

2020

The relationship between university students' psychological resilience and anxiety levels and comparing in terms of physical activity levels gender and academic achievement

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Recommended Citation

Demir A, Barut AI. The relationship between university students' psychological resilience and anxiety levels and comparison in terms of physical activity levels gender and academic achievement. *Balt J Health Phys Act.* 2020;Suppl(1):75-83. doi: 10.29359/BJHPA.2020.Suppl.1.08

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Abstract

Background: Psychological resilience is the adaptation of individual in the face of negative situations and the ability to fight these situations. Since university life has an anxious and stressful feature, university students are considered as a risk group in terms of psychological resilience. Purpose of research is to examine relationship between psychological resilience levels and anxiety levels of university students and making comparisons in terms of physical activity levels, gender and academic achievement. Material and methods: 360 university students voluntarily participated in research. 'Short Psychological Resilience' Scale, 'Beck Anxiety Inventory' and 'International Physical Activity Questionnaire' was used in research. Results: According to findings, there was a negative relationship between students' psychological resilience and anxiety levels. In terms of gender, there was no significant difference between resilience levels and anxiety levels. A significant difference was found between resilience and anxiety levels in favor of students' doing physical activity. It has been found that students who are 'academically good' are better resilience than students who are academically moderate and worse, and their total anxiety levels are also lower. Conclusions: As a result, it can be said that doing regular sports positively affects students' psychological resilience and anxiety.

Keywords

regular sports, psychological resilience, anxiety

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The relationship between university students' psychological resilience and anxiety levels and comparison in terms of physical activity levels gender and academic achievement

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A Study Design

B Data Collection

C Statistical Analysis

D Data Interpretation

E Manuscript Preparation

F Literature Search

G Funds Collection

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abstract

Background: Psychological resilience is the adaptation of individual in the face of negative situations and the ability to fight these situations. Since university life can be stressful, university students are considered as a risk group in terms of psychological resilience. The purpose of this research is to examine the relationship between psychological resilience levels and anxiety levels of university students and to make comparisons in terms of physical activity levels, gender and academic achievement.

Material and methods: 360 university students voluntarily participated in research. Short Psychological Resilience Scale, Beck Anxiety Inventory and International Physical Activity Questionnaire were used in the research.

Results: According to findings, there was a negative relationship between students' psychological resilience and anxiety levels. In terms of gender, there was no significant difference between resilience levels and anxiety levels. A significant difference was found between resilience and anxiety levels in favor of students' doing physical activity. It has been found that students who are 'academically good' are more resilient than students who are academically moderate and worse, and their total anxiety levels are also lower

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article details

Article statistics: **Word count:** 2,879; **Tables:** 5; **Figures:** 0; **References:** 53

Received: March 2020; **Accepted:** May 2020; **Published:** December 2020

Full-text PDF: <http://www.balticsportscience.com>

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Indexation: Celdes, Clarivate Analytics Emerging Sources Citation Index (ESCI), CNKI Scholar (China National Knowledge Infrastructure), CNPIEC, De Gruyter - IBR (International Bibliography of Reviews of Scholarly Literature in the Humanities and Social Sciences), De Gruyter - IBZ (International Bibliography of Periodical Literature in the Humanities and Social Sciences), DOAJ, EBSCO - Central & Eastern European Academic Source, EBSCO - SPORTDiscus, EBSCO Discovery Service, Google Scholar, Index Copernicus, J-Gate, Naviga (Softweco, Primo Central (ExLibris), ProQuest - Family Health, ProQuest - Health & Medical Complete, ProQuest - Illustrata: Health Sciences, ProQuest - Nursing & Allied Health Source, Summon (Serials Solutions/ProQuest, TDOne (TDNet), Ulrich's Periodicals Directory/ulrichweb, WorldCat (OCLC)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of interests: Authors have declared that no competing interest exists.

