

Original Article

Exam anxiety, occupational balance, and participation in adolescents across education levels

Ansiedade em relação a exames, equilíbrio entre vida profissional e pessoal e participação em adolescentes de diferentes níveis de escolaridade

Suedanur Şimşek^a , Güleser Güney Yılmaz^a , Hatice Abaoğlu^a 

^aHacettepe University, Ankara, Turkey.

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Abstract

Introduction: Occupational imbalance and its effects in adolescents have not been adequately investigated. **Objectives:** This study aimed to examine exam anxiety levels in adolescents according to different education levels and the relationship between occupational balance and participation levels. **Methods:** Students' levels of exam anxiety were assessed using the Multidimensional Exam Anxiety Scale (MTAS); occupational balance was evaluated using the Adolescent Occupational Balance Scale (AOB-S); and their levels of participation were measured using the Child and Adolescent Scale of Participation (CASP). **Results:** While there was a significant difference in MTAS and A-OBS scores according to education level ($p < 0.05$), no significant difference was found in temporality levels ($p > 0.05$). There was a negative relationship between students' exam anxiety levels and their professional balance levels, Home Participation, School Participation and Home and Social Activities ($p < 0.05$). **Conclusion:** The balance between daily occupations and participation levels of individuals with high exam anxiety are affected.

Keywords: Social Participation, Adolescent, Test Anxiety.

Resumo

Introdução: O desequilíbrio ocupacional e seus efeitos em adolescentes não foram adequadamente investigados. **Objetivos:** Este estudo teve como objetivo examinar

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os níveis de ansiedade em relação a provas em adolescentes de acordo com diferentes níveis de escolaridade e a relação entre o equilíbrio ocupacional e os níveis de participação. **Métodos:** Os níveis de ansiedade em relação a provas dos alunos foram avaliados utilizando a Escala Multidimensional de Ansiedade em Relação a Provas (MTAS); o equilíbrio ocupacional foi avaliado utilizando a Escala de Equilíbrio Ocupacional para Adolescentes (AOB-S); e seus níveis de participação foram medidos utilizando a Escala de Participação da Criança e do Adolescente (CASP). **Resultados:** Embora tenha havido uma diferença significativa nos escores da MTAS e da AOB-S de acordo com o nível de escolaridade ($p < 0,05$), nenhuma diferença significativa foi encontrada nos níveis de temporalidade ($p > 0,05$). Houve uma relação negativa entre os níveis de ansiedade em relação a provas dos alunos e seus níveis de equilíbrio profissional, participação em casa, participação na escola e atividades domésticas e sociais ($p < 0,05$). **Conclusão:** O equilíbrio entre as ocupações diárias e os níveis de participação de indivíduos com alta ansiedade em relação a provas são afetados.

Palavras-chave: Participação Social, Adolescentes, Ansiedade aos Testes.

Introduction

Adolescence is a transitional stage between childhood and adulthood (Cozett & Roman, 2022, Lourenço et al., 2020). It is considered a critical period for physical, mental, and behavioral development, forming a foundation for the rest of an individual's life (Newby et al., 2021, Rossi&Cid, 2019). Widely accepted as the age range of 10 to 18, this period is a significant educational milestone and a sensitive phase that encompasses psychosocial issues (Kalin, 2021). Recently, the psychological impact of the educational process on adolescents' lives has become a topic of attention. One of the most common types of anxiety among students is exam anxiety. Exam anxiety is defined as "the set of phenomenological, psychological and behavioral reactions accompanying anxiety about possible negative results or the failure of an exam or similar assessment situations." It is generally analyzed as a two-dimensional structure with emotional and cognitive components (Lee & Shute, 2010). In this context, the cognitive dimension includes anxiety and negative thoughts, self-criticism or anxiety (Zelazo & Lyons, 2012) regarding the mental 'freezing' of students and the negative consequences of failure during the exam. In addition, the emotional component describes the tension that students experience during the exam, manifested by muscle tension, accelerated heart rate, irritability, or sweaty palms. Exam anxiety, a specific type of concern, is considered one of the most significant stressors in the lives of adolescents and is recognized as a widespread issue across different cultures worldwide (Bashir et al., 2019; Kösters et al., 2023). Exam anxiety is defined as a discomfort and worry related to the potential threat posed by exams, and increased anxiety levels are often observed when students face situations where their performance is being examined. Thus, the anxiety induced by academic exams has become an inevitable emotional experience in educational environments and a common problem for many students (Sarason et al., 1990).

Exam anxiety differs from general anxiety in two ways: first, it specifically arises when evaluating performance in assessments, and second, it has a social dimension due to the judgment of others (Kösters et al., 2023). Although both components are thought to affect students both emotionally, physically and cognitively, it is the cognitive aspect of

exam anxiety that is significantly explained in the decline in the academic achievement of adolescents and post-secondary students. However, from other perspectives, students' academic achievement is correlated with their behavior, cognitive and emotional aspects, as well as having a correlation with their level of engagement (Zarrett & Eccles, 2006; Zhao et al., 2022). Beyond academic outcomes, exam anxiety may also interfere with adolescents' engagement in daily life activities, potentially leading to participation restrictions. Participation is a concept with a subjective nature that represents an experience that includes elements of meaning, interest and motivation. More specifically, occupational participation refers to active and meaningful participation in occupations that provide opportunities to connect and support others, develop competencies, and contribute to one's environment. Participation is an important factor in maintaining health and well-being (Klepo et al., 2022). Participation in occupational therapy is a set of activities that include family and community activities as well as peers and friends. It is also effective in creating social cohesion. It is defined as being a part of daily life and includes involvement in activities of daily living, productive activities such as work and education, play and leisure activities (Phadsri et al., 2021).

