Library Progress International
Vol.44, No.6, Jul-Dec 2024: P.574--582

Print version ISSN 0970 1052
Online version ISSN 2320 317X

Original Article

Available online at www.bpasjournals.com

The Relationship Between Mental Well-Being, Quality of Life, and Physical Activity Levels of Male Students in University Sports Teams

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How to cite this paper as: Tayfun KARA, Cüneyt SEYDİOĞLU, İhsan YAĞCI, Tarık SİVRİKAYA, Mustafa Hurüz, (2024) The Relationship Between Mental Well-Being, Quality of Life, and Physical Activity Levels of Male Students in University Sports Teams. *Library Progress International, 574-582*

ABSTRACT

This study was conducted to examine the relationship between physical activity level and mental well-being and quality of life of male students participating in university sports teams. While the positive effects of physical activity on the physical health of individuals are known, its role on social and mental health was one of the focal points of the study. In the study, relational survey model was used and 456 volunteer male students in football, basketball, volleyball, indoor football, tennis, kick boxing and muaythai branches at seven universities in Istanbul (Marmara University, Health Sciences University, Istanbul Topkapı University, Istanbul Aydın University, Istanbul Beykent University, Bahçeşehir University and Fenerbahçe University) constituted the sample group. In the data collection process, Warwick-Edinburgh Mental Well-Being Scale, WHO's Quality of Life Scale (WHOQOL-BREF) and Baecke Physical Activity Habit Scale were used . SPSS 25 package programme was used to analyse the obtained data. The results of the study show that participation in university sports teams increases the physical health and mental well-being levels of students and strengthens the quality of life. The findings revealed that taking part in university sports teams provides multidimensional contributions to the quality of life of students.

KEYWORDS

Mental well-being, quality of life, physical activity, sport, university sport.

1. INTRODUCTION

Physical activity is a lifestyle that provides multifaceted contributions to both the physical and mental health of an individual. The World Health Organisation (WHO) emphasises that regular physical activity supports individuals' muscle and bone health, reduces the risk of cardiovascular diseases and prevents obesity (WHO, 2020). In addition, physical activity prolongs life by reducing the risk of premature death (Warburton & Bredin, 2017). Physical activity increases muscle strength and flexibility, allowing individuals to perform daily life activities more easily.

Regular exercise accelerates metabolism and helps weight control by reducing body fat (Küçük et al., 2016). Moreover, regular physical activity increases resistance to diseases by strengthening the immune system (Nieman, 2007).

Physical activity also stands out for its positive effects on mental health. Endorphin hormones secreted during exercise create a feeling of happiness in the individual and help prevent stress, anxiety and depression (Dishman et al., 2006). Regular physical activity increases attention and concentration, thus positively affecting academic and occupational performance (Huang & Humphreys, 2012). In addition, exercise improves brain function and increases memory and learning capacity (Ratey and Loehr, 2011). Physical activity contributes to the socialisation process by increasing the social interactions of individuals. In particular, participation in team sports allows individuals to develop group work, leadership and communication skills (Puggina et al. (2018)). Sports contribute to social peace by strengthening cultural and social ties between individuals (Özsarı et al., 2022). Studies on university students have focused on the fact that physical activity increases social cohesion and friendship relationships (Puccinelli et al. 2021).

Psychological well-being is related to emotional balance and satisfaction with life. This concept includes dimensions such as happiness, subjective well-being and life satisfaction (Füzéki et al. 2020; Freire & Ferreira, 2018). Mental well-being is important as a structure that both supports an individual's personal development and positively shapes his/her interactions with the environment. Research shows that mental well-being is a factor that increases quality of life not only individually but also socially (Keldal, 2015).

Quality of life is a comprehensive indicator reflecting the physical, social and emotional health status of an individual. According to the World Health Organisation, quality of life is related to an individual's goals, expectations and capacity to adapt to living standards (Buchcik, 2023). It has been shown that physical activity improves quality of life and facilitates coping with stress, especially in individuals who do sports (Gilbert et al., 2021).