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INTRODUCTION

Psychological resilience is the adaptation of an individual in the face of negative situations and the ability to fight these situations [1]. Since university life can be stressful, university students are considered as a risk group in terms of psychological resilience [2]. In this period, which is a new beginning and a difficult process [3], university students encounter a different social life, a new academic environment and a different city [4]. New responsibilities are imposed on students throughout their university education [5].

People react personally to any stressor. The reason why individuals react differently is their environmental and individual characteristics. Therefore, there are differences in the level of psychological resilience of each individual. There are people who fight stress better at certain times. These are defined as people with high psychological resilience [6]. In addition, this concept is seen as a developable feature, although it is expressed as an inherently existing feature in individuals [7]. It is stated that doing sports suitable for academic success and age is a protective factor for psychological resilience [8]. Therefore, there are studies showing that doing regular sports improves psychological resilience [9, 10, 11]. It is reported that regular sport has positive psychological effects, reduces anxiety and depression and supports the individual's psychological well-being. It is also said that physical activity can be evaluated with psychological well-being and increase it [12].

Anxiety is defined as a state of excitement in which fear and hope are frequently displaced and as 'fear of unknown cause' [13]. It is usually a feeling of distress produced by the individual. Anxiety causes a condition that affects behavior. Sometimes it can be experienced as a permanent and sometimes as a temporary mood [14]. In the state of anxiety, individuals may exhibit behaviors such as self-reliance and withdrawal, show offensive mood, feel inadequate, or challenge and coping with it [15].

Bozkurt [16] stated that anxiety levels and anxiety symptoms were excessive in university periods, which is the most important period of university students' lives. In addition, 35% of university students have been reported to have widespread anxiety disorders [17]. High anxiety levels of university students are associated with social factors, family factors and academic stressors [18]. Therefore, being a student at the university can create an environment that will create anxiety and stress [19]. Anxiety levels of students increase in exam periods, which cause some students to fail, and failure causes anxiety to increase even more and thus creates a vicious circle [20]. In most studies, it is seen that doing regular sports reduces the level of anxiety. These studies indicate that anxiety can be prevented by regular physical activity [21, 22, 23, 24]. There is also evidence of a two-way relationship between exercise and anxiety; while exercise is thought to reduce anxiety, lack of exercise may be associated with higher anxiety levels [25]. It is said that moderate-intensity exercise may be the most appropriate exercise for the promotion of mental health. It has been stated that medium intensity exercises are suitable methods for psychological resilience and anxiety [26]. This study wants to reveal how university students' sports habits, gender and academic achievement affect their anxiety level and psychological resilience level. In this regard, it is hypothesized that the students who have a high academic achievement, have a habit of doing sports and who continue with this determination will have low anxiety levels and high psychological resilience levels. Regardless of gender, students are assumed to have low levels of anxiety and high levels of psychological resilience. For these reasons, it is thought that this research will contribute to exercise psychology literature with the aim of examining the relationship between psychological resilience levels and anxiety levels of university students and making comparisons in terms of physical activity levels, gender and academic achievement variables.

MATERIALS AND METHOD

MEASURES

In order to measure the participants' psychological resilience levels, the Short Psychological Resilience Scale developed by Smith et al. [27] and adapted to Turkish by Doğan [28] was used. Beck Anxiety Inventory developed by Beck et al. [29] and adapted to Turkish by Ulusoy, Sahin & Erkmén [30] was used to measure levels of anxiety. It was found that Beck Anxiety Inventory showed high internal consistency in the study of Turkish adaptation ($\alpha = .93$). The item-total correlations ranged from .45 to .72. The results favor the use of the Beck Anxiety inventory as a reliable and valid measure of anxiety with Turkish populations [30].

Short Psychological Resilience Scale is a 5-point Likert type, 6-item self-report style scale. In the scale, items 2, 4 and 6 are reverse coded. High scores after reversing the coded items indicate a high level of psychological resilience. The internal consistency reliability coefficient of the scale is .80 to .91, and the test-retest reliability coefficient is between .62 and .69 [28]. The Beck Anxiety Scale measures the frequency of anxiety symptoms experienced by the individual. It is a Likert-type self-report scale composed of 21 items and scored between 0-3. The high score indicates the high level of anxiety experienced by the individual [30].

