ORIGINAL RESEARCH ORİJİNAL ARAŞTIRMA

DOI: 10.5336/nurses.2023-99195

The Relationship Between Exam Anxiety and Risky Behaviors in Late Adolescents: A Descriptive Study

Geç Adölesanlarda Sınav Kaygısı ve Riskli Davranışlar Arasındaki İlişki: Tanımlayıcı Araştırma

Bekir ERTUĞRUL[a], Esra TEKİNYILDIZ[a], Senem ÇELİK YAVUZ[a]

[a]Başkent University Vocational School of Health Services, Program of First and Emergency Aid, Ankara, Türkiye

ABSTRACT Objective: This study aimed to determine the relationship between exam anxiety experienced during the late adolescent period and the inclination towards risky behaviors in the educational process of students. **Material and Methods:** The research was conducted in a descriptive manner. The sample consisted of 581 students studying in the field of health services at a foundation university. Data for the study were collected using a descriptive information form, the Westside Exam Anxiety Scale, and the Risky Behaviors Scale. Mann-Whitney U, Kruskal-Wallis H, and Spearman correlation tests were used for analysis. **Results:** The average age of the participants was 20.49±1.52. The study revealed that participants exhibited exam anxiety above average, with the highest score among risky behaviors being in tendencies towards suicide. It was observed that males had higher mean scores in sub-dimensions of antisocial behavior, alcohol, tobacco, substance use, and school dropout compared to females. Additionally, late adolescents with higher family incomes showed lower tendencies towards suicide. As exam anxiety increased, tendencies towards antisocial behavior, smoking, suicide, school dropout, and risky eating habits also increased. Moreover, a significant, positive, and moderate-level relationship was determined between the Westside Exam Anxiety Scale and tendencies towards suicide. **Conclusion:** Students with high exam anxiety tend to have a higher tendency to exhibit antisocial behavior, engage in smoking, show suicidal tendencies, adopt risky eating habits, and display a risk of dropping out of school. It is recommended that public health nurses conduct educational and counseling activities to address these heightened risk tendencies.

Keywords: Education; exam anxiety; health risky behaviors; late adolescent

ÖZET Amaç: Bu araştırma, geç adölesan dönemi öğrencilerin eğitim sürecinde yaşamış olduğu sınav kaygısı ve riskli davranışlar gösterme arasındaki ilişkinin belirlenmesi amacıyla yapılmıştır. G**ereç ve Yöntemler:** Araştırma tanımlayıcı tipte yapılmıştır. Araştırmanın örneklemini bir vakıf üniversitesinin sağlık hizmetleri alanında öğrenim gören 581 öğrenci oluşturmuştur. Araştırmanın verileri tanıtıcı bilgi formu, Westside Sınav Kaygısı Ölçeği ve Riskli Davranışlar Ölçeği kullanılarak toplanmıştır. Analizinde Mann-Whitney U, Kruskal-Wallis H ve Spearman korelasyon testleri kullanılmıştır. **Bulgular:** Katılımcıların yaş ortalaması 20,49±1,52'dir. Araştırmada katılımcılar sınav kaygısının ortalamanın üstünde olduğu ve riskli davranışlar arasında en yüksek puanın intihar eğiliminde olduğu görülmüştür. Erkeklerin antisosyal davranış, alkol, sigara ve madde kullanımı, okul terki alt boyut puan ortalamalarının kadınlardan daha yüksek olduğu saptanmıştır. Aile geliri yüksek olan geç adölesanların intihar eğiliminin daha düşük olduğu belirlenmiştir. Sınav kaygısı arttıkça antisosyal davranış, sigara kullanımı, intihar eğilimi, okul terki ve riskli beslenme alışkanlığı artmıştır. Ayrıca Westside Sınav Kaygısı Ölçeği ile intihar eğilimi arasında anlamlı, pozitif ve orta düzeyde bir ilişki belirlenmiştir. **Sonuç:** Sınav kaygısı yüksek olan öğrencilerin antisosyal davranış, sigara kullanımı, intihar eğilimi, riskli beslenme alışkanlıkları ve okulu terk etme riskli davranışlarını gösterme eğilimi yüksektir. Bu risk eğilimlerinin yüksekliğine yönelik halk sağlığı hemşirelerinin eğitim ve danışmanlık faaliyetlerini yürütmeleri önerilir.

Anahtar Kelimeler: Eğitim; sınav kaygısı; riskli sağlık davranışları; geç adölesan

TO CITE THIS ARTICLE:
Ertuğrul B, Tekinyıldız E, Çelik Yavuz S. The relationship between exam anxiety and risky behaviors in late adolescents: A descriptive study. Turkiye Klinikleri J Nurs Sci. 2024;16(1):112-21.

Correspondence: Bekir ERTUĞRUL
Başkent University Vocational School of Health Services, Program of First and Emergency Aid, Ankara, Türkiye
E-mail: bertugrul@baskent.edu.tr

Peer review under responsibility of Turkiye Klinikleri Journal of Nursing Sciences.