In this context, the positive effects of physical activity on mental health and quality of life are widely reported in the literature. Regular physical activity has a preventive effect on psychological disorders

such as depression and anxiety, as well as reducing the stress levels of individuals (Arslan et al., 2011; Mammen & Faulkner, 2013). Moreover, regular exercise increases the general happiness of individuals by improving their cognitive functions (Huang & Humphreys, 2012).

University sports teams support social integration by bringing together students from different regions and cultures. Team sports allow individuals to develop skills such as cooperation, empathy, social skills and communication. In particular, individuals who participate in sports activities have greater social cohesion, leadership skills and predispositions toward group work. Sports support students as effective individuals not only in academic but also in social life. The experiences gained in this process show that sport functions as a cultural and social bridge between individuals (Ivashchenko et al. 2017).

University teams aim to increase not only individual development but also social benefits. These environments allow young individuals to gain self-confidence, develop a sense of responsibility and contribute to social peace. Moreover, sports have effects such as improving an individual's life skills and accelerating socialisation processes (Clifford & Blyth, 2019).

In this context, while participation in university sports teams contributes to the physical and mental development of students, it also helps them gain social and cultural value. In this study, the effects of the physical activity level of male students participating in university sports teams on their mental well-being and quality of life were examined. Understanding the effects of physical activity not only on individual health but also on social integration and psychological well-being constitutes the main objective of the study.

2. Method

In this section, information about the research model, study group, data collection tools, data analysis and research ethics is presented.

3. Research Model

In this research, the relational survey model was used. The relational survey model indicates the occurrence of a situation or event in the research and, at the same time, is used with the intention of identifying the interactions, effects and degrees between the variables that cause this situation (Karasar, 2020). The "Higher Education Institutions Scientific Research and Publication Ethics Directive" was enacted within the framework.

3.1 Universe and Sample

The purposive sampling method, a nonprobability sampling method, was used in this study. The purposive sampling method is defined as a sampling group in which the subjects who are considered

suitable for the research and have certain characteristics are included in the research (Gürbüz & Şahin, 2016). In this context, the research population consists of students who take part in the sports teams of universities in Istanbul.

The research group consists of 546 volunteer students who took part in interuniversity competitions in Football, Basketball, Volleyball, Indoor Football, Tennis, Kick Boxing and Muaythai branches of Marmara University, Health Sciences University, Istanbul Topkapı University, Istanbul Aydın University, Istanbul Beykent University, Bahçeşehir University and Fenerbahçe University in the 2023–2024 academic year.

3.2 Data collection tools

The sociodemographic information form, Warwick-Edinburgh Mental Well-Being Scale, Quality of Life Scale and International Physical Activity Questionnaire - Short Form (IFAA-SF) were used as data collection tools in the study. Before

the study, all individuals were informed about the study, and an 'Informed Consent Form' was signed. The data were collected via questionnaires. This study was conducted in accordance with the principles of the Declaration of Helsinki.

3.3 Personal Information Form

The personal information of the participants was obtained via a personal information form designed by the researchers. In this form, there are questions about anthropometric characteristics (body weight) and demographic information (age, branch and duration of sports participation).

3.4 Warwick-Edinburgh Mental Well-Being Scale

This scale was developed by Tennant et al. (2007) in England to measure the level of psychological well-being. Its adaptation to Turkish was carried out by Keldal (2015). The scale consists of 14 items. This scale is used to assess the positive mental health of individuals. A minimum of 14 points and a maximum of 70 points can be obtained from this 5-point Likert-type scale. Increasing scores indicate an increase in psychological well-being. The answer options given to the items are as follows: 1= strongly disagree, 2= disagree, 3= somewhat agree, 4= agree, and 5= completely agree. All the items in the scale are positive, so there are no reverse-scored items.