The International Physical Activity Questionnaire was used to measure the participants' physical activity levels. Validity and reliability study of this scale was made by Craig et al. [31], and in Turkey it was made by Oztürk in 2005 [32]. The short form of the International Physical Activity Questionnaire consists of 9 questions that measure the intensity of physical activity. The questions provide information about a person's physical activities in the past seven days. From these data, the total weekly physical activity level (MET / hour / week) is classified as low, medium and high. Individuals who state that they do not have physical activity must have reached a low physical activity level $x \leq 600$ MET-minute / week, and in order to have an intense or moderate level of physical activity, the total physical activity must reach a minimum $x \geq 600-3000$ MET/minute/week [33].

PARTICIPANTS

The sample of the study involved students of the teaching department, physical education department, paramedic department studying at Artvin Coruh University in the 2019-2020 academic year. The average age of the participants was 20.73 years ($SD=1.211$).

PROCEDURE

Ethical approval was sought and received from the supporting University's Ethics Filter Committee. The research was carried out using a random sample model. Random samples are used to avoid bias and other unwanted effects. The guidelines for the research were explained in detail to the participants, and attention was paid to voluntary participation. 8% of all university students participated in this research. The academic achievement of the students participating in the research was taken from the academic web information system of Artvin Coruh University. Grade averages of 80 and over are determined as "good", those between 60 and 80 are "moderate" and those of 60 and below are considered as "worse". Accordingly, 23.9% of the participants were found to be good ($n = 86$), 67.8% to be moderate ($n = 244$) and 8.3% to be worse ($n = 30$) students.

STATISTICAL ANALYSIS

Kolmogorov-Smirnov test was used for the distribution of normality in the research. In the analysis of the data, Pearson correlation test was used to analyze the relationship between students' psychological resilience and anxiety levels; independent sample t test was used in parametric distributions; Mann Whitney U test was used in non-parametric distributions, and Kruskal Wallis test was used in multiple comparisons.

RESULTS

Descriptive statistics of students studying at Artvin Coruh University in the 2019–2020 academic year who participated in the study are shown in Table 1. Among the participants, there is no high intensity level of physical activity. Therefore, moderate and low levels of physical activity were evaluated.

Table 1. Frequency distribution of the participants

		N	%	SD
Gender	Female	204	56.7	.496
	Male	156	43.3	
Physical activity	Mid	66	18.3	.387
	Low	294	81.7	
Academic achievement	Worse	30	8.3	.547
	Moderate	244	67.8	
		86	23.9	

According to Table 2, there was a slight negative relationship between the psychological resilience levels and anxiety levels of the respondents.

Table 2. The relationship between the respondents' psychological resilience levels and anxiety levels

Variables	Anxiety level	
	r	-.255**
Psychological resilience level	p	.000
	n	360

**=Slight

According to Table 3, there was no significant difference between the psychological resilience levels and anxiety levels of the respondents in terms of gender.

Table 3. Students' psychological resilience levels and anxiety levels total scores t-test results in terms of gender

	Gender	N	Mean	SD	t	p
Psychological resilience	Female	204	18.66	3.89	1.790	.074
	Male	156	19.43	4.14		
Anxiety level	Female	204	15.45	9.96	1.980	.051
	Male	156	13.39	9.63		

*p<.05

As regards the students' physical activity status, a significant difference was found between the levels of psychological resilience and anxiety levels compared to students who have moderate physical activity levels than students who have low physical activity levels. Students with moderate physical activity were found to have higher psychological resilience scores and lower anxiety scores (Table 4).

