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Research Article

THE RELATIONSHIP BETWEEN SMARTPHONE ADDICTION, PSYCHOLOGICAL WELL-BEING AND ANXIETY IN MIDWIFERY STUDENTS RECEIVING DISTANCE EDUCATION

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Abstract: *It is obvious that during the COVID-19 pandemic period, the use of smartphones has increased due to the continuing distance education in our country. This study, therefore, aimed to examine the relationship between smartphone addiction, psychological well-being, and anxiety in midwifery students receiving distance education. Information of 759 midwifery students studying in midwifery undergraduate programs and receiving distance education was collected and analyzed with web-based query forms. For the collection of the data of the research, the Personal Information Form (PIF), which included 14 questions, including socio-demographic characteristics, and was created with online form tools and prepared by the researchers by scanning the literature, was used along with Smartphone Addiction Scale (SAS), Psychological Well-being Scale (PWBS) and Beck Anxiety Inventory (BAI). While the mean score of the smartphone addiction scale of the students was calculated as 30.29 ± 12.42, their high addiction level (> 33 points) was found to be 36.4% (n = 276). It was determined that smartphone addiction was the most important independent factor (β= 0.32, t = 10.01, p = <0.001) affecting students' beck anxiety level. Smartphone addiction increased students' anxiety and decreased their psychological well-being.*

Keywords: *Smartphone addiction, anxiety, psychological well-being, midwifery students, distance education*

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1. Introduction

Technological tools have led to a groundbreaking change in society and increased behavioral addictions with the development of technology. One of these technological tools that have created a great change in society is smartphones. The use of smartphones is becoming more and more important for people every day. The widespread and excessive use of smartphones has become a major public health problem. [1,2]. The level of smartphone use in the world is 67% [3]. In Turkey, the smartphone/mobile phone use rate was 98.7% in 2019 [4].

Sending messages, visiting social networks, taking photos and videos, sharing pictures and messages on social media, playing games, shopping online, and surfing the Internet can be done anywhere and anytime via a smartphone. In studies on smartphones, the use of smartphones is stated to be common among young people, and this situation is associated with addictive behavior. It is reported that when smartphones are used excessively, they can negatively affect learning in the classroom and interpersonal communication, and cause security problems [5-8]. The adolescent, who tries to socialize with a smartphone and reduce the problems s/he experiences, actually becomes more individualized and disconnects from real life [2]. Adolescents' focusing all their time and attention on friendships leads to

a decrease in their interest in lessons, to the deterioration of their sleep quality, to inefficiency in their lessons, to low academic success, and depression [8-10].

Long-term use of smartphones reveals many negative physical and psychosocial problems in users, which includes dry eyes; carpal tunnel syndrome; wrist, neck, back, and shoulder pain; loss of concentration; tension; migraine headaches; thumb and middle finger pain; the risk of being drawn to unhealthy and illegal environments due to easy communication with everyone; asociality; and obesity [11,12].

Individuals, who feel good psychologically, maintain good social relationships with other people, feel good spiritually and physically, and increase their job performance and earnings [13]. Psychological well-being arises from the possible tension balance between a person's happiness and development. People participate in activities, such as the internet, social media, listening to music, and social activities, to reduce tension in their lives and to be happy. However, various applications on the internet and time spent on social media often do not relieve the person psychologically as they wish; on the contrary, they can cause problems [14]. In this context, it is important for public health to protect students, who are the future of society, against technological addictions, which is one of the most vulnerable problems [10]. The coronavirus disease (COVID-19) has become a pandemic, causing unprecedented biopsychosocial, mental, and economic problems worldwide. In this process, many people have faced home confinement and physical and social distancing that can worsen their mental health problems and lead to technology and internet addiction. [15]. It is obvious that during the COVID-19 pandemic period, the use of smartphones has increased due to the continuing distance education in our country. This study, therefore, aimed to examine the relationship between smartphone addiction, psychological well-being, and anxiety in midwifery students receiving distance education.

2. Materials and Methods

2.1. Design, Data Collection, and Sample

The population of this cross-sectional study included female midwifery students who were registered to an undergraduate midwifery degree program in Turkey between 5 April 2021 and 5 May 2021 during the spring semester of the 2020-2021 academic year and who received distance education. The d-value method was used to calculate the sample size. In order to ensure that the effect size value is 0.10, that the margin of error is 0.05, and that the power is 80%, with the help of the G-power (version 3.1) package program, a minimum of 614 midwifery students were calculated as the sample group in accordance with the specified criteria. A midwife student voluntarily started to share an online questionnaire via online platforms (Facebook, WhatsApp, and Instagram) and asked for it to be shared again. The research was completed with a total of 759 midwifery students.

Inclusion criteria of the study

- Being a female midwifery student
- Being a Facebook, WhatsApp, or Instagram user

Exclusion criteria of the study

- Unwillingness to participate in the study

2.2. Measurements

For the collection of the data of the research, the Personal Information Form (PIF), which included 14 questions, including socio-demographic characteristics, and was created with online form tools and prepared by the researchers by scanning the literature, was used along with Smartphone Addiction Scale (SAS), Psychological Well-being Scale (PWBS) and Beck Anxiety Inventory (BAI). The data were collected through online platforms (Facebook, WhatsApp, and Instagram) with online forms. The students answered the questions completely, and the missing data were, therefore, not recorded.