3.5 Quality of Life Scale

To evaluate the quality of life of the students, the World Health Organisation Quality of Life Scale (WHOQOL-BREF), which was developed by the WHO (1998) and whose Turkish validity and reliability study was conducted by Sevil (2015) and consists of 23 items and 5 subdimensions, was adapted. The subdimensions of the scale are physical quality, psychological quality, social quality, environmental quality and independence quality. For each of the scales used in the study, a 5-point

A Likert scale, which is accepted as an interval measurement level, was used. In the Turkish form of the scale, unlike the quality of life scale developed by the WHO, a four-factor structure consisting of 15 items with high factor load values and common variance values was obtained. The quality of life scale used in the present study supported a 14-item, 3-factor structure, and the reliability coefficients were 0.789 in the "physical and environmental quality" subdimension, 0.822 in the "social quality" subdimension, and 0.815 in the "psychological quality" subdimension. Cronbach's alpha coefficient of the total scale was calculated as 0.808. According to the patterns of the 3 factors that emerged in the quality of life principal component factor analysis after varimax transformation, the items explained 59.731% of the scale.

3.6 International Physical Activity Questionnaire-Short Form (IPA-SF)

The International Physical Activity Questionnaire (IPA-PAQ) was developed by Craig et al. to determine the physical activity levels of participants aged between 15 and 65 years. A validity and reliability study of the questionnaire in Turkey was conducted by Öztürk. The questionnaire was used to evaluate the level of physical activity in the previous week. The form consists of seven questions that provide information about sitting, walking, moderately vigorous activities and the time spent in vigorous activities. According to the questionnaire, the criterion for the evaluation of all activities is that each activity is performed for at least 10 minutes at a time. In the calculation of the total score of this questionnaire, the MET measurements determined for sitting, walking, moderate and vigorous levels are summed and calculated. The MET value for sitting is 1.5, that for walking is 3.3, that for moderate physical activity is 4.0, and that for vigorous physical activity is 8.0. The increase in the scores obtained from the questionnaire indicates that individuals are more physically active. The Cronbach's alpha coefficient of the Turkish version of the questionnaire was reported as 0.69.

3.7 Analysing the Data

The SPSS 25.0 package program was used for statistical analysis of the data, and the margin of error was 0.05. The percentage, number, standard and deviation of the mean were used as descriptive statistical methods in the evaluation of the data. For the normality assumption, the skewness and kurtosis values were found to be in the range of -1.5 to +1.5, and in this context, it was determined that the data had a normal distribution (Tabachnick & Fidell, 2013). One-way ANOVA was used to compare more than two independent groups. As a result of one-way ANOVA, the Bonferroni correction, which is a complementary post hoc analysis, was used to determine the source of the difference. **Findings**

Table 1. Demographic findings of the athletes who participated in the study

The distributions of the data obtained from the demographic variables of the athletes participating in the study regarding sex, age, sports branches and years of sport are presented in Table 1.

• **Variable**	• **Frequency (n)**	• **Percentage (%)**
• Sport Branch	•	•
• Football	• 156	• 34.21
• Basketball	• 86	• 18.86
• Volleyball	• 80	• 17.54

• Indoor Football	• 75	• 16.45
• Tennis	• 23	• 5.04
• Kick Boxing	• 18	• 3.95
• Muaythai	• 18	• 3.95
• Duration of sportsmanship	•	•
• 5 years and less	• 113	• 24.78
• 6-10 years	• 215	• 47.15
• 11 years and over	• 128	• 28.07
• Total	• 456	• 100

