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Original Research

The Relationship between Occupational Balance and Smartphone Addiction among University Students in Turkey

Türkiye'deki Üniversite Öğrencilerinde Aktivite-Rol Dengesi ile Akıllı Telefon Bağımlılığı Arasındaki İlişki

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ABSTRACT

Purpose: The aim of this study was to investigate the relationship between mobile phone addiction and occupational balance in university students. **Material and Methods:** A sample of 128 students attending a public university in Turkey participated in the study. Smartphone addiction was evaluated using the Smartphone Addiction Scale (SPAS-SF) and occupational balance with the Turkish Occupational Balance Questionnaire (OBQ11-T). The students' demographic characteristics were recorded. **Results:** A negative correlation was observed between SPAS-SF and OBQ11-T total score and scores for item 4 (Balance between work, home, family, leisure, rest, and sleep), item 6 (Balance between physical, social, mental, and restful occupations), and item 10 (Balance between energy-giving/energy-taking activities). Economic status was associated with significant differences in for item 3 (Time for doing things wanted) and item 11 (Satisfaction with time spent in rest, recovery, and sleep) ($p<.05$). Item 9 (Balance between obligatory/voluntary occupations) differed significantly between students living in student housing and those living at home ($p<.05$). Occupational balance scores did not differ by gender ($p>.05$). **Discussion:** The current study demonstrates that problematic smartphone usage is associated with occupational balance among university students. Occupational therapists may consider smartphone addiction as a confounding factor of occupational balance.

Keywords: Smartphone; Students; Occupational therapy

ÖZ

Amaç: Bu çalışmanın amacı, üniversite öğrencilerinde akıllı telefon bağımlılığı ile aktivite rol dengesi arasındaki ilişkiyi incelemektir. **Gereç ve Yöntem:** Çalışmaya Türkiye'de bir devlet üniversitesine devam eden 128 öğrenci katıldı. Akıllı telefon bağımlılığı, Akıllı Telefon Bağımlılığı Ölçeği (ATBÖ) ve aktivite rol dengesi Aktivite Rol Dengesi Anketi-11 Türkçe versiyonu (ARDA-11-T) ile değerlendirildi. Öğrencilerin demografik özellikleri kaydedildi. **Sonuçlar:** ATBÖ ile ARDA-11-T toplam puanı ile 4. madde (İş, ev işleri, boş zaman, serbest zaman ve uyku arasındaki denge), 6. madde (fiziksel, sosyal, zihinsel ve dinlendirici aktiviteler arasındaki denge) ve Madde 10 (Enerji veren/ enerji alan aktiviteler arasındaki denge) arasında negatif korelasyon olduğu saptandı. Ekonomik durum ile 3. madde (İstenen şeyleri yapmaya ayrılan zaman) ve 11. madde (Rahatlama, iyileşme ve uykuda geçirilen zamanla ilgili tatmin) ($p <.05$) için önemli farklılıklar ile ilişkilendirilmiştir. Madde 9 (Zorunlu / gönüllü aktiviteler arasındaki denge), öğrenci yurdunda yaşayan öğrenciler ile evde yaşayanlar arasında önemli ölçüde farklılık göstermiştir ($p <.05$). Aktivite rol denge puanları cinsiyete göre farklılık göstermemiştir ($p> .05$). **Tartışma:** Bu çalışma, üniversite öğrencileri arasında problemli akıllı telefon kullanımı ile aktivite rol dengesi arasında ilişki olduğunu göstermektedir. Ergoterapistler, akıllı telefon bağımlılığını aktivite rol dengesini bozan bir faktör olarak düşünebilirler.

Anahtar kelimeler: Akıllı telefon; Öğrenciler; Ergoterapi

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The importance of occupational balance (OB) for health and well-being is well documented (American Occupational Therapy Association [AOTA], 2014; Wagman, Håkansson and Jonsson, 2015). Many factors influence OB, and the modern epidemic of problematic smartphone usage may also be among these factors.