Adolescents may experience participation restrictions due to factors related to the family and school environment or being affected by important life events such as the exam process (Belhan et al., 2020). Occupational balance supports individuals in developing their identities and roles by engaging in various occupations, promoting socialization, and enhancing well-being (Güney Yılmaz et al., 2023). In a concept analysis conducted in 2012, occupational balance was defined as the perception that an individual has the right amount and variation of occupations (Wagman et al., 2012). Occupations are always important for survival and development based on age and lifestyle preferences. Childhood and adolescence are periods during which individuals undergo intense development and transitions due to their occupations (Parsonage et al., 2022). Findings indicate that adolescent health and well-being are affected when occupational balance is not achieved (Parsonage et al., 2022). Occupational balance is associated with well-being, life satisfaction, and low stress levels (Dhas & Wagman, 2022). Research has revealed that school and exam times can be sources of stress for adolescents. Adolescents in such situations have been reported to experience difficulties sleeping and eating (Güler & Çakır, 2013). The psychological impact of the educational process on adolescents is particularly pronounced in countries with highly competitive, centralized examination systems, such as Turkey (Bülbül & Odacı, 2025). In Turkey, academic success is deeply intertwined with social prestige and mobility, leading to intense pressure from parents, teachers, and the students themselves. Unlike many OECD countries, the Turkish education system requires students to make high-stakes transitions as early as age 13 (8th grade). This transition is governed by a highly competitive, centralized examination system (formerly TEOG, currently LGS), where a centralized exam accounts for 70% of the placement score. However, the pressure is not limited to these high-stakes transitions; the Turkish school system relies heavily on continuous written examinations at all lower secondary levels to measure and rank student achievement. These frequent classroom assessments contribute significantly (30%) to the final placement scores, reinforcing a pervasive "culture of exams" from an early age. This relentless focus on standardized testing and continuous evaluation has been identified as a primary source of chronic stress and a significant factor in student disengagement (Uzun et al., 2024).

In this context, studies examining the relationship between exam anxiety and both participation and occupational balance in adolescents remain limited. This study aimed to examine exam anxiety levels in adolescents according to different education levels and the relationship between this anxiety and occupational balance and participation levels.

Methods

Research design

A cross-sectional design was selected as it enables the examination of relationships between variables at a single point in time. Given that exam anxiety is a situational and time-sensitive construct, assessing adolescents during an active examination period allows for the capture of real-time psychological and occupational responses. This design is therefore appropriate for identifying associations between exam anxiety, participation, and occupational balance, consistent with the exploratory nature of the study. Participants were reached through acquaintances of the researchers. Data collection was conducted using both online (Google Forms) and in-person methods. The materials distributed to participants included an informed consent form and the study questionnaires. After providing detailed information about the research, written informed consent was obtained from all individuals who voluntarily agreed to participate. Following consent, participants completed a demographic information form, the Multidimensional Exam Anxiety Scale, the Adolescent Occupational Balance Scale, and the Child and Adolescent Scale of Participation.

Sample

The participants in this study consist of adolescents currently enrolled in secondary or high school education, a developmental period characterized by increased academic demands and the transition toward higher vocational or academic goals. In this study, “exam” is operationally defined as any formal evaluative procedure used to measure academic performance, which includes both school-based written examinations (classroom tests) and standardized entrance exams (such as high school or university placement tests). This definition encompasses all scheduled assessments where the student’s performance is graded and evaluated by others, thus potentially inducing academic stress. Initially, 123 adolescents were recruited for the study. However, thirteen individuals who did not meet the inclusion criteria were excluded, resulting in a final sample of 110 participants. The exclusion criteria were applied to ensure a relatively homogeneous sample in terms of academic stress. Adolescents who were not preparing for or not taking any exam ($n = 3$) were excluded. In addition, individuals with orthopedic ($n = 1$), neurological, or psychiatric diagnoses ($n = 3$), as well as those with disabilities affecting their educational life ($n = 3$), were not included in the study. All included participants were actively undergoing an evaluative period, ensuring that the measures of anxiety and occupational balance were captured during a relevant timeframe of academic pressure. The study was conducted in accordance with the Helsinki Declaration, and ethical approval was obtained from the University Non-Interventional Clinical Research Ethics Committee.

Outcomes

Demographic Information Form: Demographic characteristics, including the participants’ age, gender, school attended, and class information, were recorded.

Multidimensional Exam Anxiety Scale (MTAS): Developed by Putwain et al. (Putwain et al., 2020) and adapted for Turkish validity and reliability by Ergin & Ekşi (2022) this scale consists of 16 items. The scale comprises four subscales: worry, cognitive interference, tension, and physiological arousal. Items on the 5-point Likert scale are rated from 1 (completely disagree) to 5 (completely agree). The highest score that can be obtained from the scale is 80, and the lowest is 20. Higher scores indicate higher exam anxiety, while lower scores suggest lower exam anxiety. The Cronbach's α coefficient for the scale was found to be 0.86, indicating that it is a valid and reliable tool for determining exam anxiety and related factors.