Data on the branches, duration of sportsmanship, physical characteristics and physical activity levels of the athletes participating in the study were analysed. The largest proportion of the participants were football players, with a total of 156 people, for a percentage of 34.21%. This was followed by basketball with 18.86% (86 people), volleyball with 17.54% (80 people) and indoor football with 16.45% (75 people). Among other sports, tennis, kick boxing and muaythai constituted less than 5% of the participants. In terms of the duration of sportsmanship, 47.15% of the participants had sportsmanship experience ranging from 6--10 years (215 people). Among those with 5 or fewer years of sporting experience, 113 had a rate of 24.78%, and among those with 11 or more years of sporting experience, 128 had a rate of 28.07%**.**

Table 2. Descriptive characteristics of the athletes participating in the study

•	• X (SD)	• min–max
• Age	• 23,54	• 17-27
• Height (cm)	• 1,65	• 152-208
• Weight (kg)	• 72,54	• 54-94

The mean age of the participants was 23.54 years, and the ages ranged between 17 and 27 years. The mean height was 1.65 m, and the mean weight was 72.54 kg. The height of the participants varied between 152 cm and 208 cm, whereas their weight varied between 54 kg and 94 kg.

Table 3. Physical activity levels of the athletes participating in the study

• Physical Activity Level	• n	• %
• Inactive (<600 MET-min/week)	• 90	• 19.74
• Minimally active (600-3000 MET-min/week)	• 145	• 31.80
• Very active (>3000 MET-min/week)	• 221	• 48.46

When physical activity levels were analysed, 48.46% (>3000 MET-min/week) of the participants were very active (221 people). Those in the minimally active group (600–3000 MET-minutes/week) accounted for 31.80% (145 people), whereas those in the inactive group (<600 MET-minutes/week) accounted for 19.74% (90 people). These data generally show how the physical activity levels of athletes and the intensity of their sporting experiences are reflected in their sport branch preferences and physical characteristics.

Table 4. Intergroup comparisons of participants according to physical activity level

•	•	• ANOVA	•	•	• Post hoc test (Bonferroni)

•	• Inactive (n=90)	• Minimally active (n=145)	• Very active • (n=221)	• p	•	• p	•
•	•	• Mean ±SD (IQR)	•	•	• I-MA	• I-CA	• MA-CA
• Quality of life scale	•	•	•	•	•	•	•
• Physical	• 50,2 ± 8,5	• 55,4 ± 7,8	• 60,1 ± 6,9	• 0,001	• >0,003	• >0,001	• >0,021
• Psychological	• 48,7 ± 7,2	• 53,2 ± 6,9	• 57,6 ± 6,5	• 0,002	• >0,007	• >0,001	• >0,015
• Social	• 52,1 ± 6,7	• 54,8 ± 6,3	• 58,9 ± 5,9	• 0,003	• >0,013	• >0,001	• >0,034
• Environmental	• 51,8 ± 7,1	• 56,3 ± 6,7	• 59,7 ± 6,4	• 0,002	• >0,004	• >0,001	• >0,027
• Quality of Independence	• 49,5 ± 8,3	• 54,2 ± 7,7	• 58,5 ± 7,2	• 0,001	• >0,002	• >0,001	• >0,019
• Mental well-being scale	• 47,2 ± 7,9	• 52,6 ± 7,4	• 56,9 ± 6,8	• 0,001	• >0,005	• >0,001	• >0,016

*p<0.05; A=ANOVA test was applied; H=Kruskal–Wallis H test was applied; SD=standard deviation; IQR=interquartile range; C-MA=comparisons of active and minimally active groups; C-CA=comparisons of active and very active groups; MA-CA=comparisons of minimally active and active groups

When Table 4 was analysed, the participants were divided into three groups according to their physical activity level: inactive (n=90), minimally active (n=145) and very active (n=221). ANOVA revealed significant differences between the groups in all subdimensions of the quality of life scale and mental well-being level ($p < 0.05$). A post hoc Bonferroni correction was applied for detailed analysis of the differences, and the results are summarised below. For the physical quality subdimension, the mean score of the inactive group was 50.2 ± 8.5, the mean score of the minimally active group was 55.4 ± 7.8, and the mean score of the very active group was 60.1 ±