OB is a complex concept defined generally as an individual's subjective experience regarding the amount and variety of occupations in his/her occupational pattern. However, OB concerns not only the balance between different types of occupations, such as productivity, home, leisure, rest, and sleep, but also the balance between the satisfaction derived from, the importance of, and the relationships between these occupations (Backman, 2004; Dür, Steiner, Fialka-Moser et al., 2014; Wagman, Håkansson and Björklund, 2011). OB is also related to time use and the organization of occupations (Backman, 2004; Dür, Unger, Stoffer et al., 2015; Eklund, Erlandsson and Leufstadius, 2010).

Some of the many factors affecting OB include employment status (Jonsson, Borell and Sadlo, 2000), responsibilities, care-giving burden (Larson, 2000), interpersonal relations (Wagman and Håkansson, 2019), sleep (Magnusson, Håkansson, Brandt et al., 2020), diseases (Wagman, Ahlstrand, Björk et al., 2020). and sometimes addictions (Olatz, Daria, Mark et al., 2015). Previous studies demonstrated that OB was influenced by domestic work, work organization, and caring for children (Håkansson, Milevi, Eek et al., 2019; Borgh, Eek, Wagman, et al., 2018). OB is also associated with individuals' habits (Olatz et al., 2015; Wagman et al., 2011) and time use for occupations (Eklund et al., 2010).

University students' excessive use of social media or the internet can have an adverse impact on their time use and lead to problems in their work, school (Suhail and Bargees, 2006), and social life (Tyagi and Soni, 2019), which indicates a relationship with OB. Previous researchers showed that smartphone addiction was associated with depression, loneliness, physical problems, and poor academic performance (Alhassan, Alqadhib, Taha et al., 2018; Güzeller and Coşguner, 2012; Rupert and Hawi, 2016; Günal and Pekçetin, 2019).

Smartphones have an important place in the lives of young people for various reasons (Özkoçak, 2016; Bal and Balcı, 2020). Exact data for smartphone usage in Turkey not available, but 2016 Turkish Statistical Institute report stated that 96.8% of the Turkish population possessed a smartphone (Türkiye İstatistik Kurumu, 2020). University students constitute a large group of smartphone owners (Uzgören, Şengür and Yiğit, 2013).

Despite the many conveniences that smartphones offer, problematic usage may lead to health problems (Darcin, Köse, Noyan et al., 2016). The negative impact of smartphones on young people in particular has been discussed in psychological, sociological, cultural, economic, and pedagogical aspects (Bal et al., 2020). However, to the best of our knowledge, no study has examined the relationship between smartphone addiction and OB. Therefore, the primary aim of the current study was to investigate the correlation between mobile phone addiction and OB among university students. The secondary aim was to investigate differences in OB according to demographic characteristics.

MATERIAL AND METHODS

This cross-sectional study was performed in a public university in Turkey. Ethical approval obtained from local ethics committee. Written informed consent was obtained from all participants prior to the study.

Participants

University students in a public university in Turkey were invited to participate in the study via e-mail. Convenience sampling was used for the study. Exclusion criteria were presence of chronic diseases or disability, being employed part-time or full-time, and being married. These factors were determined as an additional workload for the participants that may affect OB (Clouston, 2014). Of 133 students who completed the survey on a voluntary basis, 5 were excluded due to employment (n=3) or chronic disease (n=2). Therefore, the study was completed with 128 university students.

Assessments

Demographic information: Descriptive characteristics of the study participants (age, gender, economic status, place of residence) were recorded.

Smart Phone Addiction Scale: The Smartphone Addiction Scale–Short Form (SPAS-SF) was developed by Kwon, Kim, Cho et al. (2013) to measure the risk of smartphone addiction. The Turkish version was translated and validated by Noyan, Enez, Nurmedov et al. (2015). The scale consists of 10 items evaluated on a 6-point likert scale (1 to 6 points), for a score ranging from 10 to 60. Higher scores indicate increased risk of smartphone addiction. In the Turkish reliability and validity study, the Cronbachs' alpha

coefficient was 0.867 and test-retest reliability coefficient was 0.926 (Noyan et al., 20151).