Adolescent Occupational Balance Scale (AOB-S): Developed by Güney Yılmaz et al. (2023), this scale consists of four dimensions. The first 15 items form the Temporality dimension, items 16-18 represent Rest and Sleep, items 19-23 capture Occupational Diversity and Adaptation, and items 24-27 reflect Occupational Meaning and Value. Accordingly, the scale contributes to the total score with 55.5% for the Temporality dimension (15 items), 11.1% for the Rest and Sleep dimension (3 items), 18.5% for Occupational Diversity and Adaptation (5 items), and 14.8% for Occupational Meaning and Value (4 items). The scale is scored on a 4-point Likert scale, with the lowest raw score being 27 and the highest raw score being 108. The Cronbach's α coefficient for the scale is found to be 0.997, indicating very high internal consistency. Higher scores on the scale indicate a higher level of occupational balance (Güney Yılmaz et al., 2023).

Child and Adolescent Scale of Participation (CASP): Developed by Bedell (2009), the Turkish version of this survey, adapted by Atasavun Uysal et al. (Atasavun Uysal et al., 2018), includes validity, reliability, and cultural adaptation. The survey assesses an individual's community participation in home, school, and neighborhood environments. It consists of a total of 20 questions, organized into 4 subsections: Home Participation (6 questions), Neighborhood and Community Participation (4 questions), School Participation (5 questions), and Home and Community Activities (5 questions). The Cronbach's α values for the subheadings of the survey were found to be between 0.920 and 0.951, with correlation coefficients $p < 0.001$. The rating for determining participation and limiting factors is based on the categories "as expected for age (full participation)," "a little limited," "very limited," "cannot do," and "not applicable." The scoring is measured on a scale from 0 to 4. Higher scores indicate a higher level of participation.

Data analysis

Statistical analysis of the data obtained in the study was performed using SPSS (Statistical Packages for the Social Sciences) software. Descriptive statistics were used, including frequency tables for ordinal variables, median and minimum/maximum values for non-normally distributed variables, and median and inter quantile range values for non-normally distributed variables. Statistical significance level was accepted as ≤ 0.005 . Participation levels of adolescents were calculated according to CASP scoring (Bedell et al., 2013). The relationship between the variables was examined using the Spearman correlation coefficient. Intergroup comparisons of education levels and AOB-S, MTAS and CASP scores were calculated by Kruskal Wallis-H test.

Results

All 110 individuals who met the inclusion criteria completed the entire set of scales. Thirteen individuals who participated in the study but did not meet the inclusion criteria were excluded. The sample of the study consists of 110 adolescents (mean age = 13 ± 2.4). Of the participants, 55.5% (n=61) are female, 43.6% (n=48) are male, and 0.9% (n=1) identify as other. Findings related to the demographic characteristics of the participants are presented in Table 1.

Table 1. Demographic characteristics of students.

	<i>N (%)</i>	<i>M(SD)</i>
Age		13±2.4
Gender		
<i>Female</i>	61 (55.5)	
<i>Male</i>	48 (43.6)	
<i>Other</i>	1 (0.9)	
Education Level		
<i>Primary school</i>	13 (11.8)	
<i>Secondary school</i>	68 (61.8)	
<i>High school</i>	29(26.4)	
Where they stay?		
<i>Lives with family</i>	100 (90.9)	
<i>Living in dormitory</i>	10 (9.1)	

M = mean; SD = standard deviation; N = sample size.

A significant difference was detected between MTAS scores according to education level ($p < 0.05$). While a significant difference was detected between A-OBS scores and the subexams Rest and Sleep, Occupational Diversity and Adaptation, Occupational Meaning and Value($p < 0.05$), according to education level, no significant difference was found between temporality levels($p > 0.05$). While there was no significant difference in CASP total participation and Home Participation scores according to education level, there was a significant difference between other subexams. Comparison of MTAS, AOB-S and CASP scores according to education levels shown in Table 2.

Table 2. Comparison of MTAS, AOB-S and CASP scores according to education levels.

	<i>Primary school</i>	<i>Secondary school</i>	<i>High school</i>	Kruskal Wallis		Post Hoc
	$\bar{X}$	$\bar{X}$	$\bar{X}$	χ^2	P	
MTAS	49.47	67.47	60.35	6.818	0.033	2>1
AOB-S	61.47	41.83	53.46	7.974	0.019	1>2
<i>Temporality</i>	60.20	45.21	53.88	4.555	0.103	
<i>Rest and Sleep</i>	61.63	43.50	50.23	7.172	0.028	1>2,3>2

MTAS: Multidimensional Test Anxiety Scale; AOB-S: *Adolescent Occupational Balance Scale*; CASP: Child and Adolescent Scale of Participation.

Table 2. Continued...