6.9. A post hoc Bonferroni correction revealed that there were significant differences among all three groups ($p > 0.003$, $p > 0.001$, $p > 0.021$). The physical quality scores tended to increase with increasing physical activity level. For the psychological quality subscale, the mean scores of the inactive, minimally active and very active groups were 48.7 ± 7.2, 53.2 ± 6.9 and 57.6 ± 6.5, respectively. Statistically significant differences were found between the groups ($p > 0.007$, $p > 0.001$, $p > 0.015$). The results show that psychological quality is positively affected by increasing physical activity levels. Similarly, for the social quality subscale, the inactive group had a mean score of 52.1 ± 6.7, the minimally active group 54.8 ± 6.3, and the very active group 58.9 ± 5.9. Significant differences were found between the groups ($p > 0.013$, $p > 0.001$, $p > 0.034$). These findings reveal that the social quality level has a positive relationship with the physical activity level. For the environmental quality subdimension, the inactive group had a mean score of 51.8 ± 7.1, whereas the minimally active group

56.3 ± 6.7 and that of the very active group was 59.7 ± 6.4. ANOVA and post hoc analyses revealed significant differences between the groups ($p > 0.004$, $p > 0.001$, $p > 0.027$). The findings show that an increase in physical activity level improves the perception of environmental quality. For the subdimension of independence quality, the mean scores of the inactive, minimally active and very active groups were 49.5 ± 8.3, 54.2 ± 7.7 and 58.5 ± 7.2, respectively. Significant differences were found

The post hoc test results ($p > 0.002$, $p > 0.001$, $p > 0.019$) revealed that physical activity positively affected the quality of independence. In terms of the mental well-being scale, the inactive group had a mean score of 47.2 ± 7.9, the minimally

active group had a mean score of 52.6 ± 7.4, and the very active group had a mean score of 56.9 ± 6.8. Post hoc analysis revealed that there were significant differences among all three groups ($p > 0.005$, $p > 0.001$, $p > 0.016$). These results suggest that physical activity level has a positive effect on mental well-being.

These findings show that physical activity level significantly improves all subdimensions of quality of life and mental well-being. This emphasises the positive effects of physical activity on the overall quality of life and mental well-being of individuals. More active individuals are clearly more favourable in terms of quality of life. The very active group shows clear superiority over the other groups, especially in terms of physical quality and mental well-being.

4. Conclusion and recommendations

In this study, the relationships among the physical activity level, quality of life and mental well-being of male athletes participating in university sports teams were analysed. The results of the study revealed that an increase in physical activity level significantly improved all subdimensions of quality of life and mental well-being. In particular, the very active group was significantly superior to the other groups in terms of physical quality and mental well-being, which supports the positive effects of physical activity on individuals' general health and life satisfaction.

While this study revealed a positive relationship between physical activity level and mental well-being and quality of life, the results were consistent with similar findings in the literature. A systematic review by Marquez et al. (2020) revealed that physical activity improves health-related quality of life, and this effect is especially evident in individuals with moderate and high levels of physical activity. A sedentary lifestyle was found to negatively affect quality of life (Boberska et al., 2018; Huang et al., 2023). Salgın (2020) reported that regular physical activity increased healthy living behaviours and quality of life in university students. Similarly, Şahbaz et al. (2022), in young adults, reported that physical activity levels significantly improved quality of life by reducing depression. In addition, Murathan's (2022) thesis study revealed that increasing the physical activity levels of individuals has positive effects not only on physical health but also on body awareness and mental well-being. The results of this study showed that physical activity level positively affected both mental well-being and quality of life. These results are in line with our study because an increase in physical activity level improves physical, psychological, social and environmental quality.