Received: 23 Aug 2023 ***Received in revised form:*** 05 Dec 2023 ***Accepted:*** 11 Jan 2024 ***Available online:*** 22 Jan 2024

According to the World Health Organization, the adolescent period spans between the ages of 10 and 19. Individuals aged between 19 and 24 are identified as young, young adults, young individuals, emerging adulthood or late adolescence. Although there are sources indicating different usage in the literature, "young", "young adult", "young individual", and "late adolescence" approximately refer to the same age range.[1,2] The prolongation of education beyond the 20th century, delays in the processes of marriage and parenthood, have been stated to cause delays in transitioning to adulthood, which in turn leads to changes in the adolescent process.[3]

Approximately 16% of the world's population consists of individuals aged between 15 and 24, and it is expected that the young population will increase by around 7% by 2030.[4] During this period, individuals are expected to take on new responsibilities and obligations. Educational and employment achievements or failures are closely linked to health status. It's stated that low levels of education and professional setbacks can have adverse effects on an individual's health behaviors. The habits formed during this period significantly influence a healthy transition into adulthood. Therefore, emphasizing the importance of this period for healthy adulthood and a healthy life is highlighted.[3]

During the period between 18 and 25 years old, individuals begin to make decisions about their lives on their own. The dimension of the relationship between the individual and the family changes during this period. On one hand, there is a shift in the long-standing family support and the necessity to make their own decisions, while on the other hand, crucial decisions that can impact their entire lives are made during this period, rendering it a risky phase.[5] The 18-25 age bracket is a period where social roles undergo change. Particularly during this time, intrafamilial processes play a role in impulsivity and empathy within antisocial personality issues. In a study involving 350 participants, the influence of parental behavioral control on the development of antisocial personality disorder was identified.[6]

The Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System categorizes risky health behaviors that lead to disability and premature death into 6 groups. Risky health behaviors are classified as situations causing violence and unintended injuries, human immunodeficiency virus, unwanted pregnancies, and sexually transmitted diseases, as well as the use of tobacco, alcohol, and other substances, unhealthy dietary habits, and insufficient physical activity.[7] According to the World Health Organization's 2023 statistics, despite a decrease in alcohol consumption rates compared to previous years, the risk associated with alcohol consumption remains high.[8]

The late adolescent period typically coincides with the life stage where decisions about university education, choosing a partner, and selecting a career path are made. During this period, individuals often pursue higher education for their future professional life. The education obtained at the university significantly shapes one's career.[3-9]

It is believed that late adolescents tend to exhibit an increased inclination towards risky behaviors when experiencing exam anxiety. School health nursing is a field within public health nursing. Public health nurses play an important role in reducing the tendency towards increased risky behaviors. Within the school community, they have roles in preventing alcohol, substance, and tobacco use, promoting healthy eating, exercise, and stress management, aiming to protect and enhance health. As far as the literature search allows, no studies regarding exam anxiety and the inclination towards risky behaviors in late adolescents have been found. This study aims to address this gap in the literature.

MATERIAL AND METHODS

DESIGN AND SAMPLE

The study was conducted descriptive. The population consisted of 1,000 late adolescents studying in the field of health services (first and emergency aid, physiotherapy, medical documentation and secretariat, medical imaging techniques, operating room services, pathology laboratory techniques, oral and dental health, dialysis and anesthesia) at a foundation university. The convenience sampling method was used in the study. G*Power 3.1 (University Kiel, Germany) package program was utilized in the sampling

calculation of the study. The sample size was determined as 581 people with an effect size of 0.13, 95% power (1-β=0.95), and 5% margin of error (α=0.05). The study was finalized with 581 young adults.

PROCEDURES

The research was based on self-report. Data collection was carried out electronically on March 2022. Participants were given information about the purpose of the research and according to this information, the data collection form prepared with Google Forms® (Google LLC, Mountain View, CA, USA) was sent to the participants who agreed to participate in the research via e-mail and WhatsApp (WhatsApp LLC, Menlo Park, CA, USA) and they were asked to fill out the form. In case the prepared data collection form could not be understood, the contact information of the researchers was provided and the participants were provided with the opportunity to receive information.

INSTRUMENTS

The data were obtained through the descriptive information form, Westside Exam Anxiety Scale, and Risky Behaviors Scale.

DESCRIPTIVE INFORMATION FORM

Consists of 10 structured questions including personal characteristics of late adolescents (age, gender, educational program, class, family income status, mother education status, father education status, parent relationship status, the longest living place, place of stay).

WESTSIDE EXAM ANXIETY SCALE

The scale was developed by Driscoll to assess students' exam anxiety, and the Turkish validity and reliability study was conducted by Totan and Yavuz.[10,11] The scale consists of 11 items and one factor. The scale consists of a 5-point Likert scale (1. never true-5. always true) and has no reverse items. An increase in the score obtained from the scale indicates a high level of exam anxiety, while a decrease in the score indicates a low level of exam anxiety. The scale has no cut-off point. In the Turkish validity and reliability study of the scale, the Cronbach alpha value was found to be 0.89. In this study, the Cronbach alpha value was found to be 0.90.