Table 4. Students' psychological resilience levels and anxiety levels total scores; Mann Whitney U test results in terms of physical activity status

	Physical activity	N	Mean rank	Rank total	U	p
Psychological resilience	Moderate	66	214.98	14189.0	7426.000	.003
	Low	294	172.76	50791.0		
Anxiety level	Moderate	66	136.76	9026.0	6815.000	.000
	Low	294	190.32	55954.0		

The results of the analysis show that the students who were academically good had a better psychological resilience status than the students who were academically moderate and worse, and their anxiety levels total points were lower. No difference was found between worse and moderate students (Table 5).

Table 5. Students' psychological resilience and anxiety levels; Kruskal Wallis analysis in terms of academic achievement

	Academic achievement	N	Mean rank	SD	X ²	p	Diff.
Psychological resilience	Good	86	218.52	2	15.256	.000	A-B
	Moderate	244	168.37				A-C
	Worse	30	170.17				B=C
Anxiety level	Good	86	156.71	2	8.212	.016	A-B
	Moderate	244	184.63				A-C
	Worse	30	215.12				B=C

A=Good, B=Moderate, C=Worse

DISCUSSION

The purpose of the research is to examine the relationship between psychological resilience levels and anxiety levels of university students and to make comparisons in terms of physical activity levels, gender and academic achievement variables. The results of this research support our hypothesis. It has been found that regular exercise positively affects psychological resilience. In addition, it was revealed that those with high academic achievement had a better mental status.

In the research conducted by Cengiz et al. [34] to determine the physical activity levels of university students, male students were observed to do more physical activity than female students. Similarly, it is observed that male students perform more physical activity in different studies conducted on university students [35, 36, 37]. In this study, it was found that there was no difference between male students and female students, and physical activity was at the same level.

Having exercise opportunities and easy access to them is the key to being physically active. Whether the facilities are sufficient on the university campuses and the reasons for low physical activity should be investigated [35]. In this study, it is thought that the reason for the low level of physical activity in both male and female is the geographical feature of the province of Artvin, namely being mountainous and not suitable for physical activity, as well as the fact that there are few opportunities to do sports on the campus.

The positive results of physical activity in protecting young people from depression and anxiety have attracted the attention of many researchers. Studies show that young people with high levels of physical activity have low levels of depression and anxiety, and there

is no difference between genders [38, 39]. These studies support this research. In this study, it was found that students with higher physical activity levels had a lower anxiety status than other students. Similarly, a study conducted on female students studying at the university found that students doing aerobic exercise had lower levels of resistance than exercising and non-exercising students [40].

Studies show that exercise reduces the severity of depression [41]. In addition to its curing effects, it has also been shown to be effective in preventing depression [24]. In the conducted study, it was found that physical activity, which corresponds to a 35-minute daily walk, 6 days a week, reduced the participants' depression complaint by 47%. This study showed that 3 hours of exercise a week was as effective as antidepressants in reducing complaints for people with mild to moderate depression [42]. In the study investigating the effects of regular exercise on depression in adolescents aged 14–18 years, it was found that the depression levels of adolescents who exercise regularly were lower than the depression levels of adolescents who did not exercise, and consequently, regular exercise had a protective effect against depression [43].

According to literature on the psychological resilience concept, Aydın and Egemberdiyeva [44] found that there was no significant difference between university students in terms of the gender variable in their research. Our research supports this study. However, in different studies, the level of psychological resilience of male university students was significantly higher than female university students [45, 46]. These studies are not in line with this study. Thome and Espelage [47] found that there was a positive relationship between psychological resilience and physical activity levels of female students studying at the university. Therefore, being physically active has a positive effect on psychology. In this study, it was found that the psychological status of university students doing physical activity was better than of those who were not active.

It was also stated that both individual and team sports have positive effects on the level of psychological resilience [11]. In addition, Toktas [48] found that the highest scores in the level of psychological resilience belonged to the students of physical education and sports education in his research on university students. This shows the effect of being in sports on psychological resilience.

