	62	206,49					
Task Sub-dimension	Income is less than expenses (a)	238	252,37	2	4,715	0,095	-	-
	Income equals expenses (b)	204	262,91					
	Income exceeds expenses(c)	62	218,76					
Contextual Sub-dimension	Income is less than expenses (a)	238	246,52	2	17,301	**0,001**	b>a,c	0,07
	Income equals expenses (b)	204	277,46					
	Income exceeds expenses(c)	62	193,33					
Total Job Performance Score	Income is less than expenses (a)	238	247,73	2	14,257	**0,001**	b>a,c	0,07
	Income equals expenses (b)	204	274,85					
	Income exceeds expenses(c)	62	197,27					
	Total	504						

N: Number of people, sd: Degrees of freedom, X^2: Kruskal-Wallis score, p: Significance different

Table 7 presents the Kruskal-Wallis test results for the Physical Activity Scale (IPAQ) and Job Performance Scale based on the income status of university staff. The findings indicate significant differences in IPAQ, the contextual sub-dimension, and total job performance scores in favor of those whose income equals their expenses ($p < 0.05$). This suggests that university staff whose income equals their expenses have higher levels of physical activity and better contextual and overall job performance compared to those whose income is either less than or greater than their expenses. When looking at the effect sizes, it can be said that the effect is moderate for IPAQ ($\eta^2 = 0.06$), the contextual sub-dimension ($\eta^2 = 0.07$), and the total job performance score ($\eta^2 = 0.07$).

Table 8

Spearman Correlation Results of the Physical Activity Scale (IPAQ) and Job Performance Scale Scores of University Staff

		Working Time	IPAQ Scale Score	Task Sub-dimension	Contextual Sub-dimension	Total Job Performance Score
Working Time	r.	--				
	p	.				
	N	504				
IPAQ Scale Score	r.	-,128**	--			
	p	0,002	.			
	N	504	504			
Task Sub-dimension	r.	-,120**	,206**	--		
	p	0,004	0,000	.		
	N	504	504	504		
Contextual Sub-dimension	r.	-,134**	,247**	,660**	--	
	p	0,001	0,000	0,000	.	
	N	504	504	504	504	
Total Job Performance Score	r.	-,156**	,252**	,856**	,937**	--
	p	0,000	0,000	0,000	0,000	.
	N	504	504	504	504	504

r: correlation coefficient, N: number of people, p: significance different

As shown in Table 8, A weak and positive significant correlation was found between the IPAQ, task subdimension, contextual subdimension, and total job performance scores of the university staff who participated in the study ($p<0.05$). A positive but non-causal relationship was observed between physical activity levels and job performance scores. As physical activity levels increased, job performance scores tended to increase as well. Furthermore, a high-level and negative correlation was found between the university staff's length of service in the institution and the IPAQ, task subdimension, contextual subdimension, and total job performance scores. This finding indicates that as the length of service of the university staff increased, their physical activity levels and job performance decreased.

DISCUSSION

The relationships between physical activity and its effects on overall health and changes in work flow have been a subject of research for many years. This study evaluated the relationship between the physical activity levels and job performance of the staff responsible for the operations and functions of universities, one of the most important institutions in the country, as well as the effects of various variables such as gender, marital status, employment status, education level, length of service, and income on physical activity levels and job performance. In the discussion section, the studies in the literature were thoroughly examined, and the variables in the research were listed under specific headings for a better understanding of the topic.

Physical Activity and Job Performance by Gender

Physical activity and job performance are critically important for health and productivity, particularly among university staff. Understanding how these factors vary by gender can help in designing targeted interventions aimed at improving overall well-being and efficiency in the

workplace (Wang et al., 2024). In the present study, it was found that female university staff had higher levels of physical activity compared to their male counterparts (U=25435.000; $p<0.05$). However, a small effect was observed in IPAQ scores based on gender. This finding aligns with some studies in the literature. For example, Brown et al. (2020) reported that women tend to spend more time engaging in low-to-moderate intensity physical activities, such as walking. On the other hand, there are also studies in the literature that contradict this result. Safi (2021) found significant gender-based differences among university employees, indicating that men are more likely to engage in moderate-to-vigorous physical activity than women. Moreover, motivation has been shown to play a key role in physical activity levels, with men generally having higher intrinsic and extrinsic motivation compared to women (Sáez et al., 2021; Durán-Vinagre et al., 2023). In this study, no significant difference was found between genders in terms of job performance ($p>0.05$). This suggests that job performance may be related not only to physical activity but also to other factors such as job satisfaction, motivation, and the work environment (Robbins & Judge, 2018).

Physical Activity and Job Performance According to Marital Status Variable

According to the marital status variable, it was found that the physical activity levels of single employees were higher compared to married employees ($U = 23766.000$; $p <0.05$). However, when we look at the effect size ($r = 0.16$), it can be interpreted as a small effect. Studies in the literature indicate that single participants have better physical activity levels compared to married ones (Gül et al., 2023; Puciato & Rozpara, 2021). This finding aligns with studies suggesting that marital responsibilities and family life may limit the time individuals can dedicate to physical activity (Cavazzotto et al., 2021; Rapp and Schneider, 2013; Gordon-Larsen et al., 2010). Marital support and stress affect physical activity both positively and negatively, with men seeking more support for physical activity as they age (Thomas et al., 2022). In the study, marital status did not create a significant difference in terms of job performance ($p> 0.05$). This suggests that job performance can be assessed independently of individual life conditions.

Physical Activity and Job Performance by Job Position

It has been determined that security personnel have higher physical activity levels and job performance scores compared to academic, administrative, and healthcare staff ($p<0.05$). When the effect sizes are examined, it can be stated that the effects for the Task Sub-dimension ($\eta^2 = 0.08$), the Contextual Sub-dimension ($\eta^2 = 0.09$), and the Total Job Performance Score ($\eta^2 = 0.11$) are between moderate and large. This result can be explained by the nature of security officers' jobs, which require more physical movement (Pronk et al., 2004). Physical activity and sedentary behaviors vary across professions (Prince et al., 2019). It is noteworthy that the physical activity levels of academic and administrative staff are higher than those of healthcare personnel in this study. The literature indicates that healthcare workers have less time for physical activity due to long working hours and shift systems (Khan et al., 2023).

Physical Activity and Job Performance by Education Level

It was found that university staff with a bachelor's degree have higher levels of physical activity compared to those with a master's or doctoral degree ($p < 0.05$). When evaluated in terms of effect size, this difference can be interpreted as small to moderate ($\eta^2 = 0.05$). This can be explained by the increase in academic responsibilities and the time spent at a desk as the level of education rises. This finding suggests that job performance may also vary with increasing workload and academic responsibilities (Smith & Jones, 2015).

Physical Activity and Job Performance by Length of Employment

It has been determined that employees who have worked at the institution for 0-5 years have higher physical activity levels and job performance compared to those who have worked for 6-10 years, 11-15 years, and 16 or more years ($p<0.05$). When looking at effect sizes, the effect is low for IPAQ ($\eta^2 = 0.04$), task sub-dimension ($\eta^2 = 0.04$), and contextual sub-dimension ($\eta^2 = 0.05$), while it is moderate for the total job performance score ($\eta^2 = 0.06$). This finding is supported by studies suggesting that newly hired employees may have higher motivation and energy levels. The literature indicates that as the length of employment increases, physical activity levels and job performance tend to decline. This can be explained by factors such as aging, decreased job satisfaction, and neglect of physical activity (Smith & Jones, 2015). Additionally, the decline in physical activity levels and job performance with increasing years of employment may be attributed to aging and loss of motivation due to work routine (Robbins & Judge, 2018). However, studies on the relationship between length of employment, physical activity levels, and job performance remain quite limited in the literature.

Physical Activity and Job Performance by Income Level

It has been found that employees whose income matches their expenses have higher physical activity levels and job performance compared to those whose income is either lower or higher than their expenses ($p<0.05$). The effect size can be said to be at a moderate level for IPAQ ($\eta^2 = 0.06$), contextual sub-dimension ($\eta^2 = 0.07$) and total job performance score ($\eta^2 = 0.07$). This finding suggests that economic stability positively reflects on both physical and professional aspects of individuals' lives (Graff et al., 2022). According to current guidelines, higher levels of physical activity are associated with higher income; however, exceeding these levels may negatively impact income (Junttila et al., 2023). Another study indicates that physical activity is linked to higher average income, while interruptions in physical activity are associated with lower income (Metelski, 2019). Lower financial stress may facilitate individuals' ability to allocate time for physical activity and enhance their job performance.

The Relationship Between Physical Activity and Job Performance

The study found a positive association between physical activity levels and job performance among university staff ($p <0.05$). This finding is consistent with studies demonstrating that physical activity enhances existing functions and contributes to job performance (Wong et al., 2023; Calderwood et al., 2021; Mänttäri et al., 2020; Nawrocka et al., 2018; Calatayud et al., 2015; Hillman et al., 2008). Physical activity levels play a significant role in the job performance of university employees (Szarek et al., 2024). The literature indicates a strong positive correlation between sports participation and job performance. It has been suggested that public sector employees who spend more time engaging in sports or physical activity tend to have better job performance compared to those working outside the public sector (Koley and Baksi, 2024). These findings are consistent with the results of our study. Motivational processes involved in physical activity participation are crucial for maintaining an active lifestyle and significantly enhance employees' job performance and productivity (Durán et al., 2023; Sjøgaard et al., 2016). It has been reported that university employees perceive a high level of physical activity in their daily lives, with more than 78% meeting moderate to high physical activity guidelines. However, professional duties and leisure activities largely fill their schedules, which may negatively affect their overall physical activity levels (Leuciuc et al., 2023). Therefore, incorporating physical activity into the daily lives of university employees can significantly improve their job performance and efficiency.

Conclusion

This study thoroughly examined the relationship between physical activity levels and job

performance among university staff. The findings indicate that as the physical activity levels of university employees increase, their job performance also improves. However, as the length of employment increases, both physical activity levels and job performance tend to decline. It was determined that factors such as gender, marital status, job position, education level, income level, and length of employment have varying effects on physical activity and job performance.

Recommendations

Based on these findings, it is recommended to develop strategies to enhance the physical activity levels of university staff. Increasing the availability of sports facilities in the workplace, organizing programs that encourage physical activity, and conducting awareness activities for employees may contribute to improving job performance.

Limitations

This study is limited to academic, administrative, healthcare, and security staff working at Van Yüzüncü Yıl University. The data are limited to the questions directed to the participants and their responses.

REFERENCES

Acar, H., & Şahin, M. (2020). Work–life balance and health perception among university staff in Türkiye. *Ankara University Journal of Faculty of Educational Sciences*, 53(2), 123–140.

Bakker, A. B., & Demerouti, E. (2023). Job demands–resources theory: Ten years later. *Annual Review of Organizational Psychology and Organizational Behavior, 10*, 25-53. https://doi.org/10.1146/annurev-orgpsych-120920-053933

Brown, D. M., Dudley, D. A., & Cairney, J. (2020). Physical literacy profiles are associated with differences in children's physical activity participation: A latent profile analysis approach. Journal of Science and Medicine in Sport, 23(11), 1062-1067. https://doi.org/10.1016/j.jsams.2020.05.007

Büyüköztürk Ş., Çakmak E.K., Akgün Ö.E., Karadeniz Ş., Demirel F. (2010). *Bilimsel araştırma yöntemleri* (6. baskı). Ankara: Pegem Akademi.

Calatayud, J., Jakobsen, M., Sundstrup, E., Casaña, J., & Andersen, L. (2015). Dose-response association between leisure time physical activity and work ability: Cross-sectional study among 3000 workers. Scandinavian Journal of Public Health, 43, 819 - 824. https://doi.rg/10.1177/1403494815600312

Calderwood, C., Brummelhuis, L., Patel, A., Watkins, T., Gabriel, A., & Rosen, C. (2021). Employee Physical Activity: A Multidisciplinary Integrative Review. Journal of Management, 47, 144 - 170. https://doi.org/10.1177/0149206320940413.

Çalışkan, A., & Köroğlu, Ö. (2022). Job performance, task performance, and contextual performance: Development and validation of a new scale. *International Journal of Economic and Administrative Sciences*, 8(2), 180–201. https://doi.org/10.29131/uiibd.1201880

Cavazzotto, T., De Lima Stavinski, N., Queiroga, M., Da Silva, M., Cyrino, E., Serassuelo, H., & Vieira, E. (2021). Age and Sex-Related Associations between Marital Status, Physical Activity and TV Time. International Journal of Environmental Research and Public Health, 19. https://doi.org/10.3390/ijerph19010502

Chekroud, S. R., Gueorguieva, R., Zheutlin, A. B., Paulus, M., Krumholz, H. M., Krystal, J. H., & Chekroud, A. M. (2018). Association between physical exercise and mental health in 1·2 million individuals in the USA between 2011 and 2015: A cross-sectional study.

The Lancet Psychiatry, 5(9), 739-746. https://doi.org/10.1016/S2215-0366(18)30227-X

Chen, Y., Li, X., & Zhang, Q. (2025). Workplace wellness programs and their impact on employee performance: A meta-analysis. *Journal of Occupational Health Psychology, 30*(1), 12-28.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2. edition). Hillsdale, NJ: Lawrence Earlbaum Associates.

Craig, C.L., Marshall, A.L., Sjöström, M., Bauman, A.E., Booth, M.L., Ainsworth, B.E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J.F., Oja, P., (2003). International Physical Activity Questionnaire: 12-country reliability and validity, Med. Sci. Sports. Exerc., 35, 1381-1395. https://doi.org/10.1249/01.MSS.0000078924.61453.FB

Dere, G., & Günay, M. (2021). A solution proposal to improve workplace performance: Physical activity. *International Journal of Economic and Administrative Sciences*, 7(1), 28–50. https://doi.org/10.29131/uiibd.913029

Durán-Vinagre, M., Ibáñez, S., Feu, S., & Sánchez-Herrera, S. (2023). Analysis of the motivational processes involved in university physical activity. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1080162

Graff, H., Webber, L., Huerta, M. C., Olney, J., & Sassi, F. (2022). The impact of ill-health on social mobility: A qualitative study. *SSM - Qualitative Research in Health, 2*, Article 100101. https://doi.org/10.1016/j.ssmqr.2022.100101

Gül, F., Alıncak, F., Özdal, M., & Vural, M. (2023). Pedometer-based physical activity levels of academic and administrative university staff in Türkiye. *Gaziantep University Journal of Sport Sciences*, 8(2), 147–158. https://doi.org/10.31680/gaunjss.1286532

Hillman CH, Erickson KI, Kramer AF. (2008). Be smart, exercise your heart: Exercise effects on brain and cognition. *Nature Reviews Neuroscience*. 9(1):58–65. https://doi.org/10.1038/nrn2298

Holtermann, A., Hansen, J. V., & Burr, H. (2023). Physical activity at work and leisure: Effects on burnout and cognitive performance. *Scandinavian Journal of Work, Environment & Health, 49*(2), 89-97.

Junttila HE, Vaaramo MM, Huikari SM, et al. (2023). Association of accelerometer- measured physical activity and midlife income: A Northern Finland Birth Cohort 1966 Study. *Scand J Med Sci Sports.* 33:1765-1778. https://doi.org/10.1111/sms.14421

Khan, R. A., Ali, T., Mehmood, N., Riaz, N., Ghani, U., Riaz, T., Bibi, A., Khan, N., & Nasir, A. (2023). Lifestyle Impacts of Extended Nursing Shifts Among Nurses: A Study in Tertiary Care Hospitals in Karachi, Pakistan: Lifestyle Impacts of Extended Nursing Shifts. *Pakistan Journal of Health Sciences*, *4*(10), 187–193. https://doi.org/10.54393/pjhs.v4i10.1054

Koley, T. Baksi R. (2024). Influence of Sports and Physical Activities on Job Performance of Working Professionals. Interantıonal Journal of Scıentıfic Research ın Engıneerıng and Management. https://doi.org/10.55041/ijsrem35060

Leuciuc, F., Boca, A., Petrariu, I., Holubiac, I., & Leuciuc, R. (2023). The Perception of Physical Activity / Physical Education Among University Employees. BRAIN. Broad Research in Artificial Intelligence and Neuroscience. https://doi.org/10.18662/brain/14.3/483

Mänttäri, S., Oksa, J., Lusa, S., Korkiakangas, E., Punakallio, A., Oksanen, T. ve Laitinen, J. (2020). Fiziksel olarak yorucu işlerde çalışan işçiler arasında fiziksel aktiviteyi artırarak iş yeteneğini geliştirmeye yönelik müdahaleler: Kapsamlı bir inceleme. İskandinav Halk Sağlığı Dergisi, 49, 206 - 218. https://doi.org/10.1177/1403494820917532

Metelski, A. (2019). Effects of Physical Activity on Income. Studies in Sport Humanities. https://doi.org/10.5604/01.3001.0013.7560

Nawrocka, A., Garbaciak, W., Cholewa, J., & Mynarski, W. (2018). The relationship between meeting of recommendations on physical activity for health and perceived work ability

among white-collar workers. European Journal of Sport Science, 18, 415 - 422. https://doi.org/10.1080/17461391.2018.1424257

Özdamar, K. (2004). Paket programlar ile istatistiksel veri analizi. Eskişehir: Anadolu Üniversitesi Yayınları.

Öztürk, M. (2005). A research on reliability and validity of international physical activity questionnaire and determination of physical activity level in university students (Tez no. 194366 [Yüksek Lisans Tezi, Hacettepe Üniversitesi].

Prince, S., Elliott, C., Scott, K., Visintini, S., & Reed, J. (2019). Device-measured physical activity, sedentary behaviour and cardiometabolic health and fitness across occupational groups: a systematic review and meta-analysis. The International Journal of Behavioral Nutrition and Physical Activity, 16. https://doi.org/10.1186/s12966-019-0790-9

Pronk, N. P., Martinson, B., Kessler, R. C., Beck, A. L., Simon, G. E., & Wang, P. (2004). The association between work performance and physical activity, cardiorespiratory fitness, and obesity. Journal of occupational and environmental medicine, 46(1), 19-25. https://doi.org/10.1097/JOM.0000000000001167

Proper, K. I., van Oostrom, S. H., & Hildebrandt, V. H. (2022). Effectiveness of workplace interventions to promote physical activity: A systematic review. *British Journal of Sports Medicine, 56*(10), 587-595.