	Primary school	Secondary school	High school	Kruskal Wallis		Post Hoc
	$\bar{X}$	$\bar{X}$	$\bar{X}$	χ^2	p	
<i>Occupational Diversity and Adaptation</i>	61.47	43.31	51.46	10.175	0.002	1>2,3>2
<i>Occupational Meaning and Value</i>	62.86	41.02	49.31	6.951	0.031	1>2,1>3
CASP	57.74	50.73	52.38	0.905	0.231	
<i>Home Participation</i>	58.02	49.05	56.69	1.662	0.436	
<i>Neighborhood and Community Participation</i>	55.29	52.92	56.08	0.110	0.946	1>2
<i>School Participation</i>	59.12	49.24	50.54	2.438	0.046	1>2
<i>Home and Community Activities</i>	60.86	47.33	45.69	5.116	0.049	1>3,1>2

MTAS: Multidimensional Test Anxiety Scale; AOB-S: *Adolescent Occupational Balance Scale*; CASP: Child and Adolescent Scale of Participation.

A statistically significant negative relationship was found between students' exam anxiety levels and their occupational balance levels ($p<0.05$). While there was no significant relationship between students' exam anxiety levels and total participation levels ($p>0.05$), a negative relationship was found between Home Participation, School Participation and Home and Community Activities, which are sub-parameters of participation ($p<0.05$). Relationship between MTAS, AOB-S and CASP scores shown in Table 3. Grouping of students' participation levels according to CASP scores shown in Table 4.

Table 3. Relationship between MTAS, AOB-S and CASP scores.

MTAS		
	<i>p</i>	<i>r</i>
AOB-S	0.001	-0.439
<i>Temporality</i>	0.001	-0.444
<i>Rest and Sleep</i>	0.001	-0.449
<i>Occupational Diversity and Adaptation</i>	0.001	-0.442
<i>Occupational Meaning and Value</i>	0.015	-0.371
CASP	0.136	-0.171
<i>Home Participation</i>	0.035	-0.291
<i>Neighborhood and Community Participation</i>	0.147	-0.146
<i>School Participation</i>	0.017	-0.478
<i>Home and Community Activities</i>	0.05	-0.178

MTAS: Multidimensional Test Anxiety Scale; AOB-S: *Adolescent Occupational Balance Scale*; CASP: Child and Adolescent Scale of Participation. p = p-value; r = correlation coefficient.

Table 4. Grouping of students' participation levels according to CASP scores.

CASP	<i>Total</i>			<i>Category (Extent of participation/restriction)</i>
	M(SD)	Average score	Range	
Home participation	19.08 (5.14)	3.81	7-24	Mildly limited
Neighborhood and Community Participation	11.57 (3.56)	2.89	4-16	Very limited / Limited
Home and Community Living Activities	15.43 (4.13)	3.85	5-20	Mildly limited
School Participation	16.58 (5.75)	2.76	5-20	Very limited / Limited
Total Score	62.34 (15.68)	3.89	20-80	Mildly limited

M: mean; SD: standard deviation; CASP: Child and Adolescent Scale of Participation.

Discussion

In our study, which we conducted to examine the relationship between exam anxiety and occupational balance and participation in adolescents, it was found that individuals with high exam anxiety had lower occupational balance and participation. While the group with the highest exam anxiety level was secondary school students, they were also the group with the lowest occupational balance and participation levels.

Individuals with low occupational balance may experience feelings of dissatisfaction, stress, and burnout, which can further exacerbate mental health issues. In the study conducted by Wagman P. et al. with 118 participants with anxiety and depression, it was concluded that people with anxiety have low occupational balance (Wagman et al., 2021). In the study conducted by Yu et al. (2018) to measure occupational balance and its relationship with health and stress, it was concluded that occupational balance is most associated with stress and anxiety disorders. Our study supports these findings and found that exam anxiety, which is considered a special type of anxiety, is related to occupational balance in the same sense. We think that this is due to the decrease in the number of activities that adolescents who will take the exam must perform in daily life. The fact that the occupational diversity parameter, which is one of the sub-parameters of occupational balance, also has a highly significant relationship, supports this idea. In the study conducted by Birgitta G. et al. (Birgitta Gunnarsson et al., 2018) with 107 participants, it was revealed that the variety of activities in daily life and the occupational balance between these activities are related to the level of anxiety experienced by individuals, and this finding confirms our study.

The relationship between time management skills and exam anxiety is widely documented in the literature. A study by Abdel-Aziz et al. (2012) found a significant and negative correlation between all subcomponents of time management skills and exam anxiety, meaning that anxiety increased as time management skills decreased. Similarly, Sangsiry & Sail (2006) emphasized that students' time management abilities and their perception of course load directly affect exam anxiety. Time and its efficient use can be considered a criterion for success, especially in modern examination systems. Even if a student has a high level of knowledge, the fear of not being able to finish the questions or use the exam time efficiently triggers exam anxiety as a cognitive stressor (Behnam et al.,

2014). This supports our finding that adolescents' perception of temporality during the exam process affects their professional balance.

Our findings align with Rodriguez-Ayllon et al. (2019), who demonstrated that increased participation across various activities particularly socially interactive ones is associated with reduced stress and improved life satisfaction. In the present study, the higher anxiety levels observed in students with low home, school, and social participation suggest that limited engagement in these environments may negatively shape attitudes toward academic tasks. We propose that the relationship between exam anxiety and occupational balance is likely mediated by time management skills and perceived academic competence. When students prioritize academic tasks at the expense of leisure and self-care, they can experience a profound disruption in their daily routines.