Academic achievement is one of the proficiency factors that are addressed in psychological resilience research [49]. If an individual is psychologically resilient, he/she will continue to develop in accordance with the characteristics of the developmental period, perform the tasks expected of him/her and be successful in school life [50]. In parallel with this research, positive results were found regarding psychological resilience and academic achievement [51, 52]. In addition, Alan et al. [53] stated that psychological resilience has positive effects on academic achievement of female students studying at university, but is not very functional in males. In this study, it was seen that both male and female students with good psychological resilience had good academic achievement. According to this study, it can be said that the academic achievement of university students who are psychologically resilient has also increased.

CONCLUSION

As a result, it was found that students studying at Artvin Coruh University had low physical activity levels, there was no difference between psychological resilience and anxiety levels in terms of gender, and there was a significant difference between psychological resilience and anxiety levels in favor of students who had higher physical activity levels. These results show that physical activity and academic achievement positively differentiate both the anxiety level and the psychological resilience level.

PRACTICAL IMPLICATIONS

Based on these results, we can present the following suggestions.

1. Sports psychologists and experts, especially university students, may be advised to recommend exercising to improve their mental state and reduce their anxiety levels.
2. Regulations can be implemented within the campus to improve opportunities for university students to exercise.
3. The reasons for the low level of physical activity among university students should be investigated.
4. Since a high physical activity level is conducive to psychological well-being, students with high anxiety levels can be recommended to exercise regularly.
5. It is considered that creating environments where university students can easily play sports can positively affect students' psychological resilience levels.
6. It is seen that students with high psychological resilience have high academic achievement. Therefore, the exercising student will be psychologically better off, which will be reflected in his academic achievement.
7. Students can be directed to individual or team sports according to each interests.
8. By enforcing physical education and sports lessons in all departments, students can be provided with motion training and they can exercise consciously.

LIMITATIONS AND FUTURE DIRECTIONS

It is thought that this study will contribute to the literature on the relationship between psychological resilience levels and anxiety levels of university students, determining the differences in terms of physical activity levels, gender and academic success variables. The limitation of this research is the fact that there are only students of Artvin Coruh University. Therefore, future studies may investigate differences between students studying at different universities. In addition, different variables, such as the individual's socioeconomic status and perspective on exercise, can be examined in future research. The difference between individuals who exercise and who do not can be examined by doing experimental research. National and international joint research can be done. It can be assumed that the positive relationship between the psychological state and anxiety levels of individuals will be repeated. As the number of studies in this field increases, it is foreseen that it will be easier to understand and perceive being physically active, and it is considered that this study will support and guide future studies.

REFERENCES

- [1] Block, J, Kremen, AM. IQ and ego-resiliency: conceptual and empirical connections and separateness. *J Personal Soc Psychol.* 1996;70(2):349. <https://doi.org/10.1037/0022-3514.70.2.349>
- [2] Özgüven, İE. Üniversite öğrencilerinin sorunları ve baş etme yolları [University students' problems and ways to cope]. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi.* 1992;7:7. Turkish.
- [3] Erdoğan S, Şanlı HS, Bekir HS. Gazi üniversitesi, eğitim fakültesi öğrencilerinin üniversite yaşamına uyum durumları [The adaptation of Gazi University, Faculty of Education students to university life]. *Kastamonu Eğitim Dergisi.* 2005; 479. Turkish.
- [4] Özkan S, Yılmaz E. Adaptation status of university students to university life (Bandırma example). *Fırat Sağlık Hizmetleri Dergisi.* 2010;5(13):151-73.
- [5] Arıdağ NC, Ermumcu E. Examinations of Perceived Family Functions, Resilience and Substance Abuse of University Students. *International Online Journal of Educational Sciences,* 2017;9(2). <https://doi.org/10.15345/iojes.2017.02.014>
- [6] Tusaie, K. Psychosocial resilience in rural adolescents: optimism, perceived social support and gender differences (Doctoral dissertation, University of Pittsburg, 2001). Abstract reviewed April 27, 2007).
- [7] Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Develop.* 2000;71(3):543-562. <https://doi.org/10.1111/1467-8624.00164>
- [8] Gürkan, U. Grupla Psikolojik Danışmanın Üniversite Öğrencilerinin Yılmazlık Düzeylerine Etkisi [The effects of group counseling on the resiliency of university students]. Ankara: Ankara University, Institute of Educational Sciences; 2006.
- [9] Martinek TJ, Hellison Dr. Fostering resiliency in underserved youth through physical activity. *Quest.* 1997;49(1): 34-49. <https://doi.org/10.1080/00336297.1997.10484222>