Puciato, D., & Rozpara, M. (2021). Physical activity and socio-economic status of single and married urban adults: a cross-sectional study. PeerJ, 9. https://doi.org/10.7717/peerj.12466

Rapp, I., & Schneider, B. (2013). The impacts of marriage, cohabitation and dating relationships on weekly self-reported physical activity in Germany: a 19-year longitudinal study. Social science & medicine, 98, 197-20. https://doi.org/10.1016/j.socscimed.2013.09.024

Ratey, J. J., & Hagerman, E. (2018). *Spark: The revolutionary new science of exercise and the brain*. Little, Brown Spark.

Reed, J., & Buck, S. (2015). The effect of regular aerobic exercise on positive-activated affect: A meta-analysis. *Psychology of Sport and Exercise, 16*(3), 103-111.

Robbins, S.P. and Judge, T.A. (2018) *Essentials of organizational behavior*. 14th Edition, Pearson Education, Inc., London.

Rosenthal, R., & Rubin, D. B. (2003). Requivalent: A simple effect size indicator. Psychological Methods, 8(4), 492–496. https://doi.org/10.1037/1082-989X.8.4.492

Sáez, I., Solabarrieta, J., & Rubió, I. (2021). Motivation for Physical Activity in University Students and Its Relation with Gender, Amount of Activities, and Sport Satisfaction. Sustainability. https://doi.org/10.3390/SU13063183

Safi, A., Cole, M., Kelly, A., & Walker, N. (2021). An Evaluation of Physical Activity Levels amongst University Employees. Advances in Physical Education, 11, 158-171. https://doi.org/10.4236/APE.2021.112012

Safi, A., Cole, M., Kelly, A., Zariwala, M., & Walker, N. (2022). Workplace Physical Activity Barriers and Facilitators: A Qualitative Study Based on Employees Physical Activity Levels. International Journal of Environmental Research and Public Health, 19. https://doi.org/10.3390/ijerph19159442

Sjøgaard, G., Christensen, J. R., Justesen, J. B., Murray, M., Dalager, T., & Fredslund, G. H., et al. (2016). Exercise is more than medicine: The working age population's well-being and productivity. *Journal of Sport and Health Science*, 5(2), 159–165. https://doi.org/10.1016/j.jshs.2016.04.004

Smith, J. & Jones, M. (2015). *The Relationship Between Workload and Job Performance*. Organizational Behavior Journal.

Szarek, S., Bombiak, E., & Wysokińska, A. (2024). The Role of Physical Activity in the Improvement of Well-being - the Case of University Staff. Journal of Modern Science. https://doi.org/10.13166/jms/188741

Thomas, P., Richards, E., & Forster, A. (2022). Is Marital Quality Related to Physical Activity Across the Life Course for Men and Women?. Journal of Aging and Health, 34, 973 - 983. https://doi.org/10.1177/08982643221083083

Wang, X., Yang, X., Nasiruddin, N., Wei, S., Dong, D., & Samsudin, S. (2024). Social Support and Physical Activity in College and University Students: A Meta-Analysis. Health Education & Behavior, 51, 533 - 543. https://doi.org/10.1177/10901981231216735

Warburton, D.E.R. & Bredin, S. S. D. (2021). Health benefits of physical activity: A systematic review of current evidence. *Current Opinion in Cardiology, 36*(5), 541-550. https://doi.org/10.1097/HCO.0000000000000437

Wong, C., Kwok, R., & Zhang, S. (2023). mHealth application as physical activity intervention: a case study on physical activity, emotional exhaustion, and work performance. Journal of Information Technology Case and Application Research, 25, 58 - 85. https://doi.org/10.1080/15228053.2023.2186673

World Health Organization (2024). *Physical activity guidelines for adults*. Geneva: WHO Press.

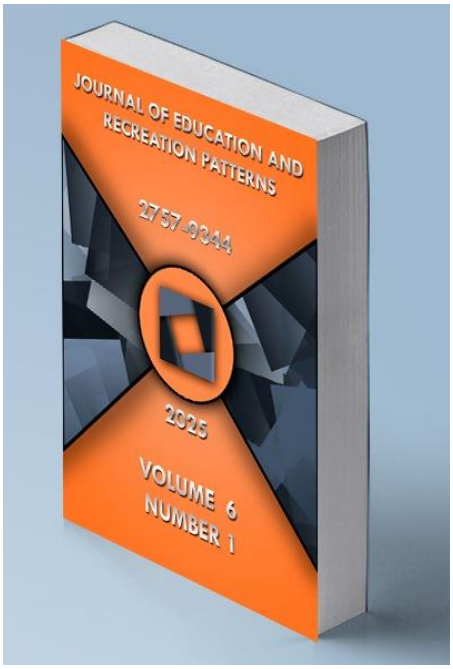
Yıldız, N. T., & Kocaman, H. (2023). An Investigation into the Relationships Between Physical Activity Level, Burnout, Job Satisfaction, Quality of Life and Sociodemographic Factors in Academicians. Ahi Evran Medical Journal, 7(3), 331-339. https://doi.org/10.46332/aemj.1230539

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principles have been considered in all the stages of the study. We take full responsibility for thecontent of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Educationand Recreation Patterns (JERP)

www.jerpatterns.com

Educational Methods and Recreational Awareness for Enhancing Teachers' Attitudes Towards Individuals with Disabilities

Ümmügülsüm EKİNCİ[1], Sibel TERCAN[2]
Erdi KAYA[3]

To cite this article:

Ekinci, Ü., Tercan, S. & Kaya, E. (2025). Educational methods and recreational awareness for enhancing teachers' attitudes towards individuals with disabilities. *Journal of Education and Recreation Patterns (JERP), 6(1),* 168-184. DOI: https://doi.org/10.53016/jerp.v6i1.285

Journal of Education and Recreation Patterns (JERP) is an international scientific, high quality open access, peer viewed scholarly journal provides a comprehensi ve range of unique online-only journal submission services to academics, researchers, advanced doctoral students and other professionals in their field. This journal publishes original research papers, theory-based empirical papers, review papers, case studies, conference reports, book reviews, essay and relevant reports twice a year (June and December) in online versions.

[1]Akdeniz University Faculty of Sports Sciences, Türkiye, gulsummekinci@gmail.com, https://orcid.org/0009-0007-2938-9784
[2]Akdeniz University Faculty of Sports Sciences, Türkiye, tercansibel08@gmail.com, https://orcid.org/0000-0002-7629-5154
[3] Akdeniz University Faculty of Sports Sciences, Türkiye, erdikaya@akdeniz.edu.tr, https://orcid.org/0000-0002-2042-4674

Note: This study was presented as an oral presentation at the 22nd International Sports Sciences Congress, held in Ankara, Türkiye, on November 21–24, 2024.

Journal of Education and Recreation Patterns (JERP)
Volume6, Issue 1, Year 2025 ISSN:2757-9344

Educational Methods and Recreational Awareness for Enhancing Teachers' Attitudes Towards Individuals with Disabilities

Ümmügülsüm Ekinci[1], Sibel Tercan[2], Erdi Kaya[3]

ARTICLE INFORMATION
Original Research Paper

Received 06.03. 2025
Accepted 28.06. 2025

https://jerpatterns.com

June, 2025

Volume:6, No: 1

Pages:168-184

ABSTRACT
The aim of this study is to examine the role of educational methods and recreational awareness in enhancing teachers' attitudes towards individuals with disabilities. The study sample consists of 415 teachers from various branches working in different provinces of Türkiye, selected through a simple random sampling method. In addition to a personal information form prepared by the researcher, the "Multidimensional Attitude Scale Towards Persons with Disabilities" adapted by Yelpaze and Türküm (2018) and the "Recreation Awareness Scale" developed by Ekinci and Özdilek (2019) were used for data collection. The findings revealed that teachers' attitudes—including emotional, cognitive, behavioral, and overall attitudes—towards individuals with disabilities did not differ significantly based on professional seniority or teaching branch ($p>0.05$). Similarly, no statistically significant differences were found in recreational awareness levels across the subdimensions of enjoyment–entertainment, social–achievement, self-improvement, and overall awareness. However, teachers who had previously taught individuals with disabilities showed significantly higher levels of recreational awareness in all subdimensions compared to those who had not ($p<0.05$). Furthermore, a low but statistically significant positive correlation was found between teachers' cognitive, behavioral, and overall attitude levels and their levels of recreational awareness ($p<0.05$). These results suggest that integrating recreational awareness with educational strategies can play a critical role in fostering more positive and inclusive attitudes among teachers towards individuals with disabilities.

Keywords: Physical Activity and Disability, Recreational Awareness, Special Needs Inclusion, Teachers.

INTRODUCTION

Disability is the condition in which an individual is unable to fulfill the expected physical, mental, social, and cultural competencies due to a congenital or acquired impairment or injury resulting from an accident. The concept of disability has been expressed by many individuals and institutions from past to present. In the Law on Persons with Disabilities No. 5378, dated 2005, the concept of disability is defined as "an individual who is affected by attitudes and environmental conditions that restrict their full and effective participation in society on an equal basis with others due to congenital or acquired losses at various levels in their physical, mental, psychological, and sensory abilities" (Legislation, 2023). Additionally, according to the World Health Organization (WHO, 2001), disability is not merely a health condition, but results from the interaction between a person's health status and environmental and personal factors, as emphasized in the ICF model.

Beyond legal definitions, disability also affects not only the individual, but also their family, surroundings, and society at large. It reflects a broader social phenomenon shaped by societal attitudes, stereotypes, and accessibility barriers. In many contexts, disability is associated with social disadvantage, and individuals with disabilities often face negative perceptions and exclusion. As Öztabak (2017) notes, the social environment may intensify or reduce disability depending on prevailing attitudes. While inclusion is improving in some parts of the world, others still maintain exclusionary beliefs rooted in stigma and prejudice...

Attitude refers to an individual's cognitive, emotional, and behavioral orientations that emerge as a result of experience, motivation, encouragement, and acquired knowledge in various situations, either towards themselves or others (Kaysi, 2021). Attitude is not innate; rather, it is a learned behavioral pattern acquired through personal, environmental, and other influencing factors. In the context of attitudes toward individuals with disabilities, the term refers all perceptions, thoughts, and beliefs related to these individuals. Teachers, following the family, are considered central figures in identity construction and play a vital role in shaping inclusive attitudes. As role models in the educational environment, they influence students' values, social behavior, and perspectives toward diversity, including individuals with disabilities (Beauchamp & Thomas,2009). Although the number of individuals with disabilities is substantial and cannot be overlooked, prejudiced attitudes and discriminatory behaviors towards them have been persisted throughout history. Negative attitudes towards individuals with disabilities tend to emerge particularly at an early age (Altunhan et al., 2021). Therefore, to foster positive attitudes towards individuals with disabilities, it is essential to instill a positive perspective in school-age children from an early stage. Throughout the entire educational process, from its inception to completion, the key figures responsible for shaping and fostering positive attitudes towards individuals with disabilities are educators—namely, teachers. As a matter of fact, teachers in schools, which are the most effective socialization tool after the family in terms of contributing to socialization, which gives the individual a certain self and personality structure, are the most effective role models after parents (Çolak & Çetin, 2014).

With advancements in social rights and automation, recreation is defined as a fundamental and modern necessity that encompasses all activities through which individuals can organize their leisure time with various engagements (Yetim, 2011). In other words, recreation is a concept that encompasses activities in which individuals voluntarily participate during their non-working hours. Awareness is the ability of a living being to learn, comprehend, and perceive events occurring in its surroundings. It is considered a crucial resource that enables individuals to engage in activities aligned with their affective, cognitive, and psychomotor interests and abilities, ultimately enhancing their participation and productivity (Kılıçman, 2020).

Recreational awareness refers not to direct participation, but to an individual's understanding of the value of leisure activities in social and personal development (Ayyıldız Durhan et al., 2022). Having recreational awareness positively contributes to individuals in the process of choosing activities. Activities carried out with awareness of recreational awareness provide positive achievements both individually and socially (Ekinci, 2017). Thanks to these positive achievements, social environments can be shared collectively without interpersonal discrimination. Therefore, it is possible to acknowledge the impact of recreational awareness on the inclusion of individuals with disabilities in social environments. The present study aims to examine the relationship between teachers' recreational awareness, disability awareness, and their attitudes toward individuals with disabilities. This aim is grounded in the understanding that both recreational awareness and disability-related sensitivity play important roles in shaping inclusive educational environments (Avramidis & Norwich, 2002; Forlin, 2010; Devine & Parr, 2008).

The effective and equitable inclusion of individuals with disabilities in educational settings largely depends on teachers' attitudes. Therefore, the development of positive attitudes among teachers toward individuals with disabilities is considered a fundamental requirement of inclusive education. While much emphasis has been placed on enhancing teachers' cognitive and emotional competencies in inclusive education, limited attention has been paid to how recreational awareness may shape their attitudes toward individuals with disabilities (Avramidis & Norwich, 2002; Sharma et al., 2008). Although the literature includes various educational methods aimed at improving these attitudes, the dimension of recreational activities and awareness, which holds significant potential for increasing teachers' sensitivity, has been insufficiently explored. Despite the acknowledged importance of recreational awareness, specific subdimensions have been insufficiently addressed in prior research. In particular, previous studies have rarely examined how specific aspects of recreational awareness—such as self-development, social bonding through leisure, or awareness of inclusive recreational opportunities—relate to teachers' attitudes toward individuals with disabilities. This represents a critical gap, especially considering the increasing role of recreation in promoting inclusion across educational systems (Avramidis & Norwich, 2002; Sharma et al., 2008). Indeed, a study found that a 16-week recreational program reduced problem behaviors and increased social participation in individuals with intellectual disabilities. This suggests that recreational practices can be effective in supporting inclusive attitudes (Erkmen Hadi, Zengin, & Ertüzün, 2023). The role of inclusive leisure in promoting social engagement and equitable opportunities for individuals with disabilities has been emphasized in international literature. Inclusive leisure opportunities are also important for promoting participation and equity among individuals with disabilities (Devine & Parr, 2008; Darcy & Dowse, 2013). Recreation involves elements such as social interaction, empathy, and tolerance that support attitudinal development; however, how and to what extent it can be integrated into teacher education remains unclear. This indicates a need for studies that examine the impact of recreational awareness on teacher attitudes alongside educational methods. In this context, the aim of this study is to identify the educational methods used to improve teachers' attitudes toward individuals with disabilities and to examine the effect of recreational awareness within this process.

METHOD

Scope and Methodology of Research

The scope of the research consists of teachers working in public and private schools at the primary, secondary, and high school levels in Türkiye. This study examines the impact of recreational awareness on teachers' attitudes toward individuals with disabilities. This research is a quantitative study conducted using random sampling among volunteer teachers from all provinces.

Population and Sample of Research

The population of the study consists of teachers from all provinces. The sample consists of 415 teachers from various branches who teach at the primary, secondary, and high school levels in public and private schools. They were selected based on voluntary participation using a random sampling method. First, the online survey form was made accessible throughout Türkiye via various platforms, and teachers' participation was entirely based on voluntariness. Each individual's probability of being selected was considered equal. This method aimed to enhance the representativeness of the sample in reflecting the population.

Data Collection Tool

As a data collection tool, a 12-item personal information form prepared by the researcher was used to determine participants' personal information. In addition, to assess teachers' attitudes toward individuals with disabilities, the "Multidimensional Attitude Scale Toward Persons with Disabilities," adapted by Yelpaze and Türküm (2018), was utilized. Furthermore, to examine the impact of recreational awareness on teachers' attitudes toward individuals with disabilities, the "Recreational Awareness Scale (RAS)," developed by Ekinci and Özdilek (2019), was employed.

Personal Information Form: In the first section, a 12-item personal information form was used to gather information about participants. This form included questions regarding age, gender, marital status, educational background, years in the profession, teaching subject, province of employment, school level, whether they have a relative with a disability, whether they have experience teaching students with disabilities, their awareness of recreational activities, and whether they participate in recreational activities.

Multidimensional Attitude Scale Towards Persons with Disabilities: To measure teachers' attitudes toward individuals with disabilities, the "Multidimensional Attitude Scale Toward Persons with Disabilities", adapted into Turkish by Yelpaze and Türküm in 2018, was used. The Multidimensional Attitude Scale Towards Persons with Disabilities consists of 31 items and three sub-dimensions: emotion (14 items), cognition (9 items), and behavior (8 items). Participants rated the scale items using a five-point Likert scale (1 = Not at all, 5 = Very much).

Recreational Awareness Scale: To examine the impact of recreational awareness on teachers' attitudes towards individuals with disabilities, the Recreational Awareness Scale, developed by Ekinci and Özdilek (2019), was used. The scale is a self-report measure consisting of 41 items and three sub-dimensions: Pleasure/Entertainment (e.g., "Participating in recreational activities is enjoyable"), Social/Achievement (e.g., "Participating in recreational activities fosters a sense of belonging"), and Self-Development (e.g., "Participating in recreational activities enhances self-esteem"). Responses are rated on a five-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Data Analysis

The data collected within the scope of the study were analyzed using SPSS 25.0 software. Initially, reliability analysis was conducted on the scale scores, and skewness and kurtosis values were examined to assess the normal distribution of the data. For comparisons based on demographic variables, One-Way ANOVA and Independent Samples T-Test were employed. To investigate relationships between scale scores, Pearson Correlation analysis was used. Furthermore, Multiple Linear Regression analysis was conducted to examine the impact of attitudes toward individuals with disabilities on recreational awareness levels.

To ensure the validity of the regression model, both autocorrelation and multicollinearity assumptions were tested. The Durbin-Watson (DW) test was applied to detect autocorrelation among the error terms, with DW values ranging from 1.927 to 2.030, indicating no autocorrelation. Variance Inflation Factor (VIF) values were used to assess multicollinearity and were found to be between 1.041 and 1.230, which are well below the acceptable threshold of 5. Additionally, the correlation coefficients among independent variables were all below 0.800, further confirming the absence of multicollinearity.

Table 1

Cronbach's Alpha, Skewness, and Kurtosis Values for Scale Scores

Scales	Cronbach's Alpha (α)	Skewness	Kurtosis
Emotion	0,91	-0,24	-0,31
Thought	0,92	-0,38	0,15
Behavior	0,93	-0,95	0,55
Overall Attitude Towards Individuals with Disabilities	0,90	-0,01	-0,20
Pleasure-Enjoyment	0,96	-1,11	1,46
Social-Achievement	0,97	-1,43	1,45
Self-Improvement	0,98	-1,40	1,55
Total Recreational Awareness	0,99	-1,44	1,75

Upon examining the table, it is observed that the scales used in the study have a high level of reliability for analysis ($\alpha > 0.80$). When examining the skewness and kurtosis values, it is observed that they fall within the acceptable range of -2 to +2 for normal distribution, indicating that the data conform to a normal distribution.