The imbalance can be further understood through Self-Determination Theory (SDT), which suggests that high-stakes exam pressure diminishes an individual's sense of autonomy and competence (Ryan & Deci, 2022). When adolescents perceive school as a constant source of evaluation and threat, their intrinsic motivation for non-academic interests is stifled. Moreover, chronic exam anxiety appears to facilitate a state of cognitive and emotional exhaustion. According to the Conservation of Resources (COR) theory, the disproportionate consumption of psychological resources to manage academic stress leads to resource depletion, ultimately restricting the energy available for leisure or social occupations (Hobfoll, 1989; Pascoe et al., 2020). The resulting decline in academic self-efficacy can generalize into a lack of confidence in exploring new activities (Putwain et al., 2013). This often leads students to withdraw into restricted routines focused solely on avoiding academic failure. From an occupational therapy perspective, this state represents occupational alienation, where adolescents become disconnected from the meaningful activities and identities that exist beyond their student role (Wilcock & Hocking, 2015). By identifying these links, our study highlights the necessity of interventions that restore occupational variety to mitigate the psychological toll of high-stakes testing.

The finding that secondary school students exhibit both the highest levels of exam anxiety and the lowest levels of occupational balance and participation suggests a complex interplay between academic stress and overall well-being. Exam anxiety, characterized by worry, tension, and fear in evaluative situations, is particularly prominent during secondary education, where academic demands and perceived stakes are high. Numerous studies have demonstrated its negative impact on academic performance, mental health, and well-being (Ansari & Iqbal, 2025; Huang et al., 2025; Rani, 2025). For instance, a meta-analysis by von der Embse et al. (2018) reported a significant negative association between exam anxiety and standardized test performance. Consistent with this evidence, our findings indicate that students with lower levels of participation and occupational balance experience higher anxiety levels. Limited engagement in home, school, and social activities may reduce involvement in academic-related tasks and negatively influence students' attitudes toward exams. In the Turkish context, this relationship may be further intensified by the highly competitive and centralized examination system that regulates transitions between educational levels, where academic achievement is strongly linked to future educational and socio-economic opportunities (Uzun et al., 2024). This exam-oriented structure may encourage students to prioritize academic tasks over participation in social, leisure, and self-care activities, thereby negatively influencing occupational balance.

The findings highlight the need for multidimensional interventions targeting emotional, cognitive, and behavioral components of exam-related stress. School-based psychological approaches, including cognitive-behavioral and mindfulness-based interventions, have been shown to reduce anxiety and enhance emotional regulation in adolescents (Hikmat et al., 2025; Dundas & Nygård, 2024; Sun et al., 2025; Johnstone et al., 2016). Considering the Turkish educational context, integrating such approaches may be particularly important to mitigate the cumulative pressure arising from both centralized examinations and continuous school-based assessments.

Occupation-based and occupational therapy-oriented interventions may play a critical role in improving participation and occupational balance. Such approaches support engagement in meaningful activities and improve coping, social functioning, and overall well-being (Parsonage-Harrison et al., 2023; Gürel & Zengin Yazıcı, 2025; Jessen-Winge et al., 2025). From a contextual perspective, participation-focused interventions may be especially valuable in Turkey, where opportunities for balanced engagement in non-academic activities may be constrained by the dominant academic focus.

Although these interventions are increasingly implemented, their integration remains limited. This underscores the need for more comprehensive and interdisciplinary models addressing exam anxiety, participation, and occupational balance simultaneously. Creating supportive educational environments that promote personal growth, creativity, and self-expression may further enhance adolescent well-being.

Limitations

This study have limitations, although efforts were made to ensure a relatively homogeneous sample, future studies may benefit from further exploring the influence of individual differences, such as variations in academic pressure, environmental factors, and personal coping strategies. Moreover, as the data were collected during an active examination period, future research employing longitudinal designs may help to determine whether the observed patterns reflect context-specific stress responses or more stable behavioral tendencies over time.

Conclusion

This study demonstrated a strong negative relationship between exam anxiety and both occupational balance and participation in adolescents. As exam anxiety increases, adolescents may experience reduced diversity and balance in daily activities, along with decreased engagement in meaningful occupations. These findings highlight the critical role of occupational balance as a determinant of health and well-being during adolescence. From a contextual perspective, the Turkish education system, characterized by a centralized and exam-oriented structure, may further intensify these patterns by encouraging adolescents to prioritize academic demands over social, leisure, and physical activities. This may contribute to restricted participation patterns and imbalances in daily occupations. From an occupational justice perspective, these findings may also indicate that structurally driven academic pressures can limit adolescents' equitable access to diverse and meaningful occupational opportunities beyond academic roles. These results also underscore the need for comprehensive and interdisciplinary approaches that address exam anxiety while promoting occupational balance and participation. School-

based interventions, particularly those incorporating occupational therapy perspectives, may support adolescents in developing healthier routines, enhancing engagement in meaningful activities, and maintaining overall well-being. Future research should explore intervention strategies and additional contextual factors influencing these relationships.