RISKY BEHAVIORS SCALE

The scale was developed by Gençtanırım to assess the risky behaviors of young adults. The scale consists of 60 items and 7 dimensions. These are antisocial behaviors, smoking, alcohol use, substance use, suicidal tendency, eating habits, and school dropout. The scale consists of a 5-point Likert scale (1. never-5. always) and has no reverse items. The dimensions of the scale are evaluated separately, and the scale does not provide a total score. A higher score in a dimension indicates a higher risk level in that dimension. There is no cut-off point. The Cronbach alpha values of the dimensions of the scale were determined as antisocial behaviors (0.80), smoking (0.93), alcohol use (0.92), substance use (0.90), the suicidal tendency (0.91), eating habits (0.81) and school dropout (0.64).[12] In this research, Cronbach alpha value; antisocial behavior (0.83), smoking (0.91), alcohol use (0.92), substance use (0.91), suicidal tendencies (0.93), eating habits (0.83) and school dropout (0.60).

DATA ANALYSIS

The data of the study were analyzed with IBM SPSS (IBM SPSS Statistics for Windows, Version 22.0. IBM Corp., Armonk, NY, ABD) program. The characteristics of the participants were presented as numbers and percentages. Normality distribution was analyzed by the Kolmogorov-Smirnov test ($p<0.05$). The effects of independent variables (gender, income, longest place of residence, etc.) on dependent variables (smoking, alcohol, substance use, school dropout, etc.) were analyzed with the Mann-Whitney U and the Kruskal-Wallis H tests. Spearman correlation analysis was conducted to determine the relationship between Westside Exam Anxiety and Risky Behaviors Scale. Significance was accepted at $p<0.05$ level.

ETHICAL CONSIDERATIONS

Research protocol Başkent University (date: February 24, 2022; number: 17162298.600-44) was approved by the ethics committee and board. Regarding the Westside Exam Anxiety Scale and Risky Behaviors Scale, permission for use was obtained from the researchers who developed them. Participants were informed and written informed consent was obtained. The study was conducted in accordance with the principles of the Declaration of Helsinki.

RESULTS

Of the individuals participating in the study, the mean age of the 581 participants included in the study was 20.49±1.52, 74% were female, 17% were in the first aid and emergency aid program, and 59.7% were in their freshman year. It was determined that the income of 63.7% of the participants was equal to the expenses, 46.1% of the mother's education was high school, and 50.1% of the father's education was high school. It was determined that 82.6% of the individuals' parents were alive and living together, 68% lived in metropolitan regions for the most extended period, and 84.3% lived with their families (Table 1).

Table 2 demonstrates, the mean total score of the Westside Exam Anxiety Scale and the mean total sub-scores of the Risky Behaviors Scale. The mean total score of the participants on the Westside Exam Anxiety Scale was 37.39±9.58 (minimum: 11, maximum: 55). In the Risky Behaviors Scale, sub-dimension average was employed instead of the total score average. The mean antisocial behavior subscale score of the participants was 16.22±5.64 (minimum: 10, maximum: 50), the mean alcohol use subscale score was 13.40±7.20 (minimum: 9, maximum: 45), the mean smoking subscale score was 19.19±9.28 (minimum: 8, maximum: 40), the mean suicidal tendency subscale score was 28.99±10.84 (minimum: 12, maximum: 60), mean subscale score of eating habits was 23.66±6.44 (minimum: 8, maximum: 40), mean subscale score of school dropout was 8.60±3.47 (minimum: 4, maximum: 20), mean subscale score of substance use was 10.42±4.31 (minimum: 9, maximum: 45) (Table 2).

Table 3 displays the comparison of demographic characteristics with the sub-dimensions of the Risky Behaviors Scale. When analyzed gender-wise, it was observed that the mean scores of antisocial behavior, alcohol, cigarette and substance use, and school dropout sub-dimensions of males were higher than females and the difference was statistically significant ($p<0.05$). When compared according to family income status, the mean suicidal tendency score of students whose income is higher than expenses is lower than the other groups ($p<0.05$). The mean antisocial behavior score of the participants whose

TABLE 1: Demographics of late adolescents (n=581).

Demographic Characteristics	n	%
Mean age [X±SD (minimum-maximum)]	20.49±1.52 (18-25)	
Gender		
Female	430	74.0
Woman	151	26.0
Educational program		
First and emergency aid	99	17.0
Medical imaging techniques	78	13.4
First and emergency aid (2nd teaching)	77	13.3
Physiotherapy	62	10.7
Operating room services	53	9.1
Pathology laboratory techniques	51	8.8
Oral and dental health	48	8.3
Medical documentation and secretariat	45	7.7
Dialysis	35	6.0
Anesthesia	33	5.7
Class		
1st class	347	59.7
2nd class	234	40.3
Family income status		
Income less than expenses	105	18.1
Income equal to expense	370	63.7
Income more than expenses	106	18.2
Mother education status		
Primary education	236	40.6
High school	268	46.1
Undergraduate	72	12.4
Postgraduate	5	0.9
Father education status		
Primary education	162	27.9
High school	291	50.1
Undergraduate	114	19.6
Postgraduate	14	2.4
Parent relationship status		
Individuals' parents were alive and living together	480	82.6
Parents are alive and living separately	72	12.4
Mother is alive, father is dead	24	4.1
Mother dead, father alive	5	0.9
The longest living place		
Metropolitan	395	68.0
City center	142	24.4
Village/town	44	7.6
Place of stay		
Together with the family	490	84.3
Private dormitory	59	10.2
Government dorm	17	2.9
Shared house with friend	15	2.6

SD: Standard deviation.