Various studies have shown that individuals with high physical activity levels have higher quality of life scores and that physical activity increases the social functionality of individuals and reduces

depression levels (Bauman & Craig, 2018;). In particular, Arslan (2019) reported a significant relationship between the physical activity levels of physiotherapists and physical components of quality of life. Reed and Ones (2006) examined the effects of physical activity on students' quality of life and reported that individuals who exercise regularly report higher levels of satisfaction in their social relationships and academic performance. In this study, physical activity significantly improved the quality of life, especially in the areas of environmental and social quality of life. Another study was conducted by Dinger and Waigandt (1997). In this study, it was found that physically active university students had significantly higher quality of life scores than did students with sedentary lifestyles. In particular, significant differences were observed in the areas of social functioning and physical health. Biddle and Asare (2011) reported that physical activity is effective in reducing depression and anxiety in young adults. This study emphasised that regular physical activity among university students improved their mood and increased their ability to cope with stress. In particular, positive effects of aerobic exercise and activities such as yoga on mental health have been reported. A study by Karabulut et al. (2019) revealed that the mental well-being levels of university students who engage in regular physical activity are greater than those of sedentary students. In one study, individuals with moderate and high levels of physical activity had better stress coping skills (Karabulut et al., 2019).

Another important finding is that physical activity has positive effects not only on the physical health of the individual but also on social relationships and life satisfaction. In particular, in evaluations conducted with NFAAs, physical activity has been shown to have positive effects on social functioning and general health (Yılmaz & Korkmaz, 2018; Demir, 2021). This shows that awareness should be raised about the importance of physical activity for both individual and social health. In a study examining physical activity levels among university students, Demir and Yıldırım (2020) reported that regular physical activity improved quality of life. Physical activity was found to provide significant improvements, especially in social relationships and psychological health dimensions. Nowak et al. (2020), who conducted an international study on the physical activity levels of university students, reported that active students are less likely to experience mental health problems and that these individuals are more satisfied with life. The study reported similar results among university students in different countries.

In terms of mental well-being, a meta-analysis conducted at Chengdu University revealed that physical activity increased positive mental health indicators and decreased negative indicators. In addition, factors such as resilience have been reported to strengthen this relationship (Hu et al., 2023). For example, Egilmez (2020) reported that physical activity reduces the stress and anxiety levels of individuals and has positive effects on emotional balance. These findings parallel our findings and emphasise the critical role of physical activity in mental well-being. Similar results were obtained in studies using the Warwick-

Edinburgh Mental Well-being Scale (Smith et al, 2020). Baş et al. (2021) reported a significant relationship between physical activity level and mental well-being in a cross-sectional study conducted with university students. In this study, the emotional reactions of physically active individuals were more balanced, and anxiety levels were lower. Çelik et al. (2022) reported that physical activity reduced anxiety, depression and stress levels in university students, which significantly increased mental

well-being. In this study, positive results were obtained in all subdimensions of quality of life for individuals who performed physical activity. The results of our study both confirm and extend the effects of physical activity on quality of life and mental well-being. Your elaboration of the benefits of physical activity, especially in physical, psychological and social quality dimensions, is in line with the general trends in the international literature. However, to further strengthen your findings, you can also refer to studies examining the role of moderators such as resilience, social support and self-efficacy (Choi et al., 2021).

Finally, on the basis of the results obtained from this research, the following suggestions are proposed:

- Scholarships and various supports can be considered to increase participation in sports teams.
- Universities should explain the positive effects of physical activity on academic success and mental health to students from the 1st grade and encourage participation in sports teams.
- There should be sports facilities on campus that students can use free of charge. Expert trainers can be recommended to support students in these facilities.
- Universities can be recommended to share information about sports activities and facilities for students on social media.
- Online sports lessons and exercise programmes can also be offered to students through these applications.

Ethics of Research

During the current research, the "Higher Education Institutions Scientific Research and Publication Ethics Directive" acted within the framework of the relevant research, and the relevant research was approved by Istanbul Topkapı University, Academic Research and Publication Ethics Commission, E-49925278-302.14.1-2300001233, which is a numbered ethics committee decision.