References

- Abd El-Aziz, L. T., Eid, N. M., & Safan, S. M. (2012). Test-anxiety and skills of time-management among faculty nursing students. *The Journal of American Science*, 8(4), 261-269.
- Ansari, S., & Iqbal, N. (2025). Prevalence of exam anxiety: a systematic review and meta-analysis. *Canadian Journal of Behavioural Science. Revue Canadienne des Sciences du Comportement*. Ahead of print. <https://doi.org/10.1037/cbs0000473>.
- Atasavun Uysal, S., Dülger, E., Bilgin, S., Elbasan, B., Çetin, H., Türkmen, C., Karabulut, E., Yakut, Y., & Düger, T. (2018). Çocuk ve Adölesan Katılım Anketi'nin (CASP) Türkçe geçerlik ve güvenirlik çalışması. In *Annals of XVII Fizyoterapi ve Rehabilitasyonda Gelişmeler Kongresi, Türkiye* (pp. 25-28). Türkiye.
- Bashir, M. B. A., Albadaawy, I. M. A. H., & Cumber, S. N. (2019). Predictors and correlates of examination anxiety and depression among high school students taking the Sudanese national board examination in Khartoum state, Sudan: a cross-sectional study. *The Pan African Medical Journal*, 33, 69. PMID:31448031. <https://doi.org/10.11604/pamj.2019.33.69.17516>.
- Bedell, G. (2009). Further validation of the Child and Adolescent Scale of Participation (CASP). *Developmental Neuropsychology*, 12(5), 342-351. PMID:20477563. <https://doi.org/10.3109/17518420903087277>.
- Bedell, G., Coster, W., Law, M., Liljenquist, K., Kao, Y.-C., Teplicky, R., Anaby, D., & Khetani, M. A. (2013). Community participation, support, and barriers of school-age children with and without disabilities. *Archives of Physical Medicine and Rehabilitation*, 94(2), 315-323. PMID:23044364. <https://doi.org/10.1016/j.apmr.2012.09.024>.
- Behnam, B., Jenani, S., & Ahangari, S. (2014). The Effect of Time-Management Training on Test-Anxiety and Self-Efficacy of Iranian Intermediate EFL Learners. *Iranian Journal of Language Teaching Research*, 2(1), 45-61.
- Belhan, S., Özkan, E., & Yaran, M. (2020). Examination of Self-Efficacy and Participation Restrictions in Y and Z Generations. *Online Türk Sağlık Bilimleri Dergisi*, 5(2), 311-317. <https://doi.org/10.26453/otjhs.608161>.
- Birgitta Gunnarsson, A., Wagman, P., Hedin, K., & Håkansson, C. (2018). Treatment of depression and/or anxiety—outcomes of a randomised controlled trial of the tree theme method® versus regular occupational therapy. *BMC Psychology*, 6(25), 1-10. PMID:29792226. <https://doi.org/10.1186/s40359-018-0237-0>.
- Bülbül, K., & Odacı, H. (2025). Akademik Kaygı: Nedenleri ve Sonuçları Üzerine Bir Derleme. *Journal of Psychometric Research*, 3(2), 107-127.
- Cozett, C., & Roman, N. V. (2022). Recommendations to enhance parental involvement and adolescent participation in physical activity. *International Journal of Environmental Research and Public Health*, 19(3), 1333. PMID:35162356. <https://doi.org/10.3390/ijerph19031333>.
- Dhas, B. N., & Wagman, P. (2022). Occupational balance from a clinical perspective. *Scandinavian Journal of Occupational Therapy*, 29(5), 373-379. PMID:33382004. <https://doi.org/10.1080/11038128.2020.1865450>.
- Dundas, I., & Nygård, I. (2024). Mindfulness for test anxiety and negative self-evaluation in high school. *Current Psychology*, 43(38), 30027-30037. <https://doi.org/10.1007/s12144-024-06557-6>.
- Ergin, A., & Ekşi, H. (2022). Çok boyutlu sınav kaygısı ölçeği'nin Türkçeye uyarlanması: geçerlik ve güvenirlik çalışması. In T. Köseoğlu, A. Dede & F. Kaya (Eds.), *3 International Scientific Research and Innovation Congress Book* (pp. 424-434). İstanbul: IKSAD Publishing House.
- Güler, D., & Çakır, G. (2013). Lise son sınıf öğrencilerinin sınav kaygısını yordayan değişkenlerin incelenmesi. *Türk Psikolojik Danışma ve Rehberlik Dergisi*, 4(39), 82-94.