One-Way ANOVA and Independent Samples T-Test were used to compare scale scores based on demographic questions. Pearson Correlation analysis was used to determine the relationship between scale scores, while Multiple Linear Regression analysis was applied to examine the impact of attitudes toward individuals with disabilities on recreational awareness levels.

FINDINGS

This section presents the results of the statistical analyses conducted to examine differences and relationships among the study variables. Tables 2 through 9 summarize the findings based on professional seniority, subject area, experience with students with disabilities, and dimensions of recreational awareness.

Table 2

Differences in Teachers' Scale Scores by Professional Seniority

Scales	Professional seniority	N	M	SD	F	p
Emotion	1-5 years	225	3,27	0,80	,593	,668
	6-10 years	92	3,31	0,75		
	11-15 years	36	3,48	0,85		
	16-20 years	16	3,35	0,84		
	20+ years	46	3,36	0,88		
Thought	1-5 years	225	3,80	0,81	1,521	,195
	6-10 years	92	3,76	0,74		
	11-15 years	36	3,97	0,67		
	16-20 years	16	3,88	0,77		
	20+ years	46	3,57	0,70		
Behavior	1-5 years	225	3,99	0,74	1,005	,405
	6-10 years	92	4,15	0,61		
	11-15 years	36	4,08	0,64		
	16-20 years	16	3,98	0,79		
	20+ years	46	4,07	0,55		
Overall Attitude Towards Individuals with Disabilities	1-5 years	225	3,61	0,56	,832	,505
	6-10 years	92	3,66	0,50		
	11-15 years	36	3,78	0,58		
	16-20 years	16	3,67	0,54		
	20+ years	46	3,61	0,53		
Pleasure - entertainment	1-5 years	225	3,98	0,68	,960	,429
	6-10 years	92	3,85	0,88		
	11-15 years	36	4,06	0,91		
	16-20 years	16	4,06	0,52		
	20+ years	46	3,82	1,03		
Social - achievement	1-5 years	225	4,02	0,66	,769	,546
	6-10 years	92	3,86	0,87		
	11-15 years	36	4,03	0,84		
	16-20 years	16	4,00	0,40		
	20+ years	46	3,92	1,05		
Self-improvement	1-5 years	225	4,10	0,67	,682	,605
	6-10 years	92	3,96	0,87		
	11-15 years	36	4,06	0,88		
	16-20 years	16	4,09	0,49		
	20+ years	46	3,98	1,01		
Total Recreational Awareness	1-5 years	225	4,04	0,64	,784	,536
	6-10 years	92	3,89	0,85		
	11-15 years	36	4,05	0,85		
	16-20 years	16	4,04	0,42		
	20+ years	46	3,91	1,01		

When the table is examined, it is observed that the levels of emotion, thought, behavior, and overall attitude towards individuals with disabilities among the participating teachers do not differ significantly based on their professional seniority ($p>0.05$).Similarly, it is observed that the levels of pleasure-enjoyment, social-achievement, self-improvement, and overall

recreational awareness do not differ significantly based on the teachers' professional seniority ($p>0.05$).

Table 3

Differences in Teachers' Scale Scores by Subject Area

Scales	Branch	N	M	SD	F	p
Emotion	Art Teacher	65	3.40	0.86	1.541	.176
	STEM Teacher	82	3.24	0.81		
	Verbal Subject Teacher	139	3.33	0.80		
	Classroom Teacher	79	3.21	0.79		
	Preschool Teacher	27	3.25	0.69		
	Special Education Teacher	23	3.68	0.74		
Thought	Art Teacher	65	3.86	0.79	.210	.958
	STEM Teacher	82	3.76	0.76		
	Verbal Subject Teacher	139	3.79	0.83		
	Classroom Teacher	79	3.75	0.72		
	Preschool Teacher	27	3.75	0.76		
	Special Education Teacher	23	3.74	0.66		
Behavior	Art Teacher	65	4.03	0.61	.883	.492
	STEM Teacher	82	4.17	0.59		
	Verbal Subject Teacher	139	3.98	0.75		
	Classroom Teacher	79	4.05	0.72		
	Preschool Teacher	27	4.00	0.56		
	Special Education Teacher	23	3.99	0.79		
Overall Attitude Towards Individuals with Disabilities	Art Teacher	65	3.69	0.59	.654	.659
	STEM Teacher	82	3.63	0.53		
	Verbal Subject Teacher	139	3.63	0.54		
	Classroom Teacher	79	3.58	0.52		
	Preschool Teacher	27	3.59	0.47		
	Special Education Teacher	23	3.78	0.62		
Pleasure - entertainment	Art Teacher	65	4.07	0.95	1.207	.305
	STEM Teacher	82	3.86	0.76		
	Verbal Subject Teacher	139	4.02	0.75		
	Classroom Teacher	79	3.87	0.79		
	Preschool Teacher	27	3.85	0.58		
	Special Education Teacher	23	3.78	0.80		
Social - achievement	Art Teacher	65	4.05	0.96	.456	.809
	STEM Teacher	82	3.95	0.75		
	Verbal Subject Teacher	139	4.01	0.72		
	Classroom Teacher	79	3.96	0.79		
	Preschool Teacher	27	3.83	0.60		
	Special Education Teacher	23	3.87	0.70		
Self-improvement	Art Teacher	65	4.13	0.94	.510	.769
	STEM Teacher	82	4.05	0.75		
	Verbal Subject Teacher	139	4.09	0.71		
	Classroom Teacher	79	3.99	0.80		
	Preschool Teacher	27	3.97	0.62		
	Special Education Teacher	23	3.91	0.78		
Total recreational awareness	Art Teacher	65	4.08	0.93	.615	.688
	STEM Teacher	82	3.96	0.72		
	Verbal Subject Teacher	139	4.04	0.70		
	Classroom Teacher	79	3.95	0.77		
	Preschool Teacher	27	3.88	0.58		
	Special Education Teacher	23	3.86	0.73		

When the table is examined, it is observed that the levels of emotion, thought, behavior,

and overall attitude towards individuals with disabilities among the participating teachers do not differ significantly based on their subject area (p>0.05).Similarly, it is observed that the levels of pleasure-enjoyment, social-achievement, self-improvement, and overall recreational awareness do not differ significantly based on the teachers' subject area (p>0.05).

Table 4

Differences in Teachers' Scale Scores by Experience with Students with Disabilities

Scales	Teaching Status	N	M	SD	T	p	Cohen's d
Emotion	Yes	213	3,35	0,79	,898	,369	,087
	No	202	3,28	0,82			
Tought	Yes	213	3,83	0,75	1,193	,233	,130
	No	202	3,73	0,79			
Behavior	Yes	213	4,05	0,68	,371	,711	,029
	No	202	4,03	0,70			
Overall Attitude Towards Individuals with Disabilities	Yes	213	3,67	0,54	1,219	,224	,130
	No	202	3,60	0,54			
Pleasure-entertainment	Yes	213	4,05	0,72	2,764	,006	,268
	No	202	3,84	0,84			
Social achievement	Yes	213	4,09	0,68	3,213	,001	,314
	No	202	3,85	0,84			
Self-improvement	Yes	213	4,17	0,68	3,175	,002	,314
	No	202	3,93	0,85			
Total Recreational Awareness	Yes	213	4,10	0,66	3,189	,002	,309
	No	202	3,87	0,82			

When the table is examined, it is observed that the levels of emotion, thought, behavior, and overall attitude towards individuals with disabilities do not differ significantly based on whether the participating teachers have previously taught students with disabilities (p>0.05). On the other hand, it is observed that teachers who have previously taught students with disabilities have significantly higher levels of pleasure-enjoyment, social-achievement, self-improvement, and overall recreational awareness compared to those who have not (p<0.05). It was observed that the effect size (Cohen's d) was high in the dimensions where significant differences were found pleasure-entertainment, social-achievement, self-development, and overall recreational awareness. According to Cohen (1988), η^2 values of .01, .06, and .14 are considered small, medium, and large effect sizes, respectively. In this study, η^2 values such as .027 and .040 represent small effects. Although statistically significant, they suggest limited practical implications, meaning the differences observed may not be very strong in real-world educational contexts (Cohen,1988).

Table 5

Relationship Between Attitudes Toward Individuals with Disabilities and Recreational Awareness

Scales		1	2	3	4	5	6	7	8
Emotion	r	-							
	p								
Thought	r	,135	-						
	p	,006							
Behavior	r	,189	,418	-					
	p	,000	,000						
Overall Attitude Towards Individuals with Disabilities	r	,789	,641	,627	-				
	p	,000	,000	,000					
Pleasure - entertainment	r	,051	,239	,134	,177	-			
	p	,303	,000	,006	,000				
Social - achievement	r	-,026	,240	,140	,127	,886	-		
	p	,592	,000	,004	,009	,000			
Self-improvement	r	-,018	,245	,142	,135	,893	,933	-	
	p	,710	,000	,004	,006	,000	,000		
Total Recreational Awareness	r	-,005	,249	,143	,147	,945	,980	,974	-
	p	,921	,000	,003	,003	,000	,000	,000	

When the table is examined, it is observed that there is no statistically significant relationship between teachers' emotional attitude levels towards individuals with disabilities and their levels of pleasure-enjoyment, social-achievement, self-improvement, and overall recreational awareness ($p>0.05$). However, a positive and low-level statistically significant relationship is found between their cognitive, behavioral, and overall attitude levels towards individuals with disabilities and their levels of pleasure-enjoyment, social-achievement, self-improvement, and overall recreational awareness ($p<0.05$).

Table 6

Effect of Attitudes Toward Individuals with Disabilities on the Pleasure–Enjoyment Dimension of Recreational Awareness

Variable	B	Std. Error	B	t	p	VIF
Constant	2,869	,269	-	10,648	,000	-
Emotion	,013	,048	,013	,276	,783	1,041
Thought	,226	,054	,221	4,193	,000	1,217
Behavior	,044	,061	,039	,726	,468	1,239

r=,243; r^2=,052; F(3, 411)=8,561; p=,000

When the table is examined, it is observed that teachers' attitudes towards individuals with disabilities have a significant impact of 5.2% on their pleasure-enjoyment awareness level in recreational awareness ($r^2 = .052$; $p < 0.05$). As this result, models have moderate effect on enjoyment.

Table 7

Effect of Attitudes Toward Individuals with Disabilities on the Social–Achievement Dimension of Recreational Awareness

Variable	B	Std. Error	β	t	p	VIF
Constant	3,074	,263	-	11,687	,000	-
Emotion	-,065	,047	-,068	-1,392	,165	1,041
Thought	,224	,053	,225	4,274	,000	1,217
Behavior	,065	,060	,058	1,099	,273	1,239

r=,253; r^2=,057; F (3, 411) =9,363; p=,000

When the table is examined, it is observed that teachers' attitudes towards individuals with disabilities have a significant impact of 5.7% on their social-achievement awareness level in recreational awareness ($r^2 = .057$; $p < 0.05$). As this result, models have moderate effecton social achievement.

Table 8

Effect of Attitudes Toward Individuals with Disabilities on the Self–Improvement Dimension of Recreational Awareness

Variable	B	Std. Error	β	t	p	VIF
Constant	3,116	,264		11,808	,000	
Emotion	-,058	,047	-,060	-1,233	,218	1,041
Thought	,229	,053	,229	4,352	,000	1,217
Behavior	,064	,060	,057	1,078	,282	1,239

r=,255; r^2=,058; F (3, 411) =9,560; p=,000

When the table is examined, it is observed that teachers' attitudes towards individuals with disabilities have a significant impact of 5.8% on their self-improvement awareness level in recreational awareness ($r^2 = .058$; $p < 0.05$). As this result, models have moderate effect on self-improvement.

Table 9

Effect of Attitudes Toward Individuals with Disabilities on Overall Recreational Awareness

Variable	B	Std. Error	β	t	p	VIF
Constant	3,037	,256		11,845	,000	
Emotion	-,044	,045	-,047	-,959	,338	1,041
Thought	,226	,051	,232	4,419	,000	1,217
Behavior	,060	,058	,055	1,033	,302	1,239

r=,257; r^2=,059; F (3, 411) =9,669; p=,000

When the table is examined, it is observed that teachers' attitudes towards individuals with disabilities have a significant impact of 5.9% on overall recreational awareness ($r^2 = .059$; $p < 0.05$). As this result, models have moderate effect on overall recreational awareness.

DISCUSSION & CONCLUSION

In this study, 415 teachers from different provinces and various disciplines were examined to determine whether there were significant differences in their attitudes toward individuals with disabilities and recreational awareness levels based on variables such as age,

gender, marital status, educational background, years in the profession, teaching subject, province of employment, school level, having a relative with a disability, experience in teaching students with disabilities, knowledge of recreational activities, and participation in recreational activities.

It is observed that the participating teachers' emotional attitudes towards individuals with disabilities are at a moderate level, while their cognitive, behavioral, and overall attitudes are above moderate level. When examining the recreational awareness levels of the participating teachers, it is observed that their pleasure-entertainment, social-achievement, self-development, and overall awareness levels are above moderate level.

According to the research findings, teachers' emotional, cognitive, behavioral, and overall attitude levels towards individuals with disabilities do not differ significantly based on their professional experience ($p > 0.05$). These findings align with the Theory of Planned Behavior (Ajzen, 1991), which posits that individuals' attitudes significantly shape their behavioral intentions. In this context, positive attitudes of teachers toward individuals with disabilities can lead to more inclusive teaching behaviors. Furthermore, according to Social Cognitive Theory (Bandura, 2001), factors such as self-efficacy and observational learning also contribute to teachers' willingness to adopt inclusive practices especially when supported by recreational engagement. The lack of a significant difference in teachers' attitudes towards individuals with disabilities based on their professional experience suggests that the duration of time spent in the profession is not a determining factor influencing these attitudes. This suggests that years of experience alone do not drive attitude development; rather, high-quality training and ongoing professional support are crucial. In Özdemir's (2021) study investigating educators' attitudes toward individuals with disabilities, it was concluded that the professional experience of employees in special education and rehabilitation centers had no impact on their attitudes toward individuals with disabilities. Ginevra, C. M., et al. (2022), Parasuram (2006), Ünal (2010), Anıl (2019), Şahan (2019), and Nurkan (2022) have also reached findings in their research that align with the results of our study. Avramidis and Norwich (2002) also pointed out that teachers' attitudes are influenced more by their training in special education and personal beliefs rather than their years of teaching experience. This finding is consistent with our study. However, in İmrak's (2009) study, teachers with 16 or more years of professional experience exhibited a significant difference in their attitudes toward individuals with disabilities compared to other teacher groups. Overall, an increase or decrease in years of professional experience does not have a positive or negative impact on attitudes toward individuals with disabilities. When examining the results related to recreational awareness based on teachers' professional seniority, no statistically significant difference was found in the pleasure-entertainment, social-achievement, self-development sub-dimensions, or in overall awareness levels ($p > 0.05$). This situation can be interpreted as the duration of teachers' professional experience having no impact on their perception of recreational awareness. This indicates that long service does not automatically foster high recreational awareness; structured education and awareness programs are essential. In this regard, Yılmaz (2020) conducted a study on middle school administrators and found no significant differences between the administrators' years of professional experience and the sub-dimensions of the Recreational Awareness Scale, which aligns with our study. Kara, İzci and Murathan (2011), who reached different results from our study, found a significant relationship between the recreational awareness levels of teachers and administrators and their level of participation in recreational activities and their years of service in their study on professional seniority.

It is observed that the emotional, cognitive, behavioral, and overall attitude levels of the participating teachers toward individuals with disabilities do not differ significantly based on their teaching subject ($p > 0.05$).This situation may be influenced by several factors, primarily the education teachers receive, as well as their professional awareness, educator spirit, and

constructive perspective towards disadvantaged individuals, given that teachers serve as the most influential role models in society. A common inclusive training curriculum across disciplines may have minimized attitude gaps among teachers. Hemmingsson and Borell (2002) revealed that teachers' attitudes play a determining role in the participation of individuals with disabilities in educational settings, and that these attitudes are shaped not by the individual's disability but by environmental arrangements. In this sense, in the study conducted by Dursun, Güler and Bozkurt (2019), who reached results in parallel with our study, no significant difference was found in the attitudes of pre-service teachers in different branches towards the disabled. There is no significant difference in the results; however, the attitudes of the prospective Special Education Teachers towards the disabled were higher than the attitudes of the prospective Classroom Teachers and Physical Education and Sports Teachers. Additionally, the attitude levels of physical education pre-service teachers were found to be higher than those of primary school pre-service teachers. Similarly, in the research conducted by Kırımoğlu, Esentürk, İlhan, Yılmaz, and Kaynak (2016), it was concluded that teachers working in special education and rehabilitation centers had higher attitude levels toward individuals with disabilities compared to teachers working in other institutions. According to Daşbaş, Kesen, and Eryılmaz (2013), primary school teachers were found to have more positive attitudes toward individuals with disabilities compared to special education teachers. This result contradicts the findings of our study. When evaluating the results related to recreational awareness based on teachers' subject areas, it is observed that the pleasure-entertainment, social-achievement, self-development, and overall awareness levels do not differ significantly ($p > 0.05$). This underscores that subject specialization does not influence recreational awareness; all teachers should receive equal support and development opportunities. In Kabak's (2019) study examining pre-service teachers' awareness levels regarding the effects of sports on individuals with intellectual disabilities based on their subject areas, it was stated that no significant difference was found. In this regard, the results are consistent with our study. In Keleş's (2021) study, results contradicting our findings were obtained, as a significant difference was identified in the awareness levels of teachers from different subject areas regarding the effects of sports. A comprehensive literature review on the subject revealed a lack of sufficient studies. In this regard, our study's findings are expected to contribute to the field.

It is observed that the emotional, cognitive, behavioral, and overall attitude levels of the participating teachers toward individuals with disabilities do not differ significantly based on their previous experience in teaching students with disabilities ($p > 0.05$).This situation can be interpreted as indicating that, as mentioned in other findings of our study, teachers' attitudes toward individuals with disabilities are not influenced by any specific variable. This implies that past experience alone does not guarantee attitude change, highlighting the need for continuous, structured interaction opportunities. Consistent with our study's findings, Akçay (2021) found no significant difference in the attitudes of social workers toward individuals with disabilities based on their previous experience in educating individuals with disabilities. In their study on physical education teachers, Karademir, Açak, Türkçapar, and Eroğlu (2018) obtained findings contrary to our results, identifying a significant difference across all sub-dimensions based on prior experience in educating individuals with disabilities. Teachers who have previously taught individuals with disabilities have significantly higher levels of pleasure-entertainment, social-achievement, self-development, and overall recreational awareness compared to those who have not taught individuals with disabilities ($p < 0.05$). Forlin (2010) stated that teachers' attitudes towards inclusive education tend to improve when they gain direct experience with individuals with disabilities. However, in contrast to this expectation, our study found no significant difference in attitudes based on past teaching experience with students with disabilities. Supporting our study's findings, Keleş (2021) identified a significant difference in awareness levels regarding the effects of sports on individuals with intellectual disabilities based on whether physical education pre-service teachers had previous experience working

with individuals with intellectual disabilities. It was found that pre-service teachers who had previously worked with individuals with disabilities had significantly higher scores compared to those who had not. Teachers who have worked with individuals with disabilities in the past have a significantly higher level of awareness regarding sports. Similar results were also found by Kırımoğlu et al. (2016).