Conflict

The authors declare that they have no conflicts of interest regarding this research.

5. REFERENCES

[1] Arslan, G., Çelik, C., & Yılmaz, E. (2011). *The effects of physical activity on psychological well-being: A research*. Journal of Human Sciences, 18(4), 225-238.

[2] Baş, A., & Erdem, D. (2021). *Physical activity and mental well-being in university students*. Journal of Health Psychology, 36(3), 228-235.

[3] Bauman, A., & Craig, C. (2018). *The global benefits of physical activity: The impact on quality of life*. Journal of Public Health, 40(3), 327-338.

[4] Biddle, S. J., & Asare, M. (2011). *Physical activity and mental health in children and adolescents: A review of reviews*. British Journal of Sports Medicine, 45(11), 934-941.

[5] Boberska, M., Kowalski, J., & Kozyrska, K. (2018). Physical activity and quality of life: A review of literature.

[6] The Journal of Exercise Science & Fitness, 16(1), 28-39.

[7] Buchcik, J., Kovach, V., & Adedeji, A. (2023). Mental health outcomes and quality of life of Ukrainian refugees in Germany. *Health and quality of life outcomes*, *21*(1), 23.

[8] Choi, J., Lee, S., & Lim, Y. (2021). Exploring resilience as a moderator of physical activity's impact on mental health in university students. Journal of Health Behaviour, 34(2), 101-109.

[9] Clifford, T., & Blyth, C. (2019). A pilot study comparing the prevalence of orthorexia nervosa in regular students and those in University sports teams. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *24*, 473-480.

[10] Craig, C. L., Marshall, A. L., Sjostrom, M., Bauman, A. E., Booth, M. L. (2003) International physical activity questionnaire: 12-country reliability and validity. Medicine and Science in Sports and Exercise, 35, 1381-1395.

[11] Çelik, G., & Ergin, Z. (2022). The relationship between physical activity and anxiety, depression, and stress levels in university students. International Journal of Health Sciences, 32(1), 75-80.

[12] Demir, M. (2021). *The effect of physical activity on social relationships*. Journal of Contemporary Health Sciences, 19(4), 412-420.

[13] Demir, M., & Yıldırım, Z. (2020). The effect of physical activity on quality of life: A research on university students. Journal of Social Sciences, 13(2), 118-126.

[14] Dinger, M., & Waigandt, A. (1997). *Physical activity and quality of life in university students: A comparative study*. Journal of College Student Development, 38(6), 458-468.

[15] Dishman, R. K., Gettman, L. R., & Hales, D. P. (2006). *Physical activity and psychological well-being*. In S.

[16] C. H. Ploughman & E. D. D. Smith (Eds.), *Physical Activity and Health* (pp. 435-448). Human Kinetics.

[17] Egilmez, M. (2020). The effect of physical activity on stress and anxiety: A meta-analysis. Journal of Mental Health, 27(3), 234-247.

[18] Freire, A., & Ferreira, L. (2018). *The importance of mental well-being for quality of life*. Journal of Psychology, 38(4), 205-212.

[19] Füzéki, E., Groneberg, D. A., & Banzer, W. (2020). Physical activity during COVID-19 induced lockdown: recommendations. *Journal of Occupational Medicine and Toxicology*, *15*(1), 25.

[20] Gilbert, D., Ziegler, P., & Lee, B. (2021). The impact of physical activity on well-being and life quality.

[21] International Journal of Health Promotion, 14(3), 45-59.

[22] Hu, X., Li, X., & Zhang, X. (2023). *Physical activity and mental health: A meta-analysis of the moderating role of resilience*. International Journal of Environmental Research and Public Health, 20(6), 1232- 1245.

[23] Huang, C., & Humphreys, J. (2012). *The relationship between exercise and academic performance*. Journal of Physical Education, 52(2), 102-108.