- [10] Sarkar M, Fletcher D. Psychological resilience in sport performers: a review of stressors and protective factors. *J Sport Sci.* 2014;32(15):1419-1434. <https://doi.org/10.1080/02640414.2014.901551>
- [11] Ghaderi D, Ghaderi M. Survey the relationship between big five factor, happiness and sport achievement in Iranian athletes. *Ann Biol Res.* 2012;3(1):308-312.
- [12] Mcauley E, Blissmer B, Marquez DX, et al. Social relations, physical activity, and well-being in older adults. *Prevent Med.* 2000;31(5):608-617. <https://doi.org/10.1006/pmed.2000.0740>
- [13] Morgan CT. *Introduction to Psychology.* Education Publishing House; 2010.
- [14] Özbaydar S. *Nerves of Human Behavior and Sport Psychology.* Istanbul: Golden Books Publishing House; 1983.
- [15] Biçer T. Yaşamda ve sporda doruk performans [Peak performance in life and sports]. Sistem Yayıncılık; 1997. Turkish.
- [16] Bozkurt N. Bir grup üniversite öğrencisinin depresyon ve kaygı düzeyleri ile çeşitli değişkenler arasındaki ilişkiler [Relationship between depression and anxiety levels of a group of university students and various variables]. *Eğitim ve Bilim,* 2004, 29.133, 52-59.
- [17] Inanc N, Savas HA, Tutkun H, Herken H, Savas E. Gaziantep Üniversitesi Mediko-Sosyal Merkezi'nde psikiyatrik açıdan incelenen öğrencilerin klinik ve sosyo-demografik özellikleri. [The clinical and sociodemographic characteristics of the students psychiatrically examined at the Medico-Social Center of Gaziantep University]. *Anadolu Psikiyatri Dergisi.* 2004;5(4):222. Turkish.
- [18] Balanza GS, Morales MI, Guerrero MJ, Conesa CA. Academic and psycho-socio-familial factors associated to anxiety and depression in university students. Reliability and validity of a questionnaire. *Revista espanola de salud publica.* 2008;82(2):189-200.
- [19] Bayram N, Bilgel N. The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Soc Psychiatr Psychiatry and Psychiatric Epidemiology,* 2008;43(8):667-672. <https://doi.org/10.1007/s00127-008-0345-x>
- [20] Günay O, et al. Lise son sınıf öğrencilerinde durumluk ve sürekli anksiyete düzeyini etkileyen faktörler [Factors affecting state and trait anxiety level in high school senior students]. *Sağlık Bilimleri Dergisi.* 2008;17(2):77-85. Turkish.
- [21] Byrne A, Byrne DG. The effect of exercise on depression, anxiety and other mood states. *J Psychosom Res.* 1993;37:565-565. [https://doi.org/10.1016/0022-3999\(93\)90050-P](https://doi.org/10.1016/0022-3999(93)90050-P)
- [22] Gauvin L, Spence JC. Physical activity and psychological well-being: knowledge base, current issues, and caveats. *Nutr Rev.* 1996;54(4):S53. <https://doi.org/10.1111/j.1753-4887.1996.tb03899.x>
- [23] Salmon P. Effects of physical exercise on anxiety, depression, and sensitivity to stress: a unifying theory. *Clin Psychol Rev.* 2001;21(1):33-61. [https://doi.org/10.1016/S0272-7358\(99\)00032-X](https://doi.org/10.1016/S0272-7358(99)00032-X)
- [24] Mammen G, Faulkner G. Physical activity and the prevention of depression: A systematic review of prospective studies. *Am J Prevent Med.* 2013.45(5):649-657. <https://doi.org/10.1016/j.amepre.2013.08.001>