Occupational Balance Questionnaire: Wagman and Håkansson (2014) developed the Occupational Balance Questionnaire (OBQ), a scale that measures self-rated OB. The questionnaire focuses on a persons' experience of his/her amount and variety of occupations in daily life, regardless of what the occupations are. The OBQ had good internal consistency (Cronbachs' alpha=0.936) and adequate test–retest reliability (Spearmans' rho=0.926 for total score) in healthy individuals aged 18 or older (Wagman et al., 2014). Günal, Pekçetin, Demirtürk et al. (2020) conducted the validity and reliability study of the Turkish version of the instrument (OBQ11-T) and reported a test-retest reliability coefficient of 0.922 and Cronbachs' alpha of 0.785 for the total score. The OBQ consists of 11 items scored on a 4-point Likert scale from 'strongly disagree' to 'strongly agree'. The total score is obtained by summing the individual items and ranges from 0 to 33, with higher scores indicating higher OB.

Statistical Analysis

Data were analyzed with SPSS version 22.0 statistical software package program. Shapiro–Wilk test was used to ascertain whether the data showed normal distribution. Normally distributed variables were summarized as mean ± standard deviation and minimum–maximum values, otherwise median and interquartile range (IQR) were given. OBQ11-T scores were not normally distributed; therefore, we used the Mann–Whitney U test for pairwise comparisons and the Kruskal–Wallis test for multiple comparisons. Significance values were adjusted using Bonferroni correction for multiple tests when appropriate. Correlations between variables were analyzed with Spearman correlation analysis. According to Spearmans' correlation coefficient (r) values, associations between variables were classified as very weak (.00–.19), weak (.20–.39), moderate (.40–.59), strong (.60–.79), and very strong (.80–1.0). Level of significance was set to .05 (Alpar, 2013).

RESULTS

The mean age of the participants was 19.60±1.05 years (range: 18–25 years). The majority was female, had middle economic status, and lived in student housing. Other demographic characteristics of the participants are presented in Table 1.

Weak negative correlations were detected between SPAS-SF score and OBQ11-T total and item 10 (Balance between energy-giving/energy-taking activities) scores. There were also very weak negative correlations between SPAS-SF score and OBQ11-T item 4 (Balance between work, home, family, leisure, rest, and sleep) and item 6 (Balance between physical, social, mental, and restful occupations) scores. The findings indicated that higher level of smartphone addiction was associated with lower OB (Table 2).

The median OBQ11-T score was 19.00 (IQR: 5.00) in female students and 19.00 (IQR: 4.50) in male students. There was no gender-based difference in OB scores (p=.202). The students' economic status was associated with statistically significant differences in their scores for OBQ11-T item 3 (Time for doing things wanted) and item 11 (Satisfaction with time spent in rest, recovery, and sleep) (p<.05). Pairwise comparisons showed that both items differed significantly between the middle and high economic levels (p<.05) (Table 3).

Table 1. Demographic characteristics of participants

	n=128	%
Gender		
Female	95	74.2
Male	33	25.8
Economic Status		
Low	9	7
Middle	115	89.8
High	4	3.4
Living Situation		
With Family	40	31.3
Private Accommodation	13	10.2
Student Housing	75	58.5

Table 2. Correlation between Smartphone Addiction Scale and occupational balance scores

Turkish Occupational Balance Questionnaire-11	**SPAS-SF**	
	r	p
Item 1 (Having sufficient things to do during a regular week)	-.006	.951
Item 2 (Balance between doing things for others/for oneself)	-.125	.159
Item 3 (Time for doing things wanted)	-.153	.084
Item 4 (Balance between work, home, family, leisure, rest, and sleep)	-.188*	.033
Item 5 (Have sufficient time for doing obligatory occupations)	-.076	.396
Item 6 (Balance between physical, social, mental, and restful occupations	-.187*	.034
Item 7 (Satisfaction with how time is spent in everyday life)	-.035	.693
Item 8 (Satisfaction with the number of activities during a regular week)	-.140	.116
Item 9 (Balance between obligatory/voluntary occupations)	-.107	.128
Item 10 (Balance between energy-giving/energy-taking activities)	-.212*	.016
Item 11 (Satisfaction with time spent in rest, recovery, and sleep)	-.002	.980
Total Score	-.243**	.006