The results of the study indicate that there is no statistically significant relationship between teachers' emotional attitude levels towards individuals with disabilities and their pleasure-entertainment, social-achievement, self-development, and overall recreational awareness levels ($p > 0.05$). However, a positive but low-level statistically significant relationship was found between their cognitive, behavioral, and overall attitude levels towards individuals with disabilities and their pleasure-entertainment, social-achievement, self-development, and overall recreational awareness levels ($p < 0.05$). This suggests the emotional dimension may be less impacted by recreational activities compared to cognitive and behavioral dimensions. Similarly, Sharma et al. (2008) observed that pre-service teachers demonstrated significant improvements in their attitudes and awareness after participating in experiential programs that involved direct interaction with individuals with disabilities. These findings align with our study. This finding suggests that increasing recreational awareness among teachers may foster not only inclusive attitudes but also a deeper understanding of social equity and diversity. This is supported by Devine and Parr (2008), who argue that inclusive leisure experiences reduce social distance and enhance mutual respect.

This study offers a unique contribution to literature by examining the relationship between teachers' attitudes toward individuals with disabilities and their levels of recreational awareness in a multidimensional manner. Given the limited number of studies exploring the impact of recreational awareness on teacher attitudes, the findings of this research are particularly significant in addressing this gap. By analyzing the influence of demographic variables such as professional seniority, subject area, and prior experience working with individuals with disabilities, the study provides a comprehensive evaluation. Moreover, the finding that recreational awareness is significantly related only to the cognitive and behavioral dimensions of attitudes offers a valuable insight that can guide future research. In this respect, the study emphasizes the need to integrate recreational awareness-based content into teacher education programs and lays the groundwork for the development of educational policy recommendations.

Recommendations

1. Recreational awareness–based content should be integrated into both pre-service and in-service teacher training programs.
2. Regular recreational activity workshops and hands-on training sessions should be organized for teachers at schools.
3. Inclusive attitude–development training should be provided to all teacher groups regardless of subject area.
4. Practice-based teacher training opportunities that facilitate direct interaction with individuals with disabilities should be increased.
5. Teachers should be supported with disability and inclusion–themed training at every stage of their professional career.
6. School-based awareness campaigns should be implemented, taking into account the impact of recreational awareness on attitudes.
7. Success stories and best practices supporting positive attitudes toward individuals with disabilities should be shared in educational institutions.

Limitations

This study was conducted using a cross-sectional survey design. Therefore, teachers' attitudes and recreational awareness levels were assessed at a single point in time, and changes over time were not considered. The data was collected solely through quantitative measurement tools. This limits the ability to explore the underlying reasons or personal experiences behind participants' attitudes. Without qualitative support, contextual interpretation of the findings may remain limited. Although the sample included teachers from different provinces and subject areas, the imbalance in participant distribution may restrict the generalizability of the results to the entire teacher population. Additionally, the sensitivity of topics such as attitudes toward individuals with disabilities may have led participants to provide socially desirable responses, which could affect the objectivity of the data.

Note: This study was presented as an oral presentation at the 22nd International Sports Sciences Congress held in Ankara between November 21–24, 2024, and was published as an abstract in the congress proceedings book.

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Akçay, M. (2021). Social workers' attitudes towards individuals with disabilities and their opinions on the role of social work in special education. Master's thesis, Yakın Doğu University, Graduate School of Education, Cyprus.

Altunhan, A., Bayer, R., & Açak, M. Z. (2021). Investigation of Mardin Artuklu University students' attitudes towards individuals with disabilities. *Çanakkale Onsekiz Mart University Journal of Sport Sciences, 4*(1), 61–70.

Anıl, A. (2019). An examination of employers' attitudes towards individuals with disabilities and the views of disabled employees regarding their work environment. Doctoral thesis, Necmettin Erbakan University, Konya.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. *European Journal of Special Needs Education, 17*(2), 129–147. https://doi.org/10.1080/08856250210129056

Ayyıldız Durhan, T., Kayhalak, F., & Kurtipek, S. (2022). The effect of recreational awareness on recreational purchasing styles. *International Journal of Current Educational Research, 8*(2), 460–477.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1–26. https://doi.org/10.1146/annurev.psych.52.1.1

Beauchamp, C., & Thomas, L. (2009). Understanding teacher identity: An overview of issues in the literature and implications for teacher education. *Cambridge Journal of Education, 39*(2), 175–189. https://doi.org/10.1080/03057640902902252

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Çolak, M., & Çetin, C. (2014). A study on teachers' attitudes towards disability. *Dokuz Eylül University Faculty of Economics and Administrative Sciences Journal, 29*(1), 191–211.

Çulhaoğlu İmrak, H. (2009). An examination of teachers' and parents' attitudes towards inclusive education in the preschool period and peer relationships in inclusive classrooms. Master's thesis, Çukurova University, Social Sciences Institute, Adana.

Darcy, S., & Dowse, L. (2013). In search of a level playing field–The constraints and benefits of sport participation for people with intellectual disability. *Disability & Society, 28*(3), 393–407. https://doi.org/10.1080/09687599.2012.714258

Daşbaş, S., Kesen, N. F., & Eryılmaz, C. (2013). Attitudes of teachers working in educational institutions towards individuals with disabilities. *Health and Society Journal, 23*(1), 35–49.

Demir, C. (2023). A comparison of physical education teachers' professional self-esteem and their attitudes towards individuals with disabilities (The case of Bağcılar District). Master's thesis, Gelişim University, Graduate School of Education, İstanbul.

Devine, M. A., & Parr, M. G. (2008). Social inclusion in leisure contexts: A model to guide research and practice. *Leisure Sciences, 30*(5), 391–408. https://doi.org/10.1080/01490400802353083

Dursun, M., Güler, B., & Mutlu Bozkurt, T. (2019). Examination of pre-service teachers' attitudes towards the participation of individuals with intellectual disabilities in sports activities. *Journal of Physical Education and Sports Sciences, 13*(3), 202–209.

Ekinci, N. E. (2017). Investigation of university students' awareness about recreational activities. Doctoral thesis, Dumlupınar University, Institute of Health Sciences, Kütahya.

Erkmen Hadi, G., Zengin, Ö., & Ertüzün, E. (2023). Effect of recreational physical activity program on aberrant behaviors of adolescents with mild intellectual disabilities. *Journal of Education and Recreation Patterns, 4*(2), 263–274. https://doi.org/10.53016/jerp.v4i2.144

Forlin, C. (2010). Teacher education for inclusion: Changing paradigms and innovative approaches. *International Journal of Inclusive Education, 14*(7), 649–653. https://doi.org/10.1080/13603111003778353

Ginevra, C. M., Maggio, D. I., Valbusa, I., Santilli, S., & Nota, L. (2022). Teachers' attitudes towards students with disabilities: The role of the type of information provided in the students' profiles of children with disabilities. *European Journal of Special Needs Education, 37*(3), 357–370. https://doi.org/10.1080/08856257.2021.1878658

Han, J. S. (2008). The relationship between young adult's leisure awareness and their depression relief leisure behaviour. *Korean Family Resource Management Association, 12*(4), 35–46.

Hemmingsson, H., & Borell, L. (2002). Environmental barriers in mainstream schools. *Disability and Rehabilitation, 24*(1–3), 70–77. https://doi.org/10.1046/j.1365-2214.2002.00240.x

Kabak, S. (2019). Awareness and attitude levels of teachers from different branches towards the sports activities of individuals with intellectual disabilities. Master's thesis, Gazi University, Ankara.

Kara, A., İzci, E., & Murathan, F. (2011). Leisure time evaluation habits and learning attitudes of physical education teachers. *e-Journal of New World Sciences Academy Education Sciences, 6*(1), 958–987.

Karademir, T., Açak, M., Türkçapar, Ü., & Eroğlu, H. (2018). Determining the attitudes of pre-service physical education teachers towards individuals with intellectual disabilities. *Journal of Physical Education and Sports Sciences, 20*(3), 103–112.

Kaysi, Ü. (2021). Pre-service physical education teachers' perceived inclusion competencies and attitudes towards the course 'Physical Education and Sports for the Disabled': An experimental study. Master's thesis, Mersin University, Mersin.

Keleş, S. (2021). An examination of awareness levels of teachers working in the Ministry of National Education regarding the effects of sports on individuals with intellectual disabilities: The case of Adıyaman/Çelikhan. Master's thesis, İnönü University, Malatya.

Kılıçman, İ. (2020). An investigation into the effects of recreational awareness and social media addiction on life satisfaction: A study on university students. Master's thesis, Karamanoğlu Mehmet Bey University, Karaman.

Kırımoğlu, H., Esentürk, O., İlhan, E. L., Yılmaz, A., & Kaynak, K. (2016). Examining the awareness levels of primary school, special education and rehabilitation center teachers and physical education pre-service teachers on the effects of physical exercise participation in individuals with intellectual disabilities. *Manas Journal of Social Studies, 5*(4), 231–244.

Kırımoğlu, H., Yılmaz, A., Soyer, F., Beyleroğlu, M., & İlhan, E. L. (2016). Awareness of the effects of sports on individuals with intellectual disabilities: A study on pre-service physical education teachers. *Niğde University Journal of Physical Education and Sports Sciences, 10*(1), 83.

Mevzuat Bilgi Sistemi. (2023). *Kanun No: 5378 — Engelliler Hakkında Kanun*. https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=5378&MevzuatTur=1&MevzuatTertip=5 (Accessed July 20, 2025).

Nurkan, İ. (2022). Self-efficacy perceptions of psychological counselors and guidance teachers regarding counseling and guidance in special education and their attitudes towards individuals with special needs. Master's thesis, Medeniyet University, İstanbul.

Özdemir, S. D. (2021). An examination of the attitudes of educators working in special education and rehabilitation centers towards individuals with disabilities (The case of Beylikdüzü, Istanbul). Master's thesis, Gelişim University, İstanbul.

Öztabak, M. Ü. (2017). An examination of the life expectations of individuals with disabilities. *FSM Journal of Humanities and Social Sciences, (9)*, 355–375. https://doi.org/10.16947/fsmia.323388

Parasuram, K. (2006). Variables that affect teachers' attitudes towards disability and inclusive education in Mumbai, India. *Disability & Society, 21*(3), 231–242. https://doi.org/10.1080/09687590600617352

Şahan, S. (2019). A comparison of guidance counselors' self-efficacy perceptions regarding special education and their attitudes towards inclusive education. Master's thesis, Necmettin Erbakan University, Konya.

Sharma, U., Forlin, C., Loreman, T., & Earle, C. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society, 23*(7), 773–785. https://doi.org/10.1080/09687590802469271

Ünal, F. (2010). Attitudes of teachers, parents of typically developing students, and parents of students with disabilities towards inclusion in inclusive classrooms. Master's thesis, Çukurova University, Adana.

World Health Organization. (2001). *International classification of functioning, disability and health (ICF)*. Geneva: WHO.

Yetim, A. (2011). *Sociology and sport*. Berikan Publishing.

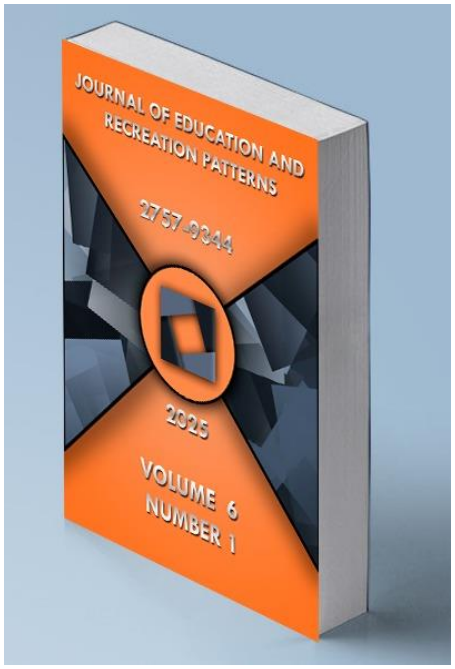
Yılmaz, U. C. (2020). An examination of recreational awareness perception levels of secondary school administrators (The case of Batman Province). Master's thesis, Batman University, Institute of Social Sciences.

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principleshave been considered in all the stages of the study. We take full responsibility for thecontent of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

Team Spirit and Identity Construction: The Psychological Connections of Athlete and Group Belonging

Mesut GÜLEŞCE[1], Kemal SARĞIN[2] , Fatih ERİŞ[3]

To cite this article:

Güleşce, M., Sarğın, K., & Eriş, F. (2025). Team spirit and identity construction: The psychological connections of athlete and group belonging. *Journal of Education and Recreation Patterns (JERP), 6 (1)*, 185-198. DOI: https://doi.org/10.53016/jerp.v6i1.267

[1] Van Metropolitan Municipality, mesutgulesce@gmail.com , https://orcid.org/0000-0001-6676-6947
[2] Van Yüzüncü Yıl University, sargin_kemal@hotmail.com , https://orcid.org/0000-0001-5415-9162
[3] Van Yüzüncü Yıl University, fatiheris@yyu.edu.tr , https://orcid.org/0000-0002-2301-6801

Journal of Education and Recreation Patterns (JERP)
Volume 6, Issue 1, Year 2025 ISSN: 2757-9344

Team Spirit and Identity Construction: The Psychological Connections of Athlete and Group Belonging

Mesut Güleşce[1], Kemal Sarğin[2] , Fatih Eriş[3]

ARTICLE INFORMATION
Original Research Paper

Received 15.11. 2024
Accepted 28.06. 2025

https://jerpatterns.com

June, 2025
Volume: 6, No: 1
Pages: 185-198

ABSTRACT
This study examines in detail the processes of team spirit and identity construction among athletes. Team spirit enhances athletes' sense of group belonging and psychological resilience, thereby strengthening their ability to cope with stress and negative emotional reactions. Athletes' social identities are shaped by identifying themselves as athletes and adopting the norms associated with this identity. This identity positively affects both individual and team performances. However, negative psychological variables such as athletic commitment and negative affectivity present significant research topics with their indirect effects on group belongingness. The aim of the study is to determine the impacts of these variables on athletes' psychological and social dynamics and to provide a solid theoretical foundation for interventions in this field. A survey was conducted with 297 athletes from various sports disciplines. Data were collected using the social identity, athletic commitment, negative affectivity, and group belongingness scales. Reliability and validity analyses of the scales were performed, and descriptive statistics and correlation analyses were conducted. Furthermore, the direct and indirect relationships between the variables were tested using structural equation modeling. The model fit indices were found to be at a good level, and the significance levels of all direct paths were determined as $p < 0.05$. The results show that the indirect effects of social identity on group belongingness through athletic commitment and negative affectivity are significant.

Keywords: Team Spirit, Identity Construction, Group Belongingness, Sport

INTRODUCTION

Team spirit and identity construction are among the fundamental elements that profoundly influence the psychological and social dynamics of athletes. Modern sports psychology literature emphasizes that athletes' identities and group memberships are decisive factors in both individual performance and team interactions (Brewer & Cornelius, 2001; Öztürk & Koca, 2013; Şimşek et al., 2023; Çakır et al., 2023). Moreover, it has been suggested that teachers' attitudes toward healthy nutrition may indirectly affect athletes' performance; for instance, Sargın and Güleşce (2022) noted that teachers' awareness of healthy eating could contribute to athletes adopting healthy lifestyles. A sense of belonging to a group enhances athletes' psychological well-being and motivation, supporting them in building resilience against stress and negative emotional responses (Tajfel & Turner, 1979). In this context, social identity enables athletes to define themselves as part of a group and adopt norms associated with that identity. This not only supports individual and team performance but also fosters team cohesion and collaboration. A sense of belonging strengthens athletes' psychological resilience and coping mechanisms against stress (Güleşce & İlhan, 2024). Accordingly, social identity and group membership play a critical role in the construction of team spirit and sustainable success. However, negative psychological factors such as sport entrapment and negative affectivity have emerged as key areas of focus due to their indirect effects on group membership. Sport entrapment reflects the significance athletes attach to their sports activities; dedicating a substantial portion of their time to these activities may lead to the neglect of other life domains. While this focus can strengthen social identity, it may also provoke negative emotional responses (Brewer & Cornelius, 2001). Negative affectivity encompasses athletes' emotional reactions to situations such as failure, injury, or performance decline, which can adversely impact motivation and group membership (Gustafsson et al., 2015; Weinberg & Gould, 2019). The primary aim of this study is to analyze the complex relationships among variables such as social identity, sport entrapment, and negative affectivity, providing a comprehensive perspective on team spirit and identity construction processes and determining their effects on the psychological and social dynamics of athletes.Social identity theory explains the processes by which individuals define themselves as part of social groups and the influence of this identity on behavior (Tajfel & Turner, 1979). Through their group memberships, individuals construct social identities that shape their behaviors, attitudes, and relationships. For athletes, social identity involves being recognized as an athlete and adopting norms associated with this identity; this plays a critical role in individual performance and team interactions. Social identity strengthens individuals' sense of belonging while enhancing their self-worth (Hogg & Abrams, 1990). Athletes who identify with their team align themselves with its goals, thereby increasing motivation and reinforcing team spirit (Rees et al., 2015). Additionally, social identity supports athletes in coping with stress and building psychological resilience (Schinke et al., 2018). Acceptance of roles within the team enhances collaboration and cohesion, positively affecting overall performance (Haslam et al., 2000). Athletes who perceive themselves as integral parts of their teams establish stronger bonds with teammates, contributing to efforts aimed at achieving team goals (Bruner et al., 2013). Sport entrapment refers to the focus on sports activities at the expense of other life domains. Intense involvement in sports can result in the neglect of personal and social aspects of life, thereby enhancing athletic identity while disrupting life balance (Smith, 2010). Over-identification may lead to emotional and psychological instability, causing loss of motivation in cases of failure or injury (Gustafsson et al., 2008). Therefore, maintaining a balanced lifestyle is crucial for athletes' overall psychological well-being (Lally & Kerr, 2005).