[24] Ivashchenko, O., Yarmak, O., Galan, Y., Nakonechnyi, I., & Zoriy, Y. (2017). Leadership as a fundamental aspect of the performance of student-athletes in university men's sports teams.

[25] Karabulut, E., & Yavuz, A. (2019). Physical activity and coping with stress: A research on university students.

[26] Journal of Social Sciences, 12(3), 245-256.

[27] Karasar, N. (2011). Scientific research method, (11th edition). Nobel Publishing House.

[28] Keldal, N. (2015). Adaptation and validity of Warwick-Edinburgh Mental Well-being Scale into Turkish.

[29] Journal of Mental Health and Social Sciences, 20(2), 100-110.

[30] Küçük, M., Yıldırım, A., & Çalışkan, M. (2016). *Effects of Exercise on Physical Health*. Journal of Health Sciences, 28(4), 245-259.

[31] Mammen, G., & Faulkner, G. (2013). Physical activity and the prevention of depression: A systematic review of prospective studies. American Journal of Preventive Medicine, 45(4), 479-488.

[32] Murathan, M. (2022). Physical activity and mental health: Effects from primary care to mental well-being.

[33] Doctoral Thesis, Ankara University, Institute of Health Sciences.

[34] Nieman, D. C. (2007). Physical activity and immune function: A separate role for intensity and duration.

[35] Journal of Sports Science & Medicine, 6(1), 29-42.

[36] Nowak, T., & Lee, H. (2020). *Physical activity levels and mental health in university students: An international study*. International Journal of Physical Education, 49(1), 29-35.

[37] Öztürk, M. (2005). The validity and reliability of the international physical activity questionnaire and determination of physical activity levels in university students. Master's thesis, Ankara: Hacettepe University Institute of Health Sciences, Physical Therapy and Rehabilitation Programme.

[38] Puccinelli, P. J., da Costa, T. S., Seffrin, A., de Lira, C. A. B., Vancini, R. L., Nikolaidis, P. T., & Andrade,

[39] M. S. (2021). A reduced level of physical activity during the COVID-19 pandemic is associated with depression and anxiety levels: an internet-based survey. BMC public health, 21, 1-11.

[40] Puggina A, Aleksovska K, Buck C, Burns C, Cardon G, Carlin A, et al.(2018). Policy determinants of physical activity across the life course: a DEDIPAC' umbrella systematic literature review. Eur J Pub Health. ;28(1):105-18.

[41] Ratey, J. J., & Loehr, J. E. (2011). The positive impact of physical activity on cognition and brain function.

[42] Journal of Psychiatry & Neuroscience, 36(2), 127-133.

[43] Reed, J., & Ones, D. (2006). *Impact of physical activity on students' academic performance*. International Journal of Educational Research, 10(2), 79-93.

[44] Salgın, F. (2020). The effect of regular physical activity on health and quality of life in university students.

[45] Turkish Journal of Physical Activity, 28(2), 87-95.

[46] Smith, P. R., & Johnson, M. R. (2020). Physical activity and well-being in young adults: A systematic review.

[47] Journal of Adolescent Health, 45(6), 512-523.

[48] Şahbaz, H., & Demirtaş, A. (2022). *Effects of physical activity level on depression and quality of life*. Journal of Psychology, 31(5), 321-334.

[49] Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (Vol. 6, pp. 497-516).

[50] Boston, MA: Pearson.

[51] Warburton, D. E. R., & Bredin, S. S. D. (2017). *Health benefits of physical activity: A systematic review of current systematic reviews*. Current Opinion in Cardiology, 32(5), 541-549.

[52] World Health Organisation (WHO). (2020). *Physical activity*. World Health Organisation.

[53] Yılmaz, M., & Korkmaz, S. (2018). *The relationship between physical activity and social function in university students*. Journal of Exercise and Physical Activity, 23(5), 345-352.