*Note. *Correlation is significant at the 0.05 level (2-tailed), **Correlation is significant at the 0.01 level (2-tailed), SPAS-SF: Smartphone Addiction Scale-Short Form*

Table 3. Comparison of occupational balance scores by economic status

	Low (n=9)	**Moderate (n=115)**	**High (n=4)**	**p**
	Median (IQR)	**Median (IQR)**	**Median (IQR)**	
Item 1	2.00 (0.50)	2.00 (0.00)	2.00 (0.00)	>.05
Item 2	2.00 (0.50)	2.00 (1.00)	2.00 (0.00)	>.05
Item 3	1.00 (1.00)	2.00 (1.00)	1.00 (0.00)	**<.05**
Item 4	2.00 (1.50)	2.00 (1.00)	1.00 (0.75)	>.05
Item 5	2.00 (1.00)	2 (0.50)	2.00 (0.75)	>.05
Item 6	1.00 (1.00)	2.00 (1.00)	1.50 (1.00)	>.05
Item 7	1.00 (1.00)	2.00 (1.00)	2.00 (1.50)	>.05
Item 8	1.00 (1.00)	1.00 (1.00)	2.00 (1.50)	>.05
Item 9	2.00 (1.00)	2.00 (1.00)	2.00 (2.00)	>.05
Item 10	1.00 (1.00)	2.00 (1.00)	1.50 (1.75)	>.05
Item 11	2.00 (1.50)	2.00 (0.00)	1.00 (1.50)	**<.05**
Total Score	17.00 (4.50)	19.00 (5.00)	18.50 (4.00)	>.05

Note. IQR: Inter Quartile Range

OBQ11-T item 9 (Balance between obligatory/voluntary occupations) differed statistically according to place of residence (p<.05). Pairwise comparisons showed that item 9 differed statistically between the students living in student housing and those living at home with their families (p<.05). Students living in student housing reported higher levels of OB (Table 4)

Table 4. Comparison of occupational balance scores by living situation

	With Family (n=40) Median (IQR)	Private Accommodation (n=13) Median (IQR)	Student Housing (n=75) Median (IQR)	p
Item 1	2.00 (0.75)	2.00 (0.50)	2.00 (0.00)	>.05
Item 2	2.00 (1.00)	2.00 (1.00)	2.00 (0.00)	>.05
Item 3	2.00 (1.00)	2.00 (0.00)	2.00 (1.00)	>.05
Item 4	2.00 (1.00)	2.00 (1.00)	2.00 (1.00)	>.05
Item 5	2.00 (0.00)	2.00 (0.50)	2.00 (0.00)	>.05
Item 6	2.00 (1.00)	2.00 (1.00)	2.00 (1.00)	>.05
Item 7	2.00 (0.75)	2.00 (1.00)	2.00 (1.00)	>.05
Item 8	1.00 (1.00)	2.00 (1.00)	1.00 (1.00)	>.05
Item 9	1.00 (1.00)	2.00 (1.00)	2.00 (1.00)	**<.05**
Item 10	2.00 (1.00)	2.00 (0.50)	2.00 (1.00)	>.05
Item 11	2.00 (0.75)	2.00 (1.00)	2.00 (1.00)	>.05
Total Score	18.00 (5.00)	19.00 (6.00)	19.00 (5.00)	>.05

Note. IQR: Inter Quartile Range

DISCUSSION

The current study demonstrated a relationship between smartphone addiction and OB among university students. As the degree of smartphone addiction increased, OB decreased. Students from families of middle economic status reported significantly better OB in regards to having time to do the things they wanted and satisfaction with time spent in rest, recovery, and sleep when compared with students of high economic status. Students living in student housing reported better balance between obligatory and voluntary occupations than students living with family.