Negative affectivity represents athletes' emotional responses to challenges such as failure, injury, or performance decline (Brewer & Cornelius, 2001). These responses, which may include frustration, sadness, anxiety, and anger, can decrease motivation and undermine

self-confidence (Gustafsson et al., 2015; Weinberg & Gould, 2019). Group membership, on the other hand, reflects the level of individuals' identification with and participation in social groups (Tajfel & Turner, 1979). This sense of belonging enhances team cohesion, collaboration, and performance, supporting athletes in aligning with team goals (Bruner et al., 2013). Teams with strong group membership foster trust and mutual support among members, thereby increasing their likelihood of success (Evans et al., 2012). Group membership also boosts athletes' self-esteem and self-confidence, positively influencing their performance (Van Vianen & De Dreu, 2001).

In conclusion, group membership has a significant impact on the psychological and social dynamics of athletes. It supports team cohesion and collaboration, thereby positively influencing athletes' performance and motivation. This, in turn, enables athletes to find themselves within a robust social identity and harmonize with team spirit, contributing to both their individual development and team success (Tajfel & Turner, 1979; Brewer & Cornelius, 2001; Öztürk & Koca, 2013). The aim of this study is to analyze the complex relationships among variables such as social identity, sport entrapment, and negative affectivity, providing a comprehensive perspective on team spirit and identity construction processes. The study seeks to determine their effects on athletes' psychological and social dynamics. By contributing to the understanding of factors that support athletes' psychological resilience, motivation, and group membership, this research aims to establish a solid foundation for theoretical and practical approaches in the field of sports psychology.

Research Hypotheses

H1: Social identity is positively associated with athletes' sense of group belonging.

H2: Athletes with a strong sense of group membership demonstrate higher levels of psychological resilience and motivation.

H3: Sport entrapment has a dual effect on athletes' identity construction—positively reinforcing social identity while negatively affecting emotional well-being.

H4: Negative affectivity is negatively associated with group membership and team cohesion.

H5: Group membership mediates the relationship between social identity and team spirit.

METHOD

This study aims to examine the processes of team spirit and identity construction among athletes. The research seeks to analyze the psychological and social dynamics of athletes participating in various sports disciplines. Below, the methodology of this study is explained in detail.

Research Method

In this study, the effects of team spirit and identity construction processes on psychological and social dynamics were examined using the relational survey model. The relational survey model is a quantitative research method used to explore relationships between specific variables. This model involves systematic data collection and analysis techniques to understand the degree of relationships between variables (Creswell, 2014). As in this research, data obtained through the analysis of phenomena within a specific population are evaluated using correlational analyses, providing comprehensive insights into the relationship levels between variables.

The study was structured with a descriptive design, and data were collected through a

survey method. The survey method offers an effective tool for determining participants' perceptions and attitudes, with data obtained through descriptive statistics providing a general overview of participants' processes of team spirit and identity construction (Fraenkel et al., 2012). Through this approach, the relationships between variables related to team spirit and identity construction were examined in detail, and their effects on psychological and social dynamics were systematically revealed.

Research Group

In this study, a group consisting of 297 athletes engaged in various sports disciplines in Turkey was formed using the convenience sampling method. The convenience sampling method is based on selecting a sample group that is easily accessible and practical for the researcher to reach. This method provides a practical solution, especially in cases where collecting data from a large population is challenging, offering savings in both time and cost (Yıldırım & Şimşek, 2011). The diversity of the sample enhances the generalizability of the study's findings, allowing inferences about the psychological and social dynamics of athletes to be applied to a broader population. The demographic characteristics of the participants in the study are presented in Table 1.

Table 1

Descriptive Statistics of Participants

Demographic Characteristics		N	%
Gender	Female	143	48,1
	Male	154	51,9
Age Group	18-22 years	70	23,6
	23-27 years	109	36,7
	28-32 years	85	28,6
	33+ years	33	11,1
Sport Discipline	Volleyball	74	24,9
	Football	78	26,3
	Basketball	72	24,2
	Handball	73	24,6
Duration of Sporting Activity	1-3 years	95	32,0
	4-6 years	89	30,0
	7-9 years	60	20,2
	10+	53	17,8
Marital Status	Single	148	49,8
	Married	149	50,2
Type of Sport	Amateur	150	50,5
	Professional	147	49,5

When examining the demographic characteristics of the study participants, it was found that the gender distribution included 143 female and 154 male participants. The age groups were classified as follows: 70 participants aged 18–22, 109 participants aged 23–27, 85 participants aged 28–32, and 33 participants aged 33 and older. Regarding the distribution of sports disciplines, the study included 74 volleyball players, 78 football players, 72 basketball players, and 73 handball players. In terms of the duration of sporting activity, 95 participants had been engaged in sports for 1–3 years, 89 participants for 4–6 years, 60 participants for 7–9 years, and 53 participants for over 10 years. Concerning marital status, the sample consisted of 148 single and 149 married participants. Lastly, in terms of the type of sport, 150 participants

were identified as amateur athletes, while 147 were professional athletes. These data highlight the demographic diversity of the participants within the study, supporting the generalizability of the findings to a broader population.

Data Collection Tools and Process

The data collection tools included the Participant Information Form, which gathered basic demographic information about the participants, the Athlete Identity Scale, used to measure the identity levels of athletes, and the Group Membership Scale, employed to determine levels of group belonging.

Participant Information Form: The form prepared by the researchers includes four questions aimed at collecting socio-demographic information. The survey is designed to identify participants' demographic details, such as gender, age, sport discipline, and duration of sporting activity.

Athlete Identity Scale: The Athlete Identity Scale (AIS) was initially developed by Brewer et al. (1993) as a 10-item tool to measure athletic identity. Later, the scale, as used in this study, was revised by Brewer and Cornelius (2001) into a 7-item version, which has been demonstrated to be a valid and reliable measure of the extent to which athletes identify with their athletic identity. Each item on the AIS is rated on a 7-point Likert scale ranging from 1 (Strongly Agree) to 7 (Strongly Disagree). The scoring of the scale is conducted by summing the scores of each item, with the minimum possible score being 7 and the maximum being 49. Higher scores on the AIS indicate a stronger athletic identity and a greater degree of identification with sports. The internal consistency coefficient of the adapted Turkish version of the scale was found to be .81 (Öztürk & Koca, 2013), while the internal consistency coefficient obtained in this study was .71

Group Membership Scale: The Group Membership Scale, developed by Uçar (2010), consists of 6 items, including sample statements such as 'I generally believe that we share a common goal in the groups I am part of.' The scale uses a 5-point Likert format (1 = Not at all suitable for me, 5 = Completely suitable for me). Scale Scoring: The scores on the scale range from 6 to 30. In the reliability analysis conducted for the Group Membership Scale, the Cronbach's Alpha was found to be .85, indicating a high level of reliability for the scale.

This study was deemed ethically appropriate by the Van Yüzüncü Yıl University Social and Humanities Publication Ethics Committee with decision number 19 from session 2024/16, dated 07.08.2024. Prior to administering the measurement tool, participants were informed about the purpose of the study and the scales involved, and their voluntary participation was obtained. The measurement tool used in the study was applied to participants face-to-face, via email, or through online methods, taking approximately 10–15 minutes. The voluntary participation of respondents was emphasized during the completion of the tools.

The data collection process was conducted through a survey form aimed at measuring the demographic information and psychological variables of the participants. In addition to questions on demographic data such as gender, age, sport discipline, and duration of sporting activity, the survey included scales measuring psychological variables such as social identity, sport entrapment, negative affectivity, and group membership. This approach provided a comprehensive dataset for understanding the psychological and social dynamics of the participants.

Data Analysis

The data collected were analyzed using SPSS 26.0 and AMOS software. Initially, descriptive statistics and reliability analyses were conducted. Cronbach's Alpha (α), Average Variance Extracted (AVE), and Composite Reliability (CR) values were calculated for the Social Identity, Sport Entrapment, Negative Affectivity, and Group Membership scales. Subsequently, correlations between variables were examined, and direct and indirect effects were tested using Structural Equation Modeling (SEM).

Table 2

Normality Analysis Results for Study Variables

Variable	($\bar{x}$)	SD	Skew.	Kurt.	Interpretation
Social Identity	4.07	0.70	-0.42	0.18	Normal distribution
Sport Entrapment	4.40	0.63	-0.35	-0.12	Normal distribution
Negative Affectivity	4.10	0.69	0.05	-0.22	Normal distribution
Group Membership	4.08	0.60	-0.28	0.11	Normal distribution

The normality analysis results for the study variables indicate that all distributions fall within acceptable skewness and kurtosis thresholds, suggesting a normal distribution for each variable. Specifically, Social Identity ($\bar{x}$ = 4.07, SD = 0.70) shows a slight negative skewness (−0.42) and a mild positive kurtosis (0.18), indicating a relatively symmetric distribution with a moderate peak. Sport Entrapment ($\bar{x}$ = 4.40, SD = 0.63) also exhibits a slightly negatively skewed distribution (−0.35) and a marginally flat shape (kurtosis = −0.12). Negative Affectivity ($\bar{x}$ = 4.10, SD = 0.69) displays near-zero skewness (0.05) and a slightly platykurtic distribution (kurtosis = −0.22), reflecting a fairly symmetrical and flat curve. Lastly, Group Membership ($\bar{x}$ = 4.08, SD = 0.60) presents mild negative skewness (−0.28) and near-normal kurtosis (0.11). All skewness and kurtosis values fall within the ±1 range, supporting the assumption of normality required for subsequent parametric analyses such as structural equation modeling.

FINDINGS

In this study, the demographic characteristics of the participants were examined across various variables. The table and detailed analysis below present information regarding participants' gender, age, sport discipline, and duration of sporting activity.

Table 3

Descriptive Statistics and Reliability Analyses of Athlete Identity and Group Membership Scales

Scale	$\bar{x}$	*sd*	*α*	*AVE*	*CR*
Social Identity	***4.07***	***0.70***	***0.78***	***0.60***	***0.82***
I consider myself an athlete.	4.20	0.65			
I have many goals related to sports.	4.10	0.70			
Many of my friends are athletes.	3.90	0.75			
Sport Entrapment	***4.40***	***0.63***	***0.79***	***0.63***	***0.85***
Sports are the most important part of my life.	4.50	0.60			
I spend more time thinking about sports than anything else.	4.30	0.63			
Negative Affectivity	***4.10***	***0.69***	***0.75***	***0.58***	***0.80***
I feel bad when I don't perform well in sports.	4.00	0.71			

I would be very unhappy if I was injured and could not participate in the competitions.	4.20	0.68			
Group Membership (In the team/groups I am part of…)	***4.08***	***0.60***	***0.80***	***0.65***	***0.86***
I often think that we have a common goal that we share.	4.00	0.60			
I believe that there is a mutual trust relationship between us and people.	4.10	0.65			
It is important to support each other in person.	4.20	0.55			
I think I will definitely get positive results.	4.00	0.58			
I think I gained new opportunities because of my involvement.	4.05	0.62			
I believe that everyone will support each other.	4.15	0.60			

x̄ *(Mean),* ***sd*** *(Standard Deviation),* ***α*** *(Cronbach's Alpha),* ***Ave*** *(Average Variance Extracted),* ***Cr*** *(Composite Reliability)*

Table 2 presents the descriptive statistics and reliability analyses of the Athlete Identity and Group Membership scales. The Social Identity scale demonstrates reliable measurement with a mean ($\bar{x}$) of 4.07, standard deviation (SD) of 0.70, Cronbach's Alpha (α) of 0.78, Average Variance Extracted (AVE) of 0.60, and Composite Reliability (CR) of 0.82. Among its sub-items, 'I consider myself an athlete' has the highest mean (4.20), while 'Most of my friends are athletes' has the lowest mean (3.90). The Sport Entrapment scale shows high reliability, with a mean of 4.40, standard deviation of 0.63, Cronbach's Alpha of 0.79, AVE of 0.63, and CR of 0.85. The item 'Sport is the most important part of my life' holds the highest mean score (4.50). The Negative Affectivity scale provides acceptable reliability with a mean of 4.10, standard deviation of 0.69, Cronbach's Alpha of 0.75, AVE of 0.58, and CR of 0.80. The Group Membership scale represents a reliable structure with a mean of 4.08, standard deviation of 0.60, Cronbach's Alpha of 0.80, AVE of 0.65, and CR of 0.86. Among its items, 'It is important to support each other' has the highest mean (4.20).

Table 4

Fit Indices for the Model

Fit Index	Value	Description
χ^2/df	2.5	Indicates that the model fit is adequate
RMSEA	0.045	Demonstrates that the approximate error level of the model is low.
SRMR	0.030	Standardized Root Mean Square Error.
CFI	0.970	Comparative Fit Index indicates that the model fits very well.
TLI	0.960	Tucker-Lewis Index indicates that the model provides good fit.

The fit indices obtained in this study indicate that the model demonstrates a good overall fit with the data. The χ^2/df value is 2.5, which, being below 3, suggests that the model provides an adequate fit (Kline, 2016). The RMSEA value is calculated as 0.045, indicating a low level of error and good fit; an RMSEA value below 0.05 is considered acceptable (Browne & Cudeck, 1993). The SRMR value of 0.030 reflects a low standardized root mean square error, further supporting the model's good fit with the data (Hu & Bentler, 1999). The CFI value is determined to be 0.97, indicating excellent fit; CFI values of 0.95 or higher are deemed indicative of excellent fit (Bentler, 1990). The TLI value is calculated as 0.96, suggesting that the model aligns well with the data; TLI values of 0.95 or higher are considered indicative of good fit (Tucker & Lewis, 1973). These findings support the reliability of the analysis results.

Table 5

Correlation Analysis Results Among Variables

Variables	1	2	3	4	5	6	7	8
1.Gender	1							
1.Age	0.077	1						
3. Sport Discipline	-0.032	0.024	1					
4.Duration of Sporting Activity	-0.041	0.014	-0.013	1				
5. Social Identity	0.040	-0.013	0.092	-0.007	1			
6. Sport Entrapment	0.011	0.057	0.045	0.058	-0.007	1		
7. Negative Affectivity	0.020	0.036	0.11*	0.044	0.041	0.019	1	
8. Group Membership	-0.052	0.053	-0.041	0.015	0.022	-0.044	-0.032	1

Note: **p < 0.05, **p < 0.01, ***p < 0.001*

In this study, the correlations between participants' demographic variables and the Athlete Identity and Group Membership scales were examined. Gender showed a low positive correlation with social identity (r = 0.040) and sport entrapment (r = 0.011), while age exhibited a similar low positive correlation with group membership (r = 0.053). The discipline variable was weakly positively correlated with social identity (r = 0.092) and negative affectivity (r = 0.111*). The duration of sporting activity demonstrated a similar relationship with sport entrapment (r = 0.058) and negative affectivity (r = 0.044). No significant correlation was found between social identity and sport entrapment (r = -0.007), nor were significant correlations observed between group membership and other variables.

Table 6

Direct and Indirect Relationship Tests

				Bootstrap 5,000			
Scale	**β**	**SE**	**t-value**	**Lower Bounds (BC)**	**Upper Bounds (BC)**	**p**	**Total Effect**
SI --> SE	0.37	0.072	4.48	0.25	0.50	**0.001**	0.372
SI --> NA	0.52	0.042	6.60	0.40	0.64	**0.001**	0.522
SI --> GM	0.48	0.075	5.65	0.34	0.62	**0.001**	0.476
SI --> SE --> GM	0.39	0.097	3.87	0.20	0.58	**0.001**	0.387
SI --> NA --> GM	0.28	0.056	3.41	0.17	0.39	**0.001**	0.383
SI --> SE --> NA	0.54	0.091	6.73	0.36	0.72	**0.001**	0.545
SI --> SE --> NA --> GM	0.50	0.083	6.53	0.35	0.65	**0.001**	0.500
SE --> NA	0.25	0.034	6.47	0.18	0.32	**0.001**	0.601
NA --> GM	0.05	0.076	0.52	-0.10	0.20	0.601	0.424
SE --> NA --> GM	0.13	0.051	2.42	0.03	0.23	0.036	0.501

SK= *Social Identity,* ***SS***= *Sport Entrapment,* ***OD*** *= Negative Affectivity,* ***GA****= Group Membership SE=Standart Error***p < 0.001*

In this study, the relationships among athletes' social identity (SI), sport entrapment (SE), negative affectivity (NA), and group membership (GM) were examined. The model's fit indices were found to be at good levels (χ^2/df = 2.5, RMSEA = 0.045, SRMR = 0.030, CFI = 0.970, TLI = 0.960), and the significance level for all direct paths was determined as $p < 0.05$. Social identity was found to have positive and significant effects on sport entrapment ($\beta = 0.37$, $p < 0.001$), negative affectivity ($\beta = 0.52$, $p < 0.001$), and group membership ($\beta = 0.48$, $p < 0.001$).

Additionally, the indirect effects of social identity on group membership through sport entrapment and negative affectivity were also significantly meaningful ($\beta = 0.50$, $p < 0.001$). Sport entrapment had a significant effect on negative affectivity ($\beta = 0.25$, $p < 0.001$), and the indirect effects of negative affectivity on group membership were also significant ($\beta = 0.13$, $p = 0.036$). However, negative affectivity did not have a direct significant effect on group membership ($\beta = 0.05$, $p = 0.601$).

Table 7

Summary of Hypothesis Testing Results

Hypothesis	Status	Explanation
H1	✓ Supported	Strong direct positive effect of social identity on group membership.
H2	✗ Not tested	Psychological resilience and motivation were not measured.
H3	✓ Supported	Sport entrapment mediates link between identity and affect; both positive and negative effects present.
H4	✗ Not supported directly☑ Partially in mediation	Direct path not significant, but some indirect effects observed.
H5	✓ Supported	Multiple indirect paths confirmed via SEM.

The findings of the study demonstrate that several hypothesized relationships were empirically supported. Specifically, H1 was confirmed, indicating a strong and significant direct relationship between social identity and group membership. H3 was also supported, revealing that sport entrapment plays a mediating role between social identity and negative affectivity, thus highlighting both the reinforcing and potentially detrimental aspects of athletic over-identification. H5 received robust support through structural equation modeling, showing that group membership mediates the relationship between social identity and team spirit via multiple indirect pathways. In contrast, H2 could not be tested due to the absence of direct measures for psychological resilience and motivation within the study. H4 was not supported in terms of a direct relationship between negative affectivity and group membership; however, partial support was observed through indirect effects, suggesting that negative emotional responses may influence group belonging through more complex mechanisms. Overall, the results underscore the central role of social identity in shaping athletes' psychological and social experiences within team settings.

DISCUSSION

The findings of this study provide significant insights into the complex relationships between athletes' social identity, sport entrapment, negative affectivity, and group membership. Social identity reflects athletes' acceptance of themselves as athletes and their commitment to sport-related goals. These findings underscore the crucial role of social identity in shaping athletes' psychological and social dynamics (Brewer & Cornelius, 2001; Öztürk & Koca, 2013).