- Güney Yılmaz, G., Avcı, H., & Akı, E. (2023). A new tool to measure occupational balance: Adolescent Occupational Balance Scale (A-OBS). *Scandinavian Journal of Occupational Therapy*, 30(6), 782-795. PMID:36514866. <https://doi.org/10.1080/11038128.2022.2154262>.
- Gürel, L., & Zengin Yazıcı, G. (2025). Effectiveness of occupational therapy for self-efficacy in adolescents and young adults with type-1 diabetes: a systematic review. *Turkish Journal of Health Science and Life*, 8(2), 83-91. <https://doi.org/10.56150/tjhs.1453274>.
- Hikmat, R., Yosep, I., Mardhiyah, A., Kurniawan, K., & Syabana, M. N. (2025). A scoping review of school-based psychological interventions for adolescent mental health in secondary education: addressing anxiety, depression, and well-being. *Discover Mental Health*, 6(1), 11. PMID:41389358. <https://doi.org/10.1007/s44192-025-00336-w>.
- Hobfoll, S. E. (1989). Conservation of resources: a new attempt at conceptualizing stress. *The American Psychologist*, 44(3), 513-524. PMID:2648906. <https://doi.org/10.1037/0003-066X.44.3.513>.
- Huang, S. S., Wu, J. W., Huang, C. C., Liang, J. F., Yang, Y. Y., Cheng, H. M., & Chen, C. H. (2025). Examining the impact of stress, test anxiety, and general anxiety on academic performance among medical students: a systematic review and meta-analyses. *International Journal of Health Promotion and Education*, 1-16. <https://doi.org/10.1080/14635240.2025.2489382>.
- Jessen-Winge, C., Christensen, C. S., & Wæhrens, E. E. (2025). The influence on daily occupations of Danish adolescents experiencing stress. *Scandinavian Journal of Occupational Therapy*, 32(1), 2472382. PMID:40035409. <https://doi.org/10.1080/11038128.2025.2472382>.
- Johnstone, J. M., Roake, C., Sheikh, I., Mole, A., Nigg, J. T., & Oken, B. (2016). School-based mindfulness intervention for stress reduction in adolescents: design and methodology of an open-label, parallel group, randomized controlled trial. *Contemporary Clinical Trials Communications*, 4, 99-104. PMID:27754492. <https://doi.org/10.1016/j.conctc.2016.07.001>.
- Kalin, N. H. (2021). Anxiety, depression, and suicide in youth. *The American Journal of Psychiatry*, 178(4), 275-279. PMID:33789454. <https://doi.org/10.1176/appi.ajp.2020.21020186>.
- Klepo, I., Sangster Jokić, C., & Tršinski, D. (2022). The role of occupational participation for people with traumatic brain injury: a systematic review of the literature. *Disability and Rehabilitation*, 44(13), 2988-3001. PMID:33306915. <https://doi.org/10.1080/09638288.2020.1858351>.
- Kösters, M. P., Klaufus, L. H., & van der Wal, M. F. (2023). Validity and reliability of the short Test Anxiety Inventory (TAI-5) in Dutch adolescents. *The Journal of General Psychology*, 151(1), 76-86. PMID:36919479.
- Lee, J., & Shute, V. J. (2010). Personal and social-contextual factors in K-12 academic performance: an integrative perspective on student learning. *Educational Psychologist*, 45(3), 185-202. <https://doi.org/10.1080/00461520.2010.493471>.
- Lourenço, M. S. G., Matsukura, T. S., & Cid, M. F. B. (2020). Child and adolescent mental health from the perspective of Primary Health Care managers: possibilities and challenges. *Cadernos Brasileiros de Terapia Ocupacional*, 28(3), 809-828. <https://doi.org/10.4322/2526-8910.ctoAO2026>.
- Newby, H., Marsh, A. D., Moller, A.-B., Adebayo, E., Azzopardi, P. S., Carvajal, L., Fagan, L., Friedman, H. S., Ba, M. G., Hagell, A., Morgan, A., Saewyc, E., & Guthold, R. (2021). A scoping review of adolescent health indicators. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, 69(3), 365-374. PMID:34272169. <https://doi.org/10.1016/j.jadohealth.2021.04.026>.
- Parsonage, J., Naylor Lund, K., Dawes, H., Almoajil, H., & Eklund, M. (2022). An exploration of occupational choices in adolescence: a constructivist grounded theory study. *Scandinavian Journal of Occupational Therapy*, 29(6), 464-481. PMID:33164605. <https://doi.org/10.1080/11038128.2020.1839965>.
- Parsonage-Harrison, J., Birken, M., Harley, D., Dawes, H., & Eklund, M. (2023). A scoping review of interventions using occupation to improve mental health or mental wellbeing in adolescent populations. *British Journal of Occupational Therapy*, 86(3), 236-250. PMID:40337630. <https://doi.org/10.1177/03080226221110391>.
- Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, 25(1), 104-112. <https://doi.org/10.1080/02673843.2019.1596823>.