To the best of our knowledge, this is the first study to show a relationship between smartphone addiction and OB in university students. Our findings suggest that the impact of smartphone addiction on OB is especially relevant to the students' balance between energy-giving/energy-taking occupations; work, home, family, leisure, rest, and sleep occupations; and physical, social, mental, and restful occupations. Similar to our findings, smartphone addiction was associated with daytime dysfunction and decreased sleep quality in a previous study (Demirci, Akgönül and Akpınar, 2015). Smartphone addiction results in more leisure time being spent with smartphone, which has a negative impact on daytime functioning. At the same time, smartphone overuse and frequent checking could result in reduced productivity both in the workplace and at home (Duke and Montag, 2017). Therefore, interventions to prevent smartphone addictions may promote proper daytime functioning and OB among university students.

In our study, we detected no gender differences in OB. However, previous studies reported gender-based differences in OB in mental illness and rheumatoid arthritis, with females reporting lower OB than males (Eklund, Brunt and Argentzell, 2020; Wagman, et al., 2020). However, other researchers determined that males had lower OB than females in a general population (Wagman et al., 2014). A possible explanation for the comparable OB across the genders in our study could be that our sample consisted of university students, who have not yet encountered some of the work and family-related factors that influence OB in older adults. However, conflicting results in the literature should be examined in future studies.

In the current study, we found that students of middle economic status reported better OB in terms of "time for doing things wanted" and "satisfaction with time spent in rest, recovery, and sleep" than students of high economic status. These results were surprising, as we expected lower economic status to correspond to lower OB. Researchers have shown that low income

level adversely affects participation in leisure activities (Bozgeyikli and Kesici, 2016) and students from high-income families show higher rates of participation in leisure activities (Önaç, Birişçi, Gündel et al., 2018). A possible explanation for our findings is that OB is a subjective perception, and students of higher economic status may no longer be satisfied with their leisure activities. However, due to the small numbers of students in the low and high income level groups, these results should be interpreted with caution. Further studies with a larger sample size and more equal socioeconomic distribution should be performed to replicate our findings.

Our findings indicated that students who lived in student housing were better able to balance obligatory and voluntary occupations than students living with their families. This may stem from two factors. First, students living in students housing in Turkey do not have obligatory household occupations such as cooking, laundry, and cleaning. Our sample was predominantly female, and in Turkish culture there is a greater expectation for women to perform household occupations and for girls to assist with these chores (Sunar and Fişek, 2005). Second, students living in student housing have more possibilities to participate in voluntarily occupations due to the enriched social environment there. The overprotective parenting that begins in childhood may also continue during the university years and can have a negative effect on young people's autonomy. University students' social and personal development requires a free environment and participation in cultural and mental activities. Students staying in student housing have advantages such as sharing information, controlling their spending, having larger social circles, learning to share, and making decisions freely (Arlı, 2013). Therefore, we believe that families should be educated about how to promote the OB of university students who live at home.

This study has three important limitations. First, the study sample was small and inhomogeneous in terms of the students' economic status and living situation. Second, the study sample consists of students from a public university, which precludes the generalization of our findings. Third, all factors which could affect OB such as depression and anxiety did not investigate. Further studies should investigate OB among university students in more detail, such as the relationship between OB and academic success, and factors that could be related to OB in this group. ORCID: 0000-0001-5110-633X

Authorship Contributions

Idea/Concept: Serkan Pekçetin, Ayla Günal, Carita Håkansson; Design: Serkan Pekçetin, Ayla Günal, Carita Håkansson; Control/Supervision: Serkan Pekçetin, Ayla Günal, Carita Håkansson; Data Collection and/or Processing: Serkan Pekçetin, Ayla Günal; Analysis and/or Interpretation: Serkan Pekçetin, Ayla Günal; Literature Review: Serkan Pekçetin, Ayla Günal, Carita Håkansson; Writing the Article: Serkan Pekçetin, Ayla Günal, Carita Håkansson; Critical Review: Serkan Pekçetin, Ayla Günal, Carita Håkansson.

Declaration of Conflicting Interests

The Author(s) confirm that there is no conflict of interest.

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