The indirect effects of social identity on group membership through sport entrapment and negative affectivity were also found to be significant. This suggests that social identity strengthens the sense of team membership through feelings of sport entrapment and emotional responses (Brewer & Cornelius, 2001; Öztürk & Koca, 2013; Uçar, 2010). While sport

entrapment emphasizes the dominant role of sports in athletes' lives, it is directly related to negative affectivity. Although negative affectivity does not have a direct significant effect on group membership, its indirect effects are significant, indicating that negative emotional responses may indirectly influence team belonging (Uçar, 2010). The findings reveal a complex network of interactions where athletes' social identities influence group membership through emotional responses such as sport entrapment and negative affectivity. Strengthening social identity and team membership can play a vital role in mitigating negative emotional responses like sport entrapment and negative affectivity. Therefore, interventions and strategies in sports psychology should focus on enhancing athletes' social identities and sense of team membership to improve their psychological well-being and performance (Brewer & Cornelius, 2001; Öztürk & Koca, 2013; Uçar, 2010). Other studies in the literature highlight the critical role of the relationship between social identity and social support in increasing athletes' capacity to cope with stress (Rees & Freeman, 2010). Similarly, Schinke et al. (2018) emphasizes the impact of athletes' social identities on their psychological resilience and performance. Understanding the effects of sport entrapment and negative affectivity on group membership is essential for optimizing athletes' motivation and team interactions. Gustafsson et al. (2008) found that feelings of sport entrapment can increase athletes' burnout levels, negatively affecting team cohesion. This underscores the importance of managing these negative psychological variables in sports psychology applications. Within the framework of social identity theory, Hogg and Abrams (1990) suggest that individuals' social identities play a critical role in adopting their roles and responsibilities within groups. This can help athletes better understand and effectively fulfill their roles and responsibilities within the team, enhancing collaboration and cohesion to improve overall performance (Bruner et al., 2013). In the Turkish literature, a study by Eskiler & Kaymakçı, (2025) examined the effects of athletes' social identities on group membership and team spirit, finding that social identity positively influences athletes' team interactions and performance. Other Turkish studies have explored how psychological variables such as sport entrapment and negative affectivity affect athletes' overall well-being and performance (Işık, 2021).

Conclusion

In conclusion, this study reveals a complex dynamic where athletes' social identities influence group membership through factors such as sport entrapment and negative affectivity. These findings highlight the importance and necessity of interventions in sports psychology to support athletes' psychological resilience and team integration.

Recommendation

Based on the findings of this study, it is recommended that sports psychologists and coaches place greater emphasis on fostering athletes' social identity. Interventions designed to strengthen team spirit and group belongingness should be implemented as part of regular training routines. Given the indirect influence of sport entrapment and negative affectivity on group membership, programs focusing on emotional regulation and psychological well-being should also be developed. Furthermore, awareness training to recognize and manage the signs of over-identification with sport should be provided to prevent the adverse effects of sport entrapment.

Limitations

This study is subject to certain limitations. First, the use of a convenience sampling method limits the generalizability of the findings to the broader athlete population. Second, the cross-sectional design of the study does not allow for conclusions about causality between the examined variables. Third, psychological resilience and motivation were not directly measured, although they were conceptually relevant. Future research should consider longitudinal designs

and include additional psychological variables to enhance the understanding of the dynamics observed.

REFERENCES

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, 107(2), 238. https://doi.org/10.1037/0033-2909.107.2.238

Brewer, B. W., & Cornelius, A. E. (2001). Norms and factorial invariance of the Athletic Identity Measurement Scale (AIMS). *Academic Athletic Journal,* 16, 103-113. https://krex.k-state.edu/server/api/core/bitstreams/e208dc2a-03af-498c-8518-1e0a9cc2d6c2/content?utm_source=chatgpt.com

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In *K. A. Bollen & J. S. Long (Eds.)*, Testing structural equation models (pp. 136-162). Sage.

Bruner, M. W., Eys, M. A., Beauchamp, M. R., & Côté, J. (2013). Examining the origins of team building in sport: A citation network and genealogical approach. Group Dynamics: *Theory, Research, and Practice,* 17(1), 30. https://doi.org/10.1037/a0030114

Clark, D. A., & Beck, A. T. (2011). Cognitive therapy of anxiety disorders: Science and practice. Guilford Press.

Çakır, E., Güleşce, M., Sargin, K., & Fatih, E. (2023). Examination of the Stress Factors Experienced by Coaches. *Journal of Education and Recreation Patterns,* 4(1), 181-191. https://doi.org/10.53016/jerp.v4i1.112

Eskiler, E., & Kaymakçı, Y. (2025). Sosyal Kimlik, Spordan Keyif Alma ve Spora Devam Etme Niyeti Arasındaki İlişki: Üniversite Sporlarında Mücadele Eden Sporcular Üzerine Bir Araştırma. *The Online Journal of Recreation and Sports, 14*(2), 184-194.

Evans, M. B., Eys, M. A., & Bruner, M. W. (2012). Seeing the "we" in "me" sports: The need to consider individual sport team environments. *Canadian Psychology/Psychologie Canadienne,* 53(4), 301. https://doi.org/10.1037/a0030202

Freeman, P., & Rees, T. (2009). How does perceived support lead to better performance? An examination of potential mechanisms. *Journal of Applied Sport Psychology,* 21(4), 429-441. https://doi.org/10.1080/10413200903222913

Freeman, P., & Rees, T. (2010). Perceived social support from team-mates: Direct and stress-buffering effects on self-confidence. *European Journal of Sport Science,* 10(1), 59-67. https://doi.org/10.1080/17461390903049998

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology,* 39(3), 281-291. https://doi.org/10.1017/S0048577201393198

Gustafsson, H., Hassmén, P., Kenttä, G., & Johansson, M. (2008). A qualitative analysis of burnout in elite Swedish athletes. *Psychology of Sport and Exercise,* 9(6), 800-816. https://doi.org/10.1016/j.psychsport.2007.11.004

Güleşce, M., & İlhan, E. L. (2024). Egzersiz ve Psikolojik Savaş: Bağımlılık, Depresyon, Anksiyete ve Stres Üzerine Bir İnceleme. *Gaziantep Üniversitesi Spor Bilimleri Dergisi*, 9(2), 275-292.

Haslam, S. A., Powell, C., & Turner, J. (2000). Social identity, self-categorization, and work motivation: rethinking the contribution of the group to positive and sustainable organisational outcomes. *Applied Psychology,* 49(3), 319-339. https://doi.org/10.1111/1464-0597.00018

Hogg, M. A., & Abrams, D. (1990). Social motivation, self-esteem and social identity. In D. Abrams & M. A. Hogg (Eds.), *Social Identity Theory: Constructive and Critical Advances* (pp. 28–47). Harvester Wheatsheaf.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Işık, U. (2021). Sporun Duyguları Tanıma Üzerindeki Etkisi. *Spor ve Rekreasyon Araştırmaları Dergisi*, 3(2), 25-36.

Kline, R. B. (2016). Principles and practice of structural equation modeling. Guilford Press.

Lally, P., & Kerr, G. (2005). The career planning, athletic identity, and student role identity of intercollegiate student athletes. *Research Quarterly for Exercise and Sport,* 76(3), 275-285. https://doi.org/10.1080/02701367.2005.10599299

Öztürk, P., & Koca, C. (2013). Examining psychometric properties of the turkish version of athletic identity measurement scale. *Spor Bilimleri Dergisi,* 24(1), 1-10. https://doi.org/10.17644/sbd.171320

Rees, T. (2007). Influence of social support on athletes. In S. Jowett & D. Lavallee (Eds.), Social Psychology in Sport (pp. 223-231). *Human Kinetics*. https://doi.org/10.5040/9781492595878.ch-016

Rees, T., & Freeman, P. (2010). Perceived social support from team-mates: Direct and stress-buffering effects on self-confidence. **European Journal of Sport Science*, 10*(1), 59-67. https://doi.org/10.1080/17461390903049998

Rees, T., Hardy, L., & Freeman, P. (2007). Stressors, social support and psychological responses to sport injury in high- and low-performance standard participants. *Psychology of Sport and Exercise,* 8(3), 427-439. https://doi.org/10.1016/j.psychsport.2010.07.002

Rees, T., Haslam, S. A., Coffee, P., & Lavallee, D. (2015). A social identity approach to sport psychology: Principles, practice, and prospects. *Psychology of Sport and Exercise*, 17, 95-105.https://doi.org/10.1007/s40279-015-0345-4

Sargın, K., & Güleşce, M. (2022). Evaluation of teacher'attitudes towards healthy eating (example of van province). *Gaziantep University Journal Of Sport Science* 7(1), 1-11. https://doi.org/10.31680/gaunjss.1000390

Schinke, R. J., Stambulova, N. B., Si, G., & Moore, Z. E. (2018). International society of sport psychology position stand: Athletes' mental health, performance, and development. *International Journal of Sport and Exercise Psychology,* 16(6), 622-639. https://doi.org/10.1080/1612197X.2017.1295557

Smith, B. (2010). The influence of disability sport on psychosocial outcomes. *International Journal of Disability, Development and Education*, 57(3), 273-287. https://doi.org/10.1080/10349121003751156

Stephan, Y., & Brewer, B. W. (2007). Perceived determinants of identification with the athlete role among elite competitors. *Journal of Applied Sport Psychology,* 19(1), 67-79. https://doi.org/10.1080/10413200600944090

Şimşek, B., Güleşçe, M., Sargın, K., Kartal, A., & Gümüşdağ, H. (2023). A study on e-sports, motivation, and physical activity triangle. *Research in Sport Education and Sciences*, 25(1), 7-13. https://doi.org/10.5152/JPESS.2023.222653

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations* (pp. 33-47). Brooks/Cole.

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*(1), 1-10. https://doi.org/10.1007/BF02291170

Uçar, M. E. (2010). *Üniversite öğrencileri ve üniversiteden mezun olan bireylerin sosyal sermaye düzeylerinin, benlik biçimlerinin ve çeşitli demografik değişkenler açısından incelenmesi* (Yayımlanmamış doktora tezi). Ankara Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara.

Van Vianen, A. E., & De Dreu, C. K. (2001). Personality in teams: Its relationship to social cohesion, task cohesion, and team performance. *European Journal of Work and Organizational Psychology,* 10(2), 97-120. https://doi.org/10.1080/13594320143000573

Weinberg, R. S., & Gould, D. (2019). *Foundations of sport and exercise psychology* (Seventh edition). Human Kinetics.

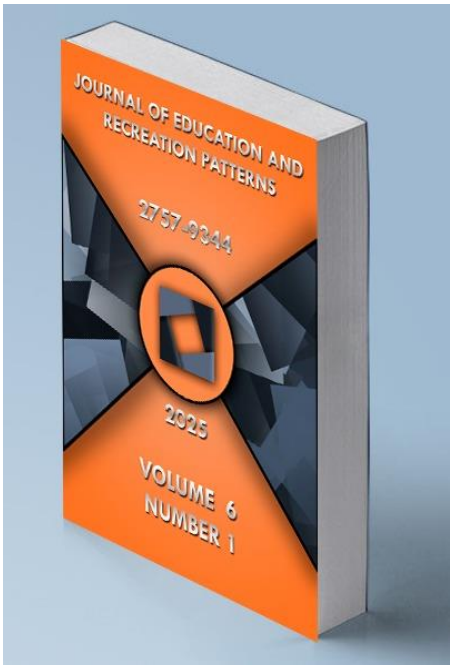
Yildirim, A., & Şimşek, H. (2011). Sosyal bilimlerde nitel araştırma yöntemleri. *Ankara: Seçkin Yayıncılık*, *8*.

Author(s)' statements on ethics and conflict of interest

Ethics statement: This study was conducted in accordance with the ethical standards set forth by the relevant academic and institutional guidelines. Prior to data collection, ethical approval was obtained from the Van Yüzüncü Yıl University Social and Humanities Publication Ethics Committee (Decision No: 19, Session: 2024/16, Date: 07.08.2024). All participants were informed about the purpose, scope, and voluntary nature of the research. Informed consent was obtained from all individuals prior to their participation. The anonymity and confidentiality of participants' responses were strictly maintained throughout the study. No physical or psychological harm was posed to the participants, and all procedures were conducted in line with the principles of the Declaration of Helsinki

Conflicts of Interest: The authors declare that there is no conflict of interest regarding the publication of this paper. No financial, professional, or personal relationships influenced the research, data interpretation, or writing of the manuscript

Funding: None



Journal of Education and Recreation Patterns (JERP)

www.jerpatterns.com

The Effect of Recreational Activities and Education on the Quality of Life of Parents of Individuals with Autism

Sibel TERCAN[1], Ümmügülsüm EKİNCİ[2]
Erdi KAYA[3]

To cite this article:

Tercan, S., Ekinci, Ü. & Kaya, E. (2025). The effect of recreational activities and education on the quality of life of parents of ındividuals with autism. *Journal of Education and Recreation Patterns (JERP), 6(1),* 199-215.
DOI: https://doi.org/10.53016/jerp.v6i1.286

[1]Akdeniz University Faculty of Sports Sciences, Türkiye, tercansibel08@gmail.com, https://orcid.org/0000-0002-7629-5154
[2]Akdeniz University Faculty of Sports Sciences, Türkiye, gulsummekinci@gmail.com https://orcid.org/0009-0007-2938-9784
[3]Akdeniz University Faculty of Sports Sciences, Türkiye, erdikaya@akdeniz.edu.tr, https://orcid.org/0000-0002-2042-4674

Note: This study was presented as an oral presentation at the 22nd International Sports Sciences Congress held in Ankara between. November 21–24.

Journal of Education and Recreation Patterns (JERP)
Volume6, Issue 1, Year 2025 ISSN:2757-9344

The Effect of Recreational Activities and Education on the Quality of Life of Parents of Individuals with Autism

Sibel Tercan[1], Ümmügülsüm Ekinci[2], Erdi Kaya[3]

ARTICLE INFORMATION
Original Research Paper

Received 06.03. 2025
Accepted 30.06. 2025

https://jerpatterns.com

June, 2025

Volume:6, No: 1

Pages:199-215

ABSTRACT
This study investigates the impact of recreational activities on the quality of life of parents raising children diagnosed with Autism Spectrum Disorder (ASD). Employing a quantitative correlational design, the research sample consists of 154 parents (133 mothers and 21 fathers) affiliated with the Akdeniz Autism Sports Club Association. Data were collected using a demographic information form and the Quality of Life in Autism – Parent Version Scale (QoLA-PV), adapted into Turkish by Özgür, Eser, and Aksu (2017). Statistical analyses included descriptive statistics, independent samples t-tests, ANOVA, Pearson correlation, and simple linear regression. The findings revealed that parental quality of life was at a moderate level and significantly influenced by family and social pressures, as well as by the perceived behavioral challenges of the child with ASD. A negative, albeit small, but statistically significant correlation was found between the severity of ASD-related difficulties and parental quality of life ($r = –.25$, $p < .01$). Furthermore, parents who reported that their child's ASD condition restricted participation in recreational activities showed lower well-being and higher perceived difficulty levels. The study highlights the critical role of structured recreational engagement in improving the psychosocial resilience of parents and underscores the need for community awareness, inclusive recreational programs, and supportive policies. These findings contribute to the limited literature on autism and recreation by emphasizing the multidimensional benefits of leisure activities for families affected by ASD.

Keywords: Autism Spectrum Disorder, Leisure Participation, Recreation, Parental Well-being, Quality of Life.

INTRODUCTION

Parents typically begin by preparing themselves for the changes, innovations, and differences that a child will bring to the family throughout their life journey. Throughout the period from pregnancy to childbirth, parents may have countless expectations for the new child joining the family (Ardıç, 2013). The process in which these expectations emerge is referred to as "imagery" (Berger, 2008). Before their child is born, parents consider many details about their child's life, ranging from gender to the school they will attend. When parents expect to have a healthy child but discover that their child has special needs, they are forced to adapt both to the new family member and to the challenges arising from the child's specific diagnosis (Akkök, 2005).However, the birth of a child with special needs shatters all the expectations that parents had formed during the imagery phase (Ardıç, 2013).Moreover, many parents struggle to accept their child's special condition. This emotional struggle is frequently accompanied by elevated stress and reduced well-being, as demonstrated in recent studies on parental burden (Sharma et al.,2023). In addition to this emotional impact, the presence of a child with a special diagnosis significantly affects the roles and responsibilities of all family members. Families often face physical, social, and financial challenges, which can lead to deterioration in family relationships, and many family members struggle to cope with this process (Görgü, 2005). During this process, differences in opinion arise within families, and the family unity is often seen to fragment. As a result of the disruption of family unity, the life of the individual with special needs becomes even more challenging.

Autism Spectrum Disorder (ASD), which has been rapidly increasing in prevalence, is a neurodevelopmental disorder characterized by limited social communication and interaction, as well as repetitive behaviors (American Psychological Association [APA], 2013; Centers for Disease Control and Prevention [CDC], 2008). Recent meta-analytic evidence confirms a consistent global increase in ASD diagnoses over the past two decades, highlighting the growing public health relevance of this disorder (Huang et al., 2023). Considering its mild and severe forms, autism is one of the most common disorders observed in early childhood (Korkmaz, 2000). Autism is 4 to 5 times more common in males than in females; however, in females, it is more likely to be associated with severe intellectual disability (Güleç & Köroğlu, 1998).Children with autism constitute a group among children with special needs in which problem behaviors are significantly observed. Various forms of problem behaviors such as hyperactivity, aggression, self-injury, inappropriate fears, tics, insomnia, tantrums, and eating disorders are commonly reported (Korkmaz, 2004).