- [25] Weinstein A, Maayan G, Weinstein Y. A study on the relationship between compulsive exercise, depression and anxiety. *J Behav Addict.* 2015;4(4):315-318. <https://doi.org/10.1556/2006.4.2015.034>
- [26] Paolucci EM, Loukov D, Bowdish DM, Heisz JJ. Exercise reduces depression and inflammation but intensity matters. *Biol Psychol.* 2018;133:79-84. <https://doi.org/10.1016/j.biopsycho.2018.01.015>
- [27] Smith BW, Dalen J, Wiggins K, et al. The brief resilience scale: assessing the ability to bounce back. *Int J Behav Med.* 2008;15(3):194-200. <https://doi.org/10.1080/10705500802222972>
- [28] Doğan T. Kısa psikolojik sağlamlık ölçeği'nin Türkçe uyarlaması: Geçerlik ve güvenirlik çalışması [Turkish short version of psychological resilience scale: Validity and reliability study]. *The Journal of Happiness & Well-Being,* 2015;3(1):93-102. Turkish.
- [29] Beck AT, Epstein N, Brown, G, Steer, RA. An inventory for measuring clinical anxiety: Psychometric properties. *J Consult Clin Psychol.* 1988;56:893-897.
- [30] Ulusoy M, Sahin NH, Erkmén H. The Beck anxiety inventory: psychometric properties [The Beck anxiety inventory: psychometric properties]. *J Cogn Psychother.* 1998.12(2):163-172. Turkish.
- [31] Craig CL, Marshall AM, Sjöström AE, et al. International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sport Exerc.* 2003;35(8):1381-1395. <https://doi.org/10.1249/01.MSS.0000078924.61453.FB>
- [32] Öztürk M. Determination of the Validity and Reliability of the International Physical Activity Questionnaire and Physical Activity Levels in Students Studying at the University. Master Thesis. Ankara: Hacettepe University Institute of Health Sciences; 2005.
- [33] Hagströmer M, Oja P, Sjöström M. The International Physical Activity Questionnaire (IPAQ): a study of concurrent and construct validity. *Publ Nealth Nutr.* 2006;9(6):755-762. <https://doi.org/10.1079/PHN2005898>
- [34] Cengiz C, İnce ML, Çiçek Ş. Üniversite öğrencilerinin fiziksel aktivite düzeyleri ve fiziksel aktivite tercihleri [Physical activity levels and physical activity preferences of university students]. *Gazi Beden Eğitimi ve Spor Bilimleri Dergisi.* 2009;14(2):23-32. Turkish.
- [35] Savcı S, Öztürk M, Arkan H, İnal İD, Tokgözoğlu L. Physical activity levels of university students. *Archives of the Turkish Society of Cardiology,* 2006.34(3):166-172.
- [36] Balcı V, İlhan A. Türkiye'deki üniversite öğrencilerinin rekreatif etkinliklere katılım düzeylerinin belirlenmesi [Determining the level of university participation to the students of the recreational activities in Turkey]. *Sportmetre Beden Eğitimi ve Spor Bilimleri Dergisi.* 2006;4(1):11-18. Turkish. https://doi.org/10.1501/Sporm_0000000117
- [37] Kargün M, Togo OT, Biner M, Adem P. Üniversite öğrencilerinin fiziksel aktivite düzeylerinin incelenmesi [Investigation of physical activity levels of university students]. *Marmara Üniversitesi Spor Bilimleri Dergisi.* 2016;1(1):61-72. Turkish. <https://doi.org/10.22396/sbd.2016.6>
- [38] Martinsen EW. Physical activity in the prevention and treatment of anxiety and depression. *Nord J Psychiatr.* 2008;62. sup47:25-29. <https://doi.org/10.1080/08039480802315640>