TABLE 2: Average age and scale score of late adolescents (n=581).

	$\bar{X}$	SD	Minimum	Maximum
Westside Exam Anxiety Scale	37.39	9.58	11	55
Risky Behaviors Scale sub-dimensions				
Antisocial behaviors	16.22	5.64	10	50
Alcohol use	13.40	7.20	9	45
Smoking	19.19	9.28	8	40
Suicidal tendency	28.99	10.84	12	60
Eating habits	23.66	6.44	8	40
School dropout	8.60	3.47	4	20
Substance use	10.42	4.31	9	45

SD: Standard deviation.

mothers had postgraduate education level was higher than those with primary education level ($p<0.05$). The mean score of alcohol use of the participants whose mother's level of education was primary education was lower than the other groups ($p<0.05$). The mean score of smoking among the participants whose mother's level of education was primary school was lower than that of the participants whose mother's level of education was undergraduate ($p<0.05$). The mean suicidal tendency score of the participants whose mothers had primary education level was higher than the participants whose mothers had high school education level ($p<0.05$) (Table 3).

The mean scores of antisocial behavior and alcohol use of the participants whose fathers had primary education were lower than those whose fathers had graduate education ($p<0.05$). The mean score of alcohol use of the participants whose mother was alive and whose father was dead was higher than the participants whose parents were alive and together ($p<0.05$). The mean score of smoking among participants whose parents were alive and together was lower ($p<0.05$) than the mean score of participants whose parents were dead and whose parents were alive and divorced (Table 3).

The mean suicidality score of the participants whose most extended place of residence was village/town was higher than those living in metropolitan areas ($p<0.05$). The mean school dropout sub-dimension score of students living in villages/towns was higher than those living in metropolitan areas ($p<0.05$) (Table 3).

A significant, positive, low-level relationship was observed between anxiety scale score and antisocial behaviors, smoking, eating habits, and school dropout ($p<0.05$). Also, a significant, positive, moderate relationship was detected between anxiety scale score and suicidal tendency ($p<0.05$). There was not any significant relationship between the anxiety scale score and alcohol and substance use sub-dimensions ($p>0.05$) (Table 4).

DISCUSSION

In this study, the impact of exam anxiety experienced by late adolescents during the educational process on showing risky behaviors was examined. The results revealed the extent of exam anxiety in late adolescents and the extent of its effect on risky behaviors. In this study, the mean score of the exam anxiety scale of late adolescents was calculated as 37.39±9.58. This result indicates that the exam anxiety of late adolescents is above average. In a study conducted by Nazir et al. in Pakistan, it was determined that more than half of the students had high exam anxiety.[13] In another study, it was also found that exam anxiety (35.8±8.09) in university students was above the average.[14] Although this result is similar to other results in the literature, it is thought that the necessity to succeed in exams to start professional life and to have an occupation increases exam anxiety in university education.

Anxiety disorders frequently co-occur with serious antisocial behavior in children and adolescents.[15] In our research, it was seen that exam anxiety

TABLE 3: Comprasion of demographic characteristics and sub-dimensions of the Risky Behaviors Scale.