Recreation holds a significant role for individuals with autism, who experience serious challenges in interpersonal social relationships, communication, and behavior. Individuals with Autism Spectrum Disorder (ASD) often participate in activities together with their family members. They engage in more limited activities compared to children without special needs. This situation appears to lead individuals with autism into a passive lifestyle (Özen, 2015). Additionally, individuals with special needs who participate in leisure activities such as sports, artistic activities, or nature-based activities experience positive physical and mental development. Structured recreational interventions have been shown to enhance life satisfaction and reduce psychological distress in individuals with ASD (Garcia-Villamisar & Dattilo, 2010). In this regard, recreation plays a crucial role in strengthening interactions between individuals with and without special diagnoses and in fostering awareness. Building on this perspective, "recreation is a multidisciplinary field that encompasses voluntary activities performed during leisure time without causing harm to the environment, aiming to enhance an individual's quality of life" (Eccles, 2005). Additionally, this definition highlights that quality of life is an integral part of the concept of recreation. The fact that parents of individuals with autism often

experience a loss of subjective well-being and difficulties in socialization negatively impacts their quality of life (Karabilgin, 2001). The desire for a long and healthy life encourages individuals to engage in recreational activities that provide physical and mental relaxation (Sağcan, 1986). In this context, on average, people spend one-fourth of their lives engaging in recreational activities. Recreational activities encompass individuals of all ages and abilities, including both healthy individuals and those with special needs, and are designed to align with their tendencies towards a fulfilling and happy life. Building on this perspective, it is possible to emphasize the importance of integrating recreational activities into the lives of individuals with special needs and their parents to enhance their quality of life. In terms of health, recreation is basically evaluated in two ways. The first one is related to recreation services for healthy people. Another one is recreational activities for people with special diagnoses or health problems within the scope of improvement and well-being (Tütüncü, 2008).

In light of all this information, it can be stated that enjoying life is closely associated with participation in recreational activities. In terms of opportunities available to individuals, recreation holds a particularly significant place for everyone, but especially for parents of individuals with autism (Iso-Ahola,1980).In this context, the aim of the present study is to examine in depth the relationship between the participation of parents of children with Autism Spectrum Disorder (ASD) in recreational activities and their quality of life. Current research emphasizes that participation in recreational and sportive activities enhances parents' emotional resilience and improves their social functioning (Genç, 2019). Within this framework, it can be asserted once again that enjoying life is closely linked to participation in recreational activities. For individual parents with autism in particular, such participation plays a critical role in both the personal and social aspects of quality of life. Recent studies underline that engagement in recreational and sportive activities strengthens emotional resilience and enhances social functioning among these parents (Sharma, Jain, & Meena, 2023).From this perspective, the present study was designed to investigate the relationship between the participation of parents of children with ASD in recreational activities and their quality of life. It is anticipated that this study will further highlight the significance of recreational activities in enhancing the quality of life of these parents. The literature on the factors that improve the quality of life of parents of children with autism remains limited. Therefore, this study aims to explore the impact of participation in recreational activities on the quality of life of parents of children with autism.

The research focuses on activities that may help alleviate negative emotional effects such as stress and social isolation that parents of children with autism often experience in their daily lives. In this regard, by examining the participation of parents of children with autism who are involved in the Akdeniz Autism Sports Club Association, this study seeks to fill a significant gap in the literature.

METHOD

Purpose of Research

The primary aim of this study is to examine the relationship between parents' participation in recreational activities and their quality of life among families of individuals with autism. Specifically, the study seeks to investigate whether and how the frequency and type of recreational engagement are associated with perceived quality of life and the challenges faced by parents. A quantitative correlational research design was employed, as this design enables the investigation of the strength and direction of relationships between variables without manipulation (Creswell, 2014).

Research Design

This study was conducted using a correlational research design, which is commonly applied to investigating the relationships between variables without manipulating them. This approach was selected to examine the association between parents' participation in recreational activities and their quality of life, and to identify the strength and direction of this relationship. Correlational design is particularly well-suited for exploring naturally occurring variations in human behavior and perception, making it appropriate for research involving psychosocial and lifestyle variables such as recreation and well-being (Creswell, 2014). By employing this design, the study aimed to gain a deeper understanding of how engagement in recreational activities relates to the lived experiences and quality of life of parents of children with Autism Spectrum Disorder (ASD).

Population and Sampling

The population of the study consists of parents of children with autism living in the city center of Antalya. The sample group, on the other hand, consists of families of children with autism who are receiving education at the Akdeniz Autism Sports Club Association. The research was conducted using a purposive sampling method. Purposive sampling is a method in which participants possessing certain characteristics relevant to the research purpose are deliberately selected (Baltacı, 2018). In this study, participants were selected from among the parents of children enrolled in the Akdeniz Autism Sports Club Association, as the research aimed to examine the quality of life of parents of children with autism and their participation in recreational activities. Parents from this club were chosen considering that they have a higher level of awareness regarding their children's special needs and that their participation rates in recreational activities may vary. Participants were included in the study based on voluntary participation. A total of 154 parents participated in the research, comprising 133 mothers (86.4%) and 21 fathers (13.6%). In this study, the selection of participants was strictly limited to parents of children with autism. This approach ensured the formation of a sample group appropriate to the purpose of the research and allowed the study to specifically reflect experiences unique to parents of children with autism.

Data Collection Tools

In order to collect the data necessary to achieve the research objectives, a two-part survey form was utilized. The first part consisted of a demographic information form designed by the researcher to obtain participants' socio-demographic characteristics. The second part comprised a standardized measurement tool to assess parental quality of life and perceptions of autism-related challenges.

Demographic Information Form: The demographic section included items related to the parents' age, gender, marital status, educational background, monthly income, place of residence, physical health status, and recreational activity participation with their children. This form was developed by the researcher based on relevant literature to provide a comprehensive profile of the sample.

Quality of Life in Autism Questionnaire – Parent Version: To assess parents' quality of life and their perceptions of autism-related challenges, the "Quality of Life in Autism – Parent Version" (QoLA-PV) was employed. The original version of the scale was developed by Eapen et al. (2014), and it was adapted into Turkish by Özgür, Eser, and Aksu (2017). Validity of the Turkish version was ensured through expert review and factor analysis. The Cronbach's alpha coefficient for internal consistency was reported as .89 in the Turkish adaptation, indicating high reliability.

The QoLA-PV consists of two subscales:

Scale A comprises 28 items rated on a 5-point Likert scale (1 = Not at all, 5 = Very much) and evaluates parents' self-perceived quality of life.

Scale B includes 20 items rated on a 5-point Likert scale (1 = Very problematic, 5 = Not a problem), measuring how problematic parents perceive their children's autism-related behaviors and challenges.

Data Analysis

The data collected for the study were analyzed using IBM SPSS Statistics version 26.0. Initially, the internal consistency of the measurement instruments was assessed using Cronbach's alpha coefficients. Both scales used in the study—the Parental Quality of Life Scale and the Difficulties Experienced by the Child with ASD Scale—demonstrated excellent reliability, with alpha values exceeding .90. To evaluate whether the data met the assumptions of parametric testing, skewness and kurtosis values were examined. The results indicated that all values fell within the acceptable range of –2 to +2, suggesting that the distribution of the data was approximately normal (George & Mallery, 2010). Based on this assessment, parametric tests were deemed appropriate for further analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the demographic and contextual characteristics of the participants. Inferential statistical analyses were then employed to examine group differences and relational patterns among variables. Independent samples t-tests and one-way analysis of variance (ANOVA) were conducted to compare differences in the dependent variables across various demographic and categorical predictors. When significant differences were identified in the ANOVA tests, Tukey's Honestly Significant Difference (HSD) post-hoc test was employed to determine the source of these differences. In addition, Pearson product-moment correlation analysis and simple linear regression analysis were conducted to explore the associations and predictive relationships between variables. All statistical analyses were conducted at a 95% confidence level, and a significance level of $p < .05$ was adopted throughout the study.

Table 1

Cronbach's Alpha, Skewness, and Kurtosis Values for Scale Scores

Scale	Cronbach's Alpha (α)	Skewness	Kurtosis
Parental quality of life	0.95	0.67	-0.06
Difficulties Experienced by the Child with ASD	0.94	0.18	-0.93

Upon examining the table, it is observed that both scales used in the study exhibit a high level of reliability ($\alpha > 0.80$).The skewness and kurtosis values examined to determine normal distribution fall within the acceptable range of -2 to +2, indicating that the data conform to a normal distribution(George and Mallery,2010).

One-Way ANOVA and Independent Samples T-Test were used to compare scale scores based on demographic variables. Pearson Correlation Analysis was used to determine the relationship between scale scores, while Simple Linear Regression Analysis was applied to examine the impact of the challenges experienced by children with ASD on parental quality of life.

FINDINGS

This section presents the results of descriptive and inferential analyses conducted to examine parental quality of life and the difficulties experienced by children with Autism Spectrum Disorder (ASD) across various demographic and contextual variables.

Table 2

Frequency and Percentage Distributions of Demographic Information of Participating Parents

Variable	Category	F	%
Parent	Mother	133	86.4
	Father	21	13.6
Age group	22-31 years	18	11.7
	32-41 years	73	47.4
	42-51 years	45	29.2
	51+ years	18	11.7
Marital status	Married	117	76.0
	Child with ASD lives with mother / father separated	34	22.1
	Child with ASD lives with father / mother separated	3	1.9
Education level	Primary school	32	20.8
	Middle school	24	15.6
	High school	58	37.7
	University	40	26.0
Monthly income level	8,500 TL and below	85	55.2
	Above 8,500 TL	69	44.8
Place of residence	City center	109	70.8
	District center	32	20.8
	Village (neighborhood)	13	8.4
Physical health condition	Yes	20	44.6
	No	134	87.0

Upon examining the table, it is observed that 86.4% of the participating parents are mothers of children with ASD, while 13.6% are fathers. Additionally, 11.7% of the participants are in the 21-31 age group, 47.4% in the 32-41 age group, 29.2% in the 42-51 age group, and 11.7% are 51 years or older. Furthermore, 76% of the parents are married, while in 22.1% of cases, the child with ASD lives with the mother, and the father is separated, and in 1.9% of cases, the child with ASD lives with the father, and the mother is separated.Among the participating parents, 20.8% have a primary school education, 15.6% have a middle school education, 37.7% are high school graduates, and 26% have a university degree. Additionally, 55.2% have a monthly income of 8,500 TL or less, while 44.8% earn more than 8,500 TL per month.Among the participants, 70.8% reside in the city center, 20.8% in a district center, and 8.4% in a village (neighborhood). Additionally, 44.6% of the participating parents reported having physical health issues.

Table 3

Frequency and Percentage Distributions of Participating Parents Regarding Their Children with ASD and Recreational Activities

Variable	Category	f	%
Presence of Another Child Diagnosed with Autism	Yes	20	13.0
	No	134	87.0
Institutional Support Status	Non-Governmental Organizations	94	61,0
	Professional Support	60	39.0
Recreational Activities Conducted with the Child with ASD *	Nature Walks	101	65.6
	Picnic	82	53.2
	Exercise	52	33.8
	Exhibition	19	12.3
	We Do Not Participate in Any Activities	16	9.7
Frequency of Participation in Recreational Activities	1-2 times per week	62	44.6
	1-2 times every two weeks	31	22.3
	1-2 times every three weeks	19	13.7
	1-2 times every four weeks	27	19.4
Inability to Engage in Activities Due to Family and Social Pressure in Free Time	Yes	100	64.9
	No	54	35.1
Impact of the Child's ASD Condition on Participation in Recreational Activities	Yes	123	79.9
	No	31	20.1

Among the participants, 13% have another child diagnosed with autism. Additionally, 61% of the participating parents receive support from non-governmental organizations (NGOs), while 39% receive professional support. Among the participants, 65.6% engage in nature walks with their child with ASD, 53.2% go on picnics, 33.8% participate in exercise, 12.3% attend exhibitions, and 10.4% report not engaging in any activities.Among the participants who engage in recreational activities with their child with ASD, 44.6% participate once or twice per week, 22.3% engage once or twice every two weeks, 13.7% participate once or twice every three weeks, and 19.4% engage once or twice every four weeks. Of the parents who participated in the study, 64.9% reported that they were unable to engage in leisure activities due to family and social pressure, and additionally, 79.9% stated that their child's disability related to ASD hindered their participation in such activities.

Table 4

Descriptive Statistics (M, SD, Min, Max) for the Parental Quality of Life and Challenges Experienced by Children with ASD

Scale	N	M	SD	Min	Max
Parental Quality of Life (OYKA-AB, Section A)	154	2.87	0.77	1.00	5.00
Perceived Difficulties of the Child with ASD (OYKA-AB, Section B)	154	3.21	0.90	1.00	5.00

Scores were obtained from the Otizmde Yaşam Kalitesi Anketi – Anne-Baba Sürümü (OYKA-AB), which was adapted into Turkish by Özgür et al. (2017) from the original

instrument developed by Eapen et al. (2014). Section A includes 28 items evaluating parental quality of life on a 5-point Likert scale (1 = never, 5 = very much). Section B includes 20 items assessing the extent to which ASD-related difficulties are perceived as problematic by parents (1 = very problematic, 5 = not a problem). Higher scores indicate higher perceived quality of life and fewer perceived difficulties.

The results presented in Table 4 indicate that both the parental quality of life and the level of difficulties experienced by children with ASD were reported at a moderate level, as reflected by the mean scores on both scales.

Table 5

One-Way ANOVA Analysis Comparing the Quality of Life of Participating Parents and the Level of Challenges Experienced by Their Children with ASD Based on Parents' Educational Backgrounds

Scale	**Educational Level**	**N**	**M**	**SD**	**F**	**p**	Between-Group Difference	**η^2**
Parental Quality of Life	Primary School	32	2.82	0.73	0.744	0.528	-	0.010
	Middle School	24	2.76	0.77				
	High School	58	2.83	0.75				
	University	40	3.02	0.85				
Difficulties Experienced by the Child with ASD	Primary School	32	3.05	0.79	3.666	0.014	3>4	0.070
	Middle School	24	3.06	0.89				
	High School	58	3.51	0.89				
	University	40	3.00	0.91				

A one-way ANOVA was conducted to examine whether parental quality of life and the perceived difficulties experienced by children with ASD differed according to parents' educational background (primary school, middle school, high school, university). The results indicated that there was no statistically significant difference in parental quality of life across educational levels, $F(3, 150) = 0.744$, $p = .528$, $\eta^2 = .010$. The effect size was small, suggesting that educational background had minimal influence on how parents perceived their own quality of life.

However, a statistically significant difference was found in the perceived level of difficulties experienced by children with ASD across educational groups, $F(3, 150) = 3.666$, $p = .014$, $\eta^2 = .070$. The effect size was moderate. Post hoc comparisons using the Tukey HSD test revealed that parents with a high school education reported significantly higher levels of perceived difficulties compared to those with a university degree ($p < .05$).

Table 6

Independent Samples t-Test Comparing Parental Quality of Life and Perceived Difficulties Based on Family and Social Pressure Status

Variable	Pressure Status	N	M	SD	*t*	*p*	Cohen's *d*
Parental Quality of Life	Yes	100	2.67	0.72	–4.585	<.001	0.77
	No	54	3.23	0.74			
Difficulties Experienced by the Child	Yes	100	3.35	0.90	2.711	.007	0.45
	No	54	2.95	0.86			

*p*values< .001

Group comparison is based on participants' response to the item: "Are you unable to engage in leisure activities due to family and social pressure?"An independent samples t-test was conducted to compare parental quality of life and the perceived difficulties experienced by children with ASD based on whether parents reported being unable to engage in leisure activities due to family and social pressure. The results indicated that parents who reported such pressure had significantly lower quality of life scores (M = 2.67, SD = 0.72) compared to those who did not (M = 3.23, SD = 0.74), t(152) = –4.59, p < .001, Cohen's d = 0.77. According to Cohen's (1988) guidelines, this represents a large effect size, suggesting that family and environmental pressure has a substantial negative impact on parental well-being. Furthermore, the same group of parents reported significantly higher perceived difficulty levels for their children with ASD (M = 3.35, SD = 0.90) than those without such pressure (M = 2.95, SD = 0.86), t(152) = 2.71, p = .007, Cohen's d = 0.45. This indicates a moderate effect size, implying that family and social restrictions may also elevate parental perception of autism-related challenges.

Table 7

Independent Samples T-Test Results on Parental Quality of Life and the Impact of Children's ASD Condition on Participation in Recreational Activities

Scale	Restriction Status	N	M	SD	T	p	Cohen's d
Parental Quality of Life	Yes	123	2.71	0.70	-5.345	.000	1.054
	No	31	3.48	0.76			
Difficulties Experienced by the Child with ASD	Yes	123	3.37	0.85	4.520	.000	.911
	No	31	2.60	0.84			

An independent samples t-test was conducted to compare parental quality of life and the perceived difficulties experienced by children with ASD based on whether parents reported being unable to participate in leisure activities due to family and social pressure. Results showed that parents who reported such pressure had significantly lower quality of life scores (M = 2.67, SD = 0.72) compared to those who did not experience this restriction (M = 3.23, SD = 0.74), t(152) = –4.59, p < .001, Cohen's d = 0.77. This indicates a large effect size, suggesting that family and environmental pressure meaningfully impacts parental well-being. Similarly, the perceived difficulties experienced by children with ASD were significantly higher among parents who reported such pressure (M = 3.35, SD = 0.90) than those who did not (M = 2.95, SD = 0.86), t(152) = 2.71, p = .007, Cohen's d = 0.45. This represents a moderate effect size,

indicating that social restrictions also contribute to heightened perceptions of autism-related challenges.

Table 8

Pearson Correlation Between Perceived Difficulties Experienced by Children With Autism Spectrum Disorder and Parental Quality of Life

Variable	1	2
1. Difficulties Experienced by the Child with ASD	–	–.25**
2. Parental Quality of Life	–.25**	–

Note. $N = 154$. $p < .01$. Correlation computed using Pearson product-moment correlation coefficient.

A Pearson product-moment correlation analysis was conducted to examine the relationship between the perceived difficulties experienced by children with Autism Spectrum Disorder (ASD) and the quality of life levels of their parents. The analysis revealed a significant negative correlation, $r = –.25$, $p = .002$, indicating that as the perceived level of difficulty increased, parental quality of life decreased. According to Cohen's (1988) criteria, this represents a small but statistically meaningful association.

Table 9

Simple Linear Regression Predicting Parental Quality of Life From Perceived Difficulties Experienced by Children With Autism Spectrum Disorder

Predictor Variable	B	SE B	β	t	p
Constant	3.548	0.225	–	15.77	< .001
Difficulties Experienced by the Child with ASD	–0.213	0.067	–.25	–3.15	.002

Note. $R = .25$, $R^2 = .06$, $F(1, 152) = 9.36$, $p = .002$. p values < .001 are reported as "< .001" per APA 7 guidelines. Standardized beta is represented by β.

A simple linear regression analysis was conducted to determine whether the perceived difficulties experienced by children with Autism Spectrum Disorder (ASD) significantly predicted the quality of life levels of their parents. The results indicated that the overall regression model was statistically significant, $F(1, 152) = 9.363$, $p = .002$, with an R of .248 and an R^2 value of .055. This suggests that approximately 5.5% of the variance in parental quality of life can be explained by the perceived difficulty levels of their children.