- [39] Ströhle A. Physical activity, exercise, depression and anxiety disorders. *J Neural Transmission*. 2009;116(6): 777. <https://doi.org/10.1007/s00702-008-0092-x>
- [40] Balkin RS, Tietjen-Smith T, Caldwell C, Yu-Pei S. The utilization of exercise to decrease depressive symptoms in young adult women. *Adultspan Journal*. 2007;6(1):30-35. <https://doi.org/10.1002/j.2161-0029.2007.tb00027.x>
- [41] Rimer J, Dwan K, Lawlor DA, et al. Exercise for depression. *Cochrane Database of Systematic Reviews*. 2012;11th July <https://doi.org/10.1002/14651858.CD004366.pub5>
- [42] Dunn AL, Trivedi MH, Kampert JB, Clark CG, Chambliss HO. Exercise treatment for depression: efficacy and dose response. *American journal of preventive medicine*, 2005, 28.1: 1-8. <https://doi.org/10.1016/j.amepre.2004.09.003>
- [43] Hastürk MO, Şemşik S. Düzenli egzersiz yapan ve yapmayan ergenlerde depresyon düzeylerinin incelenmesi [Investigation of Depression Levels in Adolescents With and Without Regular Exercise]. *Spor Hekimliği Dergisi*.2011;46(2):039-046. Turkish.
- [44] Aydın M, Egemberdiyeva A. Üniversite öğrencilerinin psikolojik sağlamlık düzeylerinin incelenmesi [Investigation of psychological resilience levels of university students]. *Türkiye Eğitim Dergisi*, 2018;3(1):37-53. Turkish.
- [45] Açıköz M. Investigation of the relationship between Çukurova University Faculty of Medicine students' psychological resilience and humor styles and happiness level (Master's thesis). Çağ University Institute of Social Sciences; 2016.
- [46] Hoşoğlu R, Kodaz AF, Bingöl TY, Batık MV. Öğretmen adaylarında psikolojik sağlamlık [Psychological resilience in prospective teachers]. *OPUS Uluslararası Toplum Araştırmaları Dergisi*. 2018;8(14):217-239. Turkish.
- [47] Thome J, Espelage DL. Relations among exercise, coping, disordered eating, and psychological health among college students. *Eating Behaviors*. 2004;5(4):337-351.
- [48] Toktaş S. Examining the Levels of forgiveness and psychological resilience of teacher candidates. *J Educ Train Stud*. 2019;7(4):241-249. <https://doi.org/10.11114/jets.v7i4.4122>
- [49] Gizir C. Psikolojik sağlamlık, risk faktörleri ve koruyucu faktörler üzerine bir derleme çalışması [A review study on psychological resilience, risk factors and protective factors]. *Türk Psikolojik Danışma ve Rehberlik Dergisi*. 2007; (3)28:113-128. Turkish.
- [50] Öz F, Yılmaz BE. An Important Concept in the Protection of Mental Health: Psychological Solidity. *Faculty of Health Sciences, J. Nursery*. 2009;16(3):82-89.
- [51] Martin AJ, Marsh HW. Academic buoyancy: Towards an understanding of students' everyday academic resilience. *J School Psychol*. 2008;46(1):53-83. <https://doi.org/10.1016/j.jsp.2007.01.002>
- [52] Esquivel GB, Doll B, Oades-Sese GV. Introduction to the special issue: Resilience in schools. *Psychology School*. 2011;48(7):649-651. <https://doi.org/10.1002/pits.20585>
- [53] Allan JF, McKenna J, Dominey S. Degrees of resilience: profiling psychological resilience and prospective academic achievement in university inductees. *Br J Guid Counsel*. 2013;42(1):9-25. <https://doi.org/10.1080/03069885.2013.793784>

Cite this article as:

Demir A, Barut AI.
The relationship between university students' psychological resilience and anxiety levels and comparison in terms of physical activity levels gender and academic achievement
Balt J Health Phys Act. 2020;Suppl(1):75-83
doi: 10.29359/BJHPA.2020.Suppl.1.08