Variables	n	Antisocial behaviors X̄±SD	Alcohol use X̄±SD	Smoking X̄±SD	Suicidal tendency X̄±SD	Eating habits X̄±SD	School dropout X̄±SD	Substance use X̄±SD
Gender								
Male	151	18.05±6.65	15.49±8.88	21.56±9.04	28.95±11.59	23.74±7.31	9.49±3.70	11.71±6.22
Female	430	15.57±5.09	12.67±6.36	18.36±9.23	29.00±10.58	23.63±6.11	8.29±3.33	9.97±3.28
Test; p value		U=24062.000	U=26240.000	U=25252.000	U=31951.000	U=32062.000	U=26424.000	U=26390.500
		p=0.000	**p=0.000**	**p=0.000**	p=0.772	p=0.820	**p=0.001**	**p=0.000**
Family income status								
Income less than expenses	105	16.17±6.09	13.87±7.21	19.21±9.50	31.63±11.70	22.87±6.23	9.00±3.39	10.73±4.31
Income equal to expense	370	16.21±5.70	13.20±7.07	18.76±9.19	29.56±10.61	24.03±6.34	8.47±3.42	10.32±4.37
Income more than expenses	106	16.31±4.97	13.64±7.65	20.67±9.32	24.37±9.40	23.16±6.93	8.67±3.69	10.47±4.08
Test; p value		χ^2kw=0.97	χ^2kw=2.13	χ^2kw=3.57	χ^2kw=26.5	χ^2kw=3.22	χ^2kw=2.31	χ^2kw=2.86
		p=0.61	p=0.34	p=0.16	**p=0.00**	p=0.19	p=0.31	p=0.23
Mother education status								
Primary education	236	15.63±5.11	11.96±5.67	17.80±8.81	30.56±11.04	23.64±6.16	8.74±3.37	10.30±4.42
High school	268	16.45±6.14	14.16±7.93	19.42±9.36	27.34±10.46	23.67±6.72	8.32±3.44	10.48±4.20
Undergraduate	72	16.88±5.15	14.81±7.80	22.27±9.57	29.97±10.78	23.69±6.20	9.11±3.69	10.62±4.45
Graduate	5	22.00±3.39	20.20±9.62	28.20±8.16	28.80±13.00	23.40±9.28	10.00±5.33	10.20±2.16
Test; p value		χ^2kw=11.78	χ^2kw=27.91	χ^2kw=16.90	χ^2kw=11.57	χ^2kw=0.18	χ^2kw=4.01	χ^2kw=2.25
		p=0.00	**p=0.00**	**p=0.00**	**p=0.00**	p=0.98	p=0.26	p=0.52
Father education status								
Primary education	162	15.21±4.74	12.24±5.57	18.22±8.68	30.20±12.11	23.45±6.16	8.51±3.38	9.79±2.29
High school	291	16.41±6.05	13.64±7.81	19.52±9.45	28.42±10.23	23.89±6.64	8.47±3.49	10.68±5.11
Undergraduate	114	16.60±5.28	13.85±7.18	19.32±9.56	28.10±10.26	23.34±6.14	8.90±3.59	10.61±4.28
Graduate	14	20.78±6.68	18.21±8.58	22.57±9.87	33.85±10.83	23.85±8.03	9.92±2.84	10.78±3.82
Test; p value		χ^2kw=13.70	χ^2kw=12.83	χ^2kw=3.84	χ^2kw=4.75	χ^2kw=0.25	χ^2kw=4.00	χ^2kw=5.53
		p=0.00	**p=0.00**	p=0.27	p=0.19	p=0.96	p=0.26	p=0.13
Parent relationship status								
Mother dead, father alive	5	14.20±1.64	11.60±2.96	29.80±5.21	29.80±6.90	30.80±4.96	6.80±3.03	9.00±0.00
Parents are alive and living separately	72	16.54±6.27	14.25±7.76	22.95±9.53	27.29±11.54	23.23±6.06	9.00±3.77	10.75±4.25
Individuals' parents were alive and living together	480	16.14±5.62	13.16±7.12	18.29±8.99	29.23±10.83	23.65±6.46	8.57±3.42	10.34±4.28
Mother is alive, father is dead	24	17.33±4.41	16.12±7.26	23.75±9.83	29.00±9.49	23.66±6.93	8.54±3.55	11.41±5.38
Test; p value		χ^2kw=3.55	χ^2kw=10.64	χ^2kw=24.91	χ^2kw=2.99	χ^2kw=6.48	χ^2kw=1.95	χ^2kw=3.56
		p=0.31	**p=0.01**	**p=0.00**	p=0.39	p=0.90	p=0.58	p=0.31
The longest living place								
Village/town	44	16.52±4.70	12.11±5.66	18.09±8.46	33.04±9.74	24.88±7.14	10.04±3.62	12.22±7.44
City center	142	15.88±5.58	12.82±6.62	18.79±9.73	29.94±11.65	23.45±6.19	8.52±3.43	10.64±4.91
Metropolitan	395	16.31±5.76	13.75±7.53	19.46±9.21	28.19±10.55	23.60±6.45	8.47±3.44	10.14±3.49
Test; p value		χ^2kw=1.96	χ^2kw=3.65	χ^2kw=1.99	χ^2kw=10.45	χ^2kw=1.84	χ^2kw=7.77	♩ 2kw=1.60
		p=0.37	p=0.16	p=0.36	**p=0.00**	p=0.39	p=0.02	p=0.44

Values in bold are significant at the p<0.05 level; χ^2kw: Kruskal-Wallis H test; U: Mann-Whitney U test; SD: Standard deviation.

TABLE 4: Investigation of the relationship between the total score average of the Westside Exam Anxiety Scale and the sub-dimensions of the Risky Behaviors Scale deciency scale.

Westside Exam Anxiety Scale	Antisocial behaviors	Alcohol use	Smoking	Suicidal tendency	Eating habits	School dropout	Substance use
r value	0,088	-0.021	0.112	0.413	0.208	0.173	0.034
p value	**0.034**	0.610	**0.007**	**0.000**	**0.000**	**0.000**	0.418
n	581	581	581	581	581	581	581

r: 0.01-0.29 was accepted as a low-level relationship; r: 0.30-0.70 was accepted as a medium-level relationship; r: 0.71-0.99 was accepted as a high-level relationship; p<0.05 is statistically significant.

increased antisocial behavior. When the literature was examined, in a study conducted by Robertson et al. on 1,216 adolescents, it was found that anxiety was a factor that increased the severity of antisocial behaviors.[16] Similarly, in another study conducted by Marsee et al., anxiety and antisocial behavior were found to be positively related, with estimates ranging from r=0.23-0.55.[17] Our research result is compatible with the literature.