The unstandardized regression coefficient (B) for perceived difficulties was –0.213 (SE B = 0.067), indicating that for every one-unit increase in perceived difficulty, parental quality of life decreased by 0.213 units, holding other variables constant. The standardized beta coefficient was also significant ($\beta = –.248$, $t = –3.151$, $p = .002$). According to Cohen's (1988) criteria, the effect size ($R^2 = .055$) represents a small but statistically meaningful effect.

DISCUSSION AND CONCLUSION

When the research findings are examined, it is observed that the quality of life of the participating parents and the difficulty levels experienced by their children with ASD are at a moderate level. Şekeroğlu (2018), in their study with caregivers of individuals with ASD, found that their quality of life was at a "moderate" level. In the emergence of these results, it can be thought that a number of mental and physical problems that occur in parents with a child with autism affect their quality of life. In our literature review, it has been stated that the physical and psychological changes experienced by families of individuals with autism negatively affect their quality of life (Balkanlı, 2008). In this regard, improving an individual's quality of life, strengthening interpersonal bonds, and encouraging their participation in society are of great importance. Such a situation can be said to also impact the leisure time of families struggling with the challenges of having a child with autism. When parents spend their leisure time in a meaningful and beneficial way, many positive outcomes are reflected in their lives (Eccles, 2005; Güngörmüş et al., 2017; Kim et al., 2018; Serdar et al., 2017).It has been observed that individuals who actively participate in leisure activities experience a positive impact on their life satisfaction, gaining various physical, social, and psychological benefits. Additionally, such participation leads to a reduction in a sedentary lifestyle, increased socialization, and an overall improvement in quality of life (Perrin, 1992).

When examining the education level variable, it was found that parents' quality of life did not differ statistically significantly. However, the perception of difficulties experienced by children with ASD showed statistically significant differences based on the education level of the parents. Kaya (2020), in their study with parents who participated in sports classes, and Shu (2009), in their study with caregivers of individuals with autism, found no significant difference based on education level, which is consistent with the findings of our study. Çam and Özkan (2009) stated that the education level of families with autistic children is higher compared to the parents of undiagnosed individuals. The findings of this study do not align with the results of our research. The education level of parents of individuals with autism affects their quality of life. It is possible to say that parents with a higher education level respond more consciously to the problem behaviors of an individual with autism. The study showed that education level does not directly affect quality of life but rather influences the perception of difficulties. This suggests that education level may have indirect effects on the psychosocial well-being of parents. While parents with higher levels of education may be better able to assess the challenges their children experience, parents with lower education levels may perceive greater difficulties due to limited psychosocial support. Although the impact of education level on quality of life is generally found to be positive in literature, the findings of this study contradict this trend. This indicates that quality of life is shaped not only by education but also by socio-economic factors and social support (Choi and Lee, 2021). According to the variable of being unable to engage in desired leisure activities due to family and environmental pressure, it was found that the quality of life of parents who reported being unable to participate in leisure activities was significantly lower. In contrast, the perception level of difficulties experienced by children with ASD of these parents was significantly higher. It is believed that parents of individuals with autism experience severe stress and anxiety due to their limited or minimal participation in social life and leisure activities, as well as their feelings of not receiving sufficient help and support (Cassidy et al., 2008; Ludlow et al., 2011; Nealy et al., 2012; Woodgate et al., 2008).Obsessive behaviors, which are commonly observed in individuals with autism, are often perceived negatively by society. Many parents experience a sense of not being accepted by society. Parents not only struggle with the challenges that come with autism but also experience a decline in their quality of life due to the societal pressure they face. Consistent with our findings, Savran (2020), in their study with individuals with special needs, found that

those who were unable to participate in leisure activities had significantly lower quality of life. Additionally, it was observed that parents experienced emotions such as stress and sadness. The social adaptation difficulties and stereotypical movements frequently observed in individuals with autism are often met with fear and panic by society. Labeling and social exclusion stemming from the surrounding community distance individuals with autism and their parents from society. Supporting our study, Mengi and Çopuroğlu (2014), in their research with individuals with autism, stated that exclusion due to societal pressure narrows the social environment of individuals with autism and their families, leading to a decline in their quality of life. Therefore, it can be said that raising societal awareness about autism is essential to integrating families and their children into social life. According to the variable of quality of life and the impact of their child's ASD condition on participation in recreational activities, it was found that parents who stated that their child's condition prevents them from engaging in recreational activities had a significantly lower quality of life. In contrast, these parents had a significantly higher perception level of the difficulties experienced by their children with ASD. In our literature review, studies on the recreational activities of parents with special needs children have shown that the majority can only engage in such activities when they are alone. Additionally, they stated that participating in any activity with their child with autism is stressful for them. Since activity programs are organized within the private sector, the associated costs at times can economically impact parents. Consistent with the findings of our study, Alıcı et al. (2020), in their research with parents of children with autism, found that these individuals with special needs restrict their parents' participation in recreational activities and negatively affect their quality of life. Additionally, parents stated that they mostly prefer to participate in recreational activities with their spouses and friends. Numerous studies have shown that parents' participation in recreational activities enhances social adaptation, helps alleviate anxiety, and contributes to making their lives more meaningful. Studies on the behavioral problems of individuals with autism spectrum disorder have indicated that those who lack appropriate communication skills and exhibit intense problem behaviors hinder their parents' participation in leisure activities (Dattilo et al., 1996; Driver et al., 1999; Lecavalier et al., 2006). As a result, parents tend to seek alternatives such as special education programs or caregiver services for their children. Murphy and Carbone (2008), in their study, stated that another factor preventing participation in recreational activities is financial constraints. It has been stated that participation in recreational activities is hindered due to the lack of facilities and spaces, as well as the higher expenses incurred by parents of children with special needs compared to other parents (Aydın & Sarol, 2014).In their study with families of children with autism, Çam and Özkan (2019) found that parents stated they were unable to participate in any activities because they dedicated most of their time to their children, which negatively affected their quality of life. In his study, Kazak and Marvin (1984) emphasized that the restriction of parents' leisure time increases their stress levels and negatively affects their quality of life. Supporting our study, Heah et al. (2007) stated in their research that individuals with special needs face difficulties in participating in leisure activities due to various barriers (such as social pressure, stigma, and financial constraints), which in turn make their living conditions more challenging.

According to the Pearson correlation analysis conducted to examine the relationship between the difficulty levels experienced by children with autism spectrum disorder and the quality-of-life levels of their parents, a significant negative and low-level correlation was found between the difficulty levels of children with ASD and their parents' quality of life. As a result, it has been determined that as the difficulty levels experienced by individuals with autism increase, the quality of life of their parents decreases. Indeed, our literature review revealed the existence of studies supporting our research, showing that the quality of life of parents of individuals with autism spectrum disorder significantly decreases due to their children's limited social interactions, behavioral problems, and various societal and physical challenges (Balkanlı,

2008).When parents spend their leisure time in a meaningful and beneficial way, many positive outcomes are reflected in their lives. It can be said that active participation in leisure activities positively impacts life satisfaction, providing individuals with various physical, social, and psychological benefits. Additionally, it leads to a reduction in a sedentary lifestyle, promotes socialization, and ultimately enhances overall quality of life.

Recommendations for Future Research

The desired lifestyle for parents of individuals with Autism Spectrum Disorder (ASD) is to engage in appropriate activities with their children without being marginalized by society. Therefore, it is essential to first raise public awareness about autism. Additionally, it is observed that many parents only learn about the definition of autism when a family member is diagnosed with special needs. In this regard, seminars aimed at raising public awareness should be organized.

To address one of the primary challenges faced by individuals with autism difficulty in socialization both individual and educational group activities should be promoted. Nature-based programs, such as outdoor activities and group sports, could help improve parents' physical health while also fostering stronger social bonds with their children. Furthermore, stress-reducing recreational programs, such as yoga and meditation, may enhance parents' psychosocial resilience and strengthen their ability to cope with challenges. Educational interventions are also crucial for improving the quality of life of parents. Through parent education programs, guidance can be provided on stress management and effective communication with their children. In addition, family support programs such as online support groups and local social support initiatives could offer psychosocial support to parents, helping to reduce feelings of loneliness and strengthen social connections. Government-supported respite homes or life and sports centers, where parents can entrust their children during their free time, should be expanded. Moreover, the dissemination of public service announcements themed around autism and the integration of autism-related awareness into the national education curriculum by the Ministry of National Education could ensure that students receive formal education on this topic, thereby increasing overall awareness.

Methodological Limitations

This study has several methodological limitations. First, there is a limitation regarding the sample. The research was conducted only with parents who are members of the Akdeniz Autism Sports Club Association, which resulted in participants being selected from a specific region. This situation limits the generalizability of the findings. Studies involving parents from different geographical areas or diverse cultural backgrounds could enhance the broader validity of the findings. Another limitation is the use of a self-reporting method. The responses provided by parents regarding their quality of life and the challenges faced by their children are based on personal evaluations. This may introduce bias, as participants might evaluate themselves in a more positive or negative manner. Therefore, the use of more objective data collection tools in future research could be beneficial. Finally, the restriction to a single region constitutes another limitation. Since the study was conducted only with parents from a specific region, studies involving participants from different regions could reveal different outcomes regarding quality of life and perceptions. Thus, including a broader sample and participants from various regions in future studies could improve the generalizability of the findings.

Note: This study was presented as an oral presentation at the 22nd International Sports Sciences Congress held in Ankara between. November 21–24, 2024, and was published as an abstract in the congress proceedings book.

REFERENCES

Akkök, F. (2005). *Yaşamın diğer bir penceresi: Otistik özelliklere sahip çocuk babaları ve duygular*. Özgür Yayıncılık.

Alıcı, Y., Halil, S., & Aydın, İ. (2020). Leisure and physical activity with the perspective of the parent who has child wıth aitism. *Spormetre Journal of Physical Education and Sport Sciences*, *18*(1), 144–155. https://doi.org/10.33689/spormetre.589006

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5 tanı ölçütleri başvuru el kitabı* (E. Köroğlu, Çev.). Boylam Psikiyatri Enstitüsü Hekimler Yayın Birliği.

Ardıç, A., & Çaykartar, A. (Eds.). (2012). *Özel gereksinimli çocuk ve aile*. Vize Yayıncılık.

Aydın, İ., & Sarol, H. (2014). Examination of constraints on physical activity programs participation to individuals with autism. *International Journal of Science Culture and Sport*, *1*, 870–880. https://doi.org/10.14486/IJSCS162

Balkanlı, N. (2008). *To study the relation between the quality of life, satisfaction with life, and hopelessness level for mothers having and not having an autistic child*. Master's thesis, Maltepe University, Institute of Social Sciences.

Berger, E. H. (2008). *Parents as partners in education: Families and schools working together* (7th ed.). Pearson Prentice Hall.

Cassidy, A., McConkey, R., Kennedy, M., & Slevin, E. (2008). Preschoolers with autism spectrum disorders: The impact on families and the supports available to them. *Early Child Development and Care*, *178*(2), 115–128.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson Education.

Çam, O., & Özkan, Ö. (2009). Otistik çocuk sahibi ailelerin yaşam kalitelerinin incelenmesi. *Özveri Dergisi*, *6*(2), 1425–1438.

D'Agata, E., Sanders, M., & Carter, M. (2023). Leisure, employment, community participation, and quality of life in caregivers of autistic children. *Journal of Autism and Developmental Disorders*, *53*(4), 1234–1245.

Dattilo, J., Hoge, G., & Malley, S. M. (1996). Interviewing people with mental retardation: Validity and reliability strategies. *Therapeutic Recreation Journal*, *30*, 163–178.

Driver, B., Brown, P., & Peterson, G. L. (1991). *Benefits of leisure*. Venture.

Eapen, V., Crncec, R., Walter, A., & Tay, K. P. (2014). Conceptualisation and development of a quality of life measure for parents of children with autism spectrum disorder. *Autism Research and Treatment*, *2014*, Article ID 964614. https://doi.org./10.1155/2014/964614

Eccles, J. S. (2005). Studying the development of learning and task motivation. *Learning and Instruction*, *15*(2), 161–171.

Garcia-Villamisar, D., & Dattilo, J. (2010). Effects of a leisure program on quality of life and stress of individuals with ASD. *Journal of Intellectual Disability Research*, *54*(7), 611–619.

Genç, A. (2019). The effects of recreational and sportive activities on the quality of life of mothers with autistic children. *International Education Studies*, *12*(7), 32–38.

George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference, 17.0 update* (10th ed.). Pearson.

Güleç, C., & Köroğlu, E. (1998). *Psikiyatri temel kitabı*. Hekimler Yayın Birliği.

Heah, T., Case, T., McGuire, B., & Law, M. (2007). Successful participation: The lived experience among children with disabilities. *Canadian Journal of Occupational Therapy*, *74*(1), 38–47.

Hoffman, L., Marquis, J., Poston, D., Summers, J. A., & Turnbull, A. (2006). Assessing family outcomes: Psychometric evaluation of the Beach Center Family Quality of Life Scale. *Journal of Marriage and Family*, *68*(4), 1069–1083.

Huang, J., Zhu, T., Qu, Y., & Mu, D. (2023). The global prevalence of autism spectrum disorder: A three-level meta-analysis. *Autism Research*, *16*(1), 8–23.

Iso-Ahola, S. E. (1980). *The social psychology of leisure and recreation*. Wm. C. Brown Company Publishers.

Karabilgin, Ö. S. (2001). *Balatçık Sağlık Ocağı Bölgesinde 15-49 yaş kadınlarda depresyon prevalansı ve WHOQOL-BREF ölçeği ile yaşam kalitesinin değerlendirilmesi*. Doctoral dissertation, Ege University, Institute of Health Sciences.

Kaya, L., Gültekin, İ. G., Şahin, M., & Kırandı, Ö. (2020). Life quality levels of the parents of the children with autism spectrum disorder who take sport classes. *Journal of Sports Education*, *4*(2), 190–202.

Kazak, A. E., & Marvin, R. S. (1984). Differences, difficulties, and adaptation: Stress and social networks in families with a handicapped child. *Family Relations, 33*(1), 19–25. https://doi.org/10.2307/583419

Korkmaz, B. (2000). *Yağmur çocuklar: Otizm nedir?*. Doğan Kitapçılık.

Korkmaz, Ö. (2004). *Müzik öğretmenlerinin motivasyon kaynakları ve mesleki tükenmişlikleri* Master's thesis, Marmara University, Institute of Educational Sciences, Department of Fine Arts.

Lecavalier, L., Leone, S., & Wiltz, J. (2006). The impact of behavior problems on caregiver stress in young people with autism spectrum disorders. *Journal of Intellectual Disability Research*, *50*(3), 172–183.

Ludlow, A., Skelly, C., & Rohleder, P. (2011). Challenges faced by parents of children diagnosed with autism spectrum disorder. *Journal of Health Psychology, 17*(5), 702–711. https://doi.org/10.1177/1359105311422955

Mengi, A., & Çopuroğlu, Y. C. (2014). Toplumsal dışlanma ve otizm [Social exclusion and autism]. *International Periodical for the Languages, Literature and History of Turkish or Turkic*, *9*(5), 607–626. https://doi.org/10.7827/TurkishStudies.6993

Mugno, D., Ruta, L., D'Arrigo, V. G., & Mazzone, L. (2007). Impairment of quality of life in parents of children and adolescents with pervasive developmental disorder. *Health and Quality of Life Outcomes*, *5*, 22. https://doi.org/10.1186/1477-7525-5-22

Murphy, N. A., & Carbone, P. S. (2008). Promoting the participation of children with disabilities in sport. *Pediatrics*, *121*(5), 1057–1061.

Nealy, C. E., O'Hare, L., Powers, J. D., & Swick, D. C. (2012). The impact of autism spectrum disorders on the family: A qualitative study of mothers' perspectives. *Journal of Family Social Work, 15*(3), 187–201. https://doi.org/10.1080/10522158.2012.675624

Özen, K. (2015). Özel öğrenme güçlüğü tanısı almış 7-9 yaş çocukların geliştirdikleri zihin kuramı yeteneklerinin sağlıklı gelişim gösteren grup ile karşılaştırılması. *Hacettepe University Faculty of Health Sciences Journal.*

Özgür, B. G., Aksu, H., & Eser, E. (2017). Otizmde yaşam kalitesi anketi anne-baba sürümünün Türkçe geçerliliği ve güvenirliği [Turkish validity and reliability of the quality of life questionnaire parent version in autism]. *Anadolu Psikiyatri Dergisi*, *18*(4), 344.

Perrin, B. (1992). Community recreation for all: How to include persons with disabilities in regular leisure and recreation. *Journal of Leisurability*, *19*(4), 28–36.

Sağcan, M. (1986). *Rekreasyon ve turizm*. Cumhuriyet Basımevi.

Savran, S. (2020). *Özel gereksinimli çocukların rekreatif etkinliklere katılımları ile yaşam kaliteleri arasındaki ilişkinin ebeveyn rolü açısından incelenmesi: Manisa ili örneği*. Master's thesis, Celal Bayar University.

Sharma, O., Jain, N., & Meena, S. K. (2023). Impact of recreational and leisure activities on the quality of life of parents of children with autism spectrum disorders. *Journal of Advances in Medicine and Medical Research, 35*(13), 45–52. https://doi.org/10.9734/JAMMR/2023/v35i135044

Shu, B. C. (2009). Quality of life of family caregivers of children with autism: The mother's perspective. *Institute of Allied Health Sciences and Department of Nursing, National Cheng Kung University*, *13*(1), 81–91.

Şekeroğlu, O. Z. (2018). *Otizm spektrum bozukluğu olan bireylere bakım veren kişilerin bakım yükü ile yaşam kalitesinin incelenmesi* Master's thesis, Çağ University, Institute of Social Sciences.

Tütüncü, Ö. (2008). Tütüncü, Ö. (2021). Rekreasyon ve rekreasyon yönetimi lisans programlarının kontenjanlarının değerlendirilmesi. *Anatolia: Journal of Tourism Research*, *19*(12), 93–103. https://doi.org/10.17123/atad.1024336

Vara, Ş. (1999). *Yoğun bakım hemşirelerinde iş doyumu ve genel yaşam doyumu arasındaki ilişkilerin incelenmesi*.Unpublished master's thesis, Ege University.

Woodgate, R. L., Ateah, C., & Secco, L. (2008). Living in a world of our own: The experience of parents who have a child with autism. *Qualitative Health Research, 18*(8), 1075–1083. https://doi.org/10.1177/1049732308320112

Author(s)' statements on ethics and conflict of interest

Ethics statement: We hereby declare that research/publication ethics and citing principleshave been considered in all the stages of the study. We take full responsibility for thecontent of the paper in case of dispute.

Conflicts of Interest: There are no conflicts of interest declared by the authors.

Funding: None