- Phadsri, S., Shioji, R., Tanimura, A., Jaknissai, J., Apichai, S., & Sookruay, T. (2021). Nonpharmacological treatment for supporting social participation of adults with depression. *Occupational Therapy International*, 2021, 8850364. PMID:34007254. <https://doi.org/10.1155/2021/8850364>.
- Putwain, D. W., Sander, P., & Larkin, D. (2013). Using the 2 × 2 framework of achievement goals to predict achievement emotions and academic performance. *Learning and Individual Differences*, 25, 80-84. <https://doi.org/10.1016/j.lindif.2013.01.006>.
- Putwain, D. W., von der Embse, N. P., Rainbird, E. C., & West, G. (2020). The development and validation of a new Multidimensional Test Anxiety Scale (MTAS). *European Journal of Psychological Assessment*, 37(3), 236-246. <https://doi.org/10.1027/1015-5759/a000604>.
- Rani, S. (2025). Studying the impact of anxiety, stress, and emotion on academic performance: A systematic review. *Journal of Social, Humanity, and Education*, 5(2), 131-141. <https://doi.org/10.35912/jshe.v5i2.2437>.
- Rodriguez-Ayllon, M., Cadenas-Sánchez, C., Estévez-López, F., Muñoz, N. E., Mora-Gonzalez, J., Migueles, J. H., Molina-García, P., Henriksson, H., Mena-Molina, A., Martínez-Vizcaino, V., Catena, A., Löf, M., Erickson, K. I., Lubans, D. R., Ortega, F. B., & Esteban-Cornejo, I. (2019). Role of physical activity and sedentary behavior in the mental health of preschoolers, children and adolescents: a systematic review and meta-analysis. *Sports Medicine*, 49(9), 1383-1410. PMID:30993594. <https://doi.org/10.1007/s40279-019-01099-5>.
- Rossi, L. M., & Cid, M. F. B. (2019). Adolescents, mental health and crisis: the story told by relatives. *Cadernos Brasileiros de Terapia Ocupacional*, 27, 734-742. <https://doi.org/10.4322/2526-8910.ctoAO1811>.
- Ryan, R. M., & Deci, E. L. (2022). Self-determination theory. In F. Maggino (Ed.), *Encyclopedia of quality of life and well-being research*. Cham: Springer. https://doi.org/10.1007/978-3-319-69909-7_2630-2.
- Sansgiry, S. S., & Sail, K. (2006). Effect of students' perceptions of course load on test anxiety. *American Journal of Pharmaceutical Education*, 70(2), 1-6. PMID:17149404. [https://doi.org/10.1016/S0002-9459\(24\)07668-X](https://doi.org/10.1016/S0002-9459(24)07668-X).
- Sarason, I., Sarason, B., & Leitenberg, H. (1990). *Handbook of social and evaluation anxiety*. New York: Plenum.
- Sun, Y., Lv, K., Xie, W., & Wang, Y. (2025). The effectiveness of brief mindfulness training in reducing test anxiety among high school students. *BMC Psychology*, 13(1), 205. PMID:40045381. <https://doi.org/10.1186/s40359-025-02553-y>.
- Uzun, B., Orman, A., & Essau, C. A. (2024). Integrating “super skills for exams” Programme in the school curriculum to support adolescents preparing for their National Examinations in Turkey. *Children (Basel, Switzerland)*, 11(2), 1-11. PMID:38397922. <https://doi.org/10.3390/children11020180>.
- von der Embse, N., Jester, D., Roy, D., & Post, J. (2018). Test anxiety effects, predictors, and correlates: a 30-year meta-analytic review. *Journal of Affective Disorders*, 227, 483-493. PMID:29156362. <https://doi.org/10.1016/j.jad.2017.11.048>.
- Wagman, P., Håkansson, C., & Björklund, A. (2012). Occupational balance as used in occupational therapy: a concept analysis. *Scandinavian Journal of Occupational Therapy*, 19(4), 322-327.
- Wagman, P., Hjärthag, F., Håkansson, C., Hedin, K., & Gunnarsson, A. B. (2021). Factors associated with higher occupational balance in people with anxiety and/or depression who require occupational therapy treatment. *Scandinavian Journal of Occupational Therapy*, 28(6), 426-432. PMID:31838931. <https://doi.org/10.1080/11038128.2019.1693626>.
- Wilcock, A., & Hocking, C. (2015). *An occupational perspective of health*. New York: Routledge.
- Yu, Y., Manku, M., & Backman, C. L. (2018). Measuring occupational balance and its relationship to perceived stress and health. *Canadian Journal of Occupational Therapy. Revue Canadienne d'Ergothérapie*, 85(2), 117-127. PMID:29482341. <https://doi.org/10.1177/0008417417734355>.
- Zarrett, N., & Eccles, J. (2006). The passage to adulthood: challenges of late adolescence. *New Directions for Youth Development*, 2006(111), 13-28, 7. PMID:17225644. <https://doi.org/10.1002/yd.179>.

- Zelazo, P. D., & Lyons, K. E. (2012). The potential benefits of mindfulness training in early childhood: A developmental social cognitive neuroscience perspective. *Child Development Perspectives*, 6(2), 154-160. <https://doi.org/10.1111/j.1750-8606.2012.00241.x>.
- Zhao, M., Li, J., Lin, Y., Zhang, B., & Shi, Y. (2022). The effect of perfectionism on test anxiety and the mediating role of sense of coherence in adolescent students. *Journal of Affective Disorders*, 310, 142-149. PMID:35537545. <https://doi.org/10.1016/j.jad.2022.05.009>.

Author's contribution

The authors confirm contribution to the paper as follows: study conception and design: Suedanur Şimşek, Güleser Güney Yılmaz, Hatice Abaoğlu; data collection: Suedanur Şimşek, Güleser Güney Yılmaz; analysis and interpretation of results: Güleser Güney Yılmaz, Hatice Abaoğlu; draft manuscript preparation: Suedanur Şimşek, Güleser Güney Yılmaz, Hatice Abaoğlu; revising the manuscript critically: Hatice Abaoğlu. All authors reviewed the results and approved the final version of the manuscript.

Data Availability

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Corresponding author

Güleser Güney Yılmaz
e-mail: guleser.guney@hacettepe.edu.tr

Section editor

Prof. Dr. Michael Palapal Sy