It is widely recognized that factors such as depression, substance use, social isolation, negative perception of the future, and anxiety increase suicidal tendencies.[18] More than 700,000 individuals lose their lives to suicide each year worldwide. Suicide is the fourth leading cause of death among individuals aged 15-29.[19] In this study, it was observed that the highest score for risky behaviors was obtained from the suicidal tendency dimension (28.99±10.84). Similarly, the highest score for risky behaviors was found to be a suicidal tendency.[20] The results of this study are similar to other studies in the literature. It is believed that the high suicidal tendency in late adolescents is due to factors such as individual anxiety about the future, psychological problems, and lack of financial power, as well as the fact that vital decisions are carried out during this period.

18-25 between age is a period of increased risk of depression. It is also critical for healthy behavior patterns that will carry the individual into adulthood. One of these behavior patterns is nutrition.[21] In this study, it was determined that risky eating behavior increased as exam anxiety increased. A randomized controlled three-week healthy eating intervention in depressed young adults was proven to reduce depression symptoms.[22] In another study conducted to determine the relationship between nutritional habits and the academic performance of university students, it was unearthed that eating breakfast had a positive effect on academic achievement scores, while fast food consumption had a negative effect.[23] In this study, it is believed that the high level of risky nutritional risk behavior is due to the procrastination behavior of late adolescents during the exam process and the lack of effective study methods.

Alcohol abuse accounts for 3 million deaths worldwide annually.[24] In this study, it was observed that men had higher risk behaviors for alcohol use. Studies in the literature also demonstrate that alcohol use disorder in men is higher than in women.[25] It is considered that alcohol use disorder in late adolescents, especially in men, is related to the inability to express themselves, feeling socially pressured, and lack of social support arising from their social roles.

According to the World Health Organization, 2020 data; 36.7% of the world's male population and 7.8% of women are smokers. Approximately one-fourth of the world's population is a smoker, and more than 8 million people die from smoking annually.[26] In this study, it is observed that men have a high-risk behavior of smoking. Similarly, it has been found in the literature that the risky behavior of smoking is higher in men than in women.[27] As a result of the research, it is believed that the difference between men and women regarding cigarette consumption may be due to the level of tobacco use and the difference in gender roles.

In this study, it was seen that the school dropout rate was high among males and those living in rural areas. A study conducted on adolescents in India also stated that school dropout was significantly higher among older boys (39%) and girls (49%) living in rural areas compared to those living in urban areas.[28] The research result supports our finding.

Substance use among late adolescents has become an important issue in society.[29] In this study, it is observed that the risky behavior of substance use in late adolescents is high among males. Similar to this study, many studies show that substance use is high in males.[30] It is believed that men in traditional societies have a higher level of substance use compared to women due to the fact that men are released more freely with their social environment, they can engage in environments where risky behaviors can be encountered more, and the differences in traditional societies regarding men's attitudes towards coping with problems.

Suicide is the 4th cause of death in individuals aged 15-29.[19] In this study, a significant, positive and moderate relationship was found between anxiety scale score and suicidal tendencies. In a study conducted with 505 participants from three southern Nigerian Universities, examining the mediating role of coping style and psychological resilience on academic stress and suicidal ideation, it was found that academic stress at low or medium coping levels was positively associated with suicidal ideation.[31] Our research result is similar to the literature.

Compared to other Organisation for Economic Co-operation and Development countries, the suicide rate in Türkiye is higher due to unemployment and lack of income.[32] In this study, it is observed that late adolescents with low income have a higher suicidal tendency. In a study conducted by Urme et al., it was observed that students experienced financial crises before attempting suicide.[33] It is thought that factors such as limited opportunities, increased difficulties, decreased purchasing power and lack of social support from other people in society may increase suicidal tendencies.

In social life, traditions and cultures have an impact on human life. In this study, it was observed that late adolescents who lived in villages/towns for a long time had a higher suicidal tendency. In a study conducted with university students in China, it was found that students from rural areas had higher suicidal ideation.[34] Similarly, in another study, it was determined that students living in rural areas had higher suicidal ideation than those living in urban areas.[35] It is believed that individuals living in villages/towns for a long period of time, moving from a limited/known environment in the university environment to an unfamiliar environment with a different traditional and cultural structure and a lower likelihood of receiving social support, affect individuals emotionally and psychologically and increase suicidal tendencies.

LIMITATION

The limitation of this research is that it was conducted on late adolescents studying in the field of health services at a foundation university.

CONCLUSION

The study revealed that late adolescents have above-average exam anxiety and high suicidal risk behaviors. Late adolescents with high exam anxiety have a high tendency to display antisocial behavior, smoking, suicidal tendency, risky eating habits, and risky behaviors such as dropping out of school. It is recommended to investigate whether the effect of exam anxiety on risky behaviors is higher in theoretical exams or practical exams. In this respect, it is recommended that academicians should conduct alternative practices such as laughter yoga, music therapy, and motivational speaking before exams in order to provide late adolescents with coping skills for exam anxiety, organize counseling programs for late adolescents who have difficulty in managing the process, and provide guidance to late adolescents within the framework of a multidisciplinary approach to risky behaviors. In order to prevent depression and suicidal tendencies in young adults, it is recommended that social support systems should be developed, late adolescents should participate in social clubs, and psychological counseling and guidance services should be provided to late adolescents who have difficulty in stress management. Regarding the risk of alcohol and smoking abuse, it is recommended to provide counseling regarding the harms of alcohol and

cigarettes, the amount of alcohol and cigarette use, leisure time activities, and social life. In order to prevent substance use, it is recommended to provide training and counseling for late adolescents within the framework of a multidisciplinary approach with the police department, social workers, psychologists, and public health nurses.

Acknowledgements

The authors thank all the young adult who participated in this study. The authors received no financial support for the research, authorship and/or publication of this article.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Author Contributions

***Idea/Concept:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Design:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Control/Supervision:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Data Collection and/or Processing:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Analysis and/or Interpretation:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Literature Review:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Writing the Article:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **Critical Review:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız; **References and Fundings:** Bekir Ertuğrul, Senem Çelik Yavuz, Esra Tekinyıldız.*

REFERENCES

1. Arnett JJ. Emerging adulthood. A theory of development from the late teens through the twenties. Am Psychol. 2000;55(5):469-80. [Crossref] [PubMed]
2. Sawyer SM, Azzopardi PS, Wickremarathne D, Patton GC. The age of adolescence. Lancet Child Adolesc Health. 2018;2(3):223-8. [Crossref] [PubMed]
3. Committee on Improving the Health, Safety, and Well-Being of Young Adults; Board on Children, Youth, and Families; Institute of Medicine; National Research Council. Investing in the Health and Well-Being of Young Adults. Bonnie RJ, Stroud C, Breiner H, eds. Washington (DC): National Academies Press (US); 2015. [PubMed]
4. UNESCO [Internet]. [Cited: November 24, 2023]. UNESCO with, by and for youth. Available from: [Link]
5. Baggio S, Studer J, Iglesias K, Daeppen JB, Gmel G. Emerging adulthood: a time of changes in psychosocial well-being. Eval Health Prof. 2017;40(4):383-400. [Crossref] [PubMed]
6. Marzilli E, Cerniglia L, Cimino S. Antisocial personality problems in emerging adulthood: the role of family functioning, impulsivity, and empathy. Brain Sci. 2021;11(6):687. [Crossref] [PubMed] [PMC]
7. Centers for Disease Control and Prevention [Internet]. [Cited: September 15, 2023]. Youth risk behavior surveillance system (YRBSS). Available from: [Link]
8. WHO. Global Accelerated Action for the Health of Adolescents (AA-HA!): guidance to support country implementation. 2nd ed. Geneva: World Health Organization; 2023. [Link]
9. Peterson NE, Sirard JR, Kulbok PA, DeBoer MD, Erickson JM. Sedentary behavior and physical activity of young adult university students. Res Nurs Health. 2018;41(1):30-8. [Crossref] [PubMed]
10. Driscoll R. Westside Anxiety Scale Validation. 2007. Cited: December 4, 2023. Available from: [Link]
11. Totan T, Yavuz Y. Westside sınav kaygısı ölçeğinin Türkçe geçerlilik ve güvenirlik çalışması [The validity and reliability study of the Turkish version of westside test anxiety scale]. Mehmet Akif Ersoy University Journal of Education Faculty. 2007;9(17):95-109. [Link]
12. Gençtanırım D. Riskli davranışlar ölçeği üniversite formu: Geçerlik ve güvenirlik çalışmaları [University form of risk behaviors scale: Validity and reability studies]. Journal of Measurement and Evaluation in Education and Psychology. 2014;5(1):24-34. [Link]
13. Nazir MA, Izhar F, Talal A, Sohail ZB, Majeed A, Almas K. A quantitative study of test anxiety and its influencing factors among medical and dental students. J Taibah Univ Med Sci. 2021;16(2):253-9. [Crossref] [PubMed] [PMC]
14. Doğan U. Lise ve üniversite öğrencilerinde sınav kaygısının karşılaştırılması [Comparison of test anxiety in high school and university students]. MSKU Journal of Education. 2020;7(1):35-42. [Crossref]
15. Cunningham NR, Ollendick TH. Comorbidity of anxiety and conduct problems in children: implications for clinical research and practice. Clin Child Fam Psychol Rev. 2010;13(4):333-47. [Crossref] [PubMed]
16. Robertson EL, Ray JV, Frick PJ, Vaughan EP, Thornton LC, Wall Myers TD, et al. The bidirectional effects of antisocial behavior, anxiety, and trauma exposure: Implications for our understanding of the development of callous-unemotional traits. J Psychopathol Clin Sci. 2023;132(4):445-60. [Crossref] [PubMed]
17. Marsee MA, Weems CF, Taylor LK. Exploring the association between aggression and anxiety in youth: A look at aggressive subtypes, gender, and social cognition. Journal of Child and Family Studies. 2008;17(1):154-68. [Crossref]
18. Rizk MM, Herzog S, Dugad S, Stanley B. Suicide risk and addiction: the impact of alcohol and opioid use disorders. Curr Addict Rep. 2021;8(2):194-207. [Crossref] [PubMed] [PMC]
19. World Health Organization [Internet]. © 2023 WHO [Cited: December 4, 2023]. Suicide. Available from: [Link]

20. Yıldırım RV, Zengin Y. Başkent Üniversitesi tıp fakültesi dönem 2 ve sağlık bilimleri fakültesi hemşirelik bölümü 2. sınıf öğrencilerinin riskli davranışlar ölçeği ve ahlaki olgunluk ölçeği skorlamalarının değerlendirilmesi [The evaluation of risk behaviour scale scores and scale of moral maturity scores between Baskent University term 2 students of faculty of medicine and 2nd grade students in health sciences faculty school of nursing]. Turkish Journal of Bioethics. 2018;5(4):165-74. [Crossref]
21. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry. 2005;62(6):593-602. Erratum in: Arch Gen Psychiatry. 2005;62(7):768. Merikangas, Kathleen R [added]. [Crossref] [PubMed]
22. Francis HM, Stevenson RJ, Chambers JR, Gupta D, Newey B, Lim CK. A brief diet intervention can reduce symptoms of depression in young adults - A randomised controlled trial. PLoS One. 2019;14(10):e0222768. [Crossref] [PubMed] [PMC]
23. Reuter PR, Forster BL, Brister SR. The influence of eating habits on the academic performance of university students. J Am Coll Health. 2021;69(8):921-7. [Crossref] [PubMed]
24. World Health Organization [Internet]. © 2023 WHO [Cited: December 4, 2023]. Alcohol. Available from: [Link]
25. Kızıltaş A, Tuncay T. Üniversite öğrencilerinin alkol ve madde kullanma risklerinin çeşitli değişkenler açisindan incelenmesi [Examining the alcohol and substance use risks of university students according to various variables]. Journal of Society & Social Work. 2021;32(3):867-82. [Crossref]
26. World Health Organization [Internet]. © 2023 WHO [Cited: December 4, 2023]. Tobacco. Available from: [Link]
27. Alolabi H, Alchallah MO, Mohsen F, Shibani M, Ismail H, Alzabibi MA, et al. Prevalence and behavior regarding cigarette and water pipe smoking among Syrian undergraduates. Heliyon. 2020;6(11):e05423. [Crossref] [PubMed] [PMC]
28. Kumar P, Patel SK, Debbarma S, Saggurti N. Determinants of School dropouts among adolescents: Evidence from a longitudinal study in India. PLoS One. 2023;18(3):e0282468. [Crossref] [PubMed] [PMC]
29. Moss HB, Chen CM, Yi HY. Early adolescent patterns of alcohol, cigarettes, and marijuana polysubstance use and young adult substance use outcomes in a nationally representative sample. Drug Alcohol Depend. 2014;136:51-62. [Crossref] [PubMed]
30. Coşkun F, Özçırpıcı B, Özgür S. Gaziantep Üniversitesi Merkez Kampüsü'ndeki lisans öğrencilerinde alkol ve madde kullanma durumu [Alcohol and drug usage of undergraduate students in Gaziantep University Central Campus]. Ortadogu Medical Journal. 2019;11(2):143-7. [Crossref]
31. Okechukwu FO, Ogba KTU, Nwufo JI, Ogba MO, Onyekachi BN, Nwanosike CI, et al. Academic stress and suicidal ideation: moderating roles of coping style and resilience. BMC Psychiatry. 2022;22(1):546. [Crossref] [PubMed] [PMC]
32. Şen H, Varürer İ. OECD üye ülkeleri için intihar oranları araştırması: Bir kümeleme analizi çalışması [Research of suicide rates for OECD members countries: A cluster analysis work]. Alphanumeric Journal. 2019;7(2):471-84. [Crossref]
33. Urme SA, Islam MS, Begum H, Awal Chowdhury NMR. Risk factors of suicide among public university students of Bangladesh: A qualitative exploration. Heliyon. 2022;8(6):e09659. [Crossref] [PubMed] [PMC]
34. Huang Y, Kuang L, Wang W, Cao J, Xu L. Association between personality traits and risk of suicidal ideation in Chinese university students: Analysis of the correlation among five personalities. Psychiatry Res. 2019;272:93-9. [Crossref] [PubMed]
35. Gonçalves AM, da Cruz Sequeira CA, Duarte JC, de Freitas PP. Suicidal ideation on higher education students: influence of some psychosocial variables. Arch Psychiatr Nurs. 2016;30(2):162-6. [Crossref] [PubMed]