Personal Information Form:

The Personal Information Form, which was prepared by the researchers by scanning the literature [5,11] contains information about students' socio-demographic characteristics (age, class, chronic disease, etc.) and consists of 14 questions.

Smartphone Addiction Scale (SAS):

The 33-question form of the Smartphone Addiction Scale (SAS) was created by Kwon, Lee, Won, Park, and Min (2013) in order to measure the risk of smartphone addiction in adolescents. It was, then, reduced to 10 questions for ease of implementation, and the Short Form (SAS -SF) was created [16]. The validity and reliability studies of the Short Form of the Smartphone Addiction Scale (SAS -SF), which consists of 10 questions, were carried out by Noyan, Enez Darçın, Nurmedov, Yılmaz, and Dilbaz (2015). The Cronbach alpha coefficient, whose lower limit was determined as 0.70, was found to be 0.867 [17]. In this study, the Cronbach alpha coefficient of the scale was determined to be 0.927.

Psychological Well-Being Scale (PWBS):

The Psychological Well-being Scale was developed by Diener et al., (2010) in order to measure socio-psychological well-being and to complement existing well-being measures [18]. The adaptation study of the scale into Turkish was conducted by Telef (2013) [19]. The Psychological Well-Being Scale, which includes eight items, identifies important elements of human function such as positive relationships, feelings of competence, and having a meaningful and purposeful life. The Cronbach alpha internal consistency coefficient of the scale was found to be .87 [18]. In this study, the Cronbach alpha coefficient of the scale was determined to be 0.928.

Beck Anxiety Inventory (BAI):

It is a self-assessment scale developed by Beck, Epstein, Brown, and Steer (1988) in order to determine the frequency of anxiety symptoms experienced by individuals. It is a 4 Likert-type scale with 21 items scored between 0 and 3 [20]. Its validity and reliability in Turkey were performed by Ulusoy Turkey, Sahin, and Erkmen (1998) [21]. In this study, in the internal consistency analysis, the Cronbach alpha coefficient was found to be .90, whereas the Cronbach alpha coefficient of the scale was determined to be 0.935.

2.3. Statistical analysis

While evaluating the findings obtained in the study, SPSS (Statistical Package for the Social Sciences) version 25.0 (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Descriptive statistical methods (mean, standard deviation, median number, percentage, etc.) were used for the evaluation of the study data. One-way ANOVA analysis and Independent Samples T-Test was used to test the difference between the groups. Multiple comparisons were made using the Tukey test in the groups where the difference was significant as a result of the
ANOVA analysis. The correlation level between the two continuous variables was measured using the Spearman correlation test. Multiple linear regression analysis was used for the determination of independent factors which affected students' smartphone addiction, psychological well-being, and beck anxiety levels. The results were evaluated at a 95% confidence interval, whereas the significance was evaluated below $p < 0.05$.

Ethical statement

For the application of the study, the ethical approval of the Scientific Research Ethics Committee of Canakkale Onsekiz Mart University (Ethics Committee No: 2021-YÖNP-0137, Decision No: 05/19, Decision Date: 11.03.2021) and the electronic consent of the students, who participated in the study, were obtained.

3. Results

The average age of 759 undergraduate midwifery students included in the study was found to be 20.75 ± 2.53, and distributed between the ages of 17 and 40. It was determined that 29.5% of the students were in the first grade, that 33.1% were in the second grade, that 17.5% were in the third grade, and that 19.9% were in the fourth grade. It was found out that 97.2% of them were single and that 83.9% had a nuclear family. 60.3% of the students had primary school graduate mothers, whereas 36.8% had primary school graduate fathers. 66.3% had a middle-income level. It was determined that 8.4% of the students had a chronic disease, that 12.6% used cigarettes, that 12.6% alcohol, and that 53.8% did not do any sports activities. While 30.3% of the students defined their sleep duration and quality as poor and very poor, 79.6% stated that they had vision problems during the distance education process (Table 1).

Table 1. Students' Smartphone Addiction, Psychological Well-being, and Beck Anxiety Mean Scores According to Their Sociodemographic Characteristics (N:759)

			Smartphone Addiction Scale			**Psychological Well-Being Scale**			**Beck Anxiety Inventory**		
Variable	**Category**	**n (%)**	**Mean±SD**	**Test**	***p***	**Mean±SD**	**Test**	***p***	**Mean±SD**	**Test**	***p***
Age Group	≤20	401 (52.8)	30.38±11.99	0.21[a]	0.834	37.43±10.44	2.41[a]	**0.016**	18.92±13.34	1.08[a]	0.279
	>20	358 (47.2)	30.19±12.89			39.28±10.68			17.87±13.42		
Grade	I	224 (29.5)	30.19±12.21	0.26[b]	0.851	37.21±10.78	2.07[b]	0.103	17.76±12.65	0.29[b]	0.831
	II	251 (33.1)	30.70±12.31			37.97±10.07			18.75±13.16		
	III	133(17.5)	29.53±12.39			39.77±10.78			18.42±13.33		
	IV	151(19.9)	30.42±13.00			39.16±10.86			18.88±14.87		
Marital status	Married	21(2.8)	23.62±11.89	2.51[a]	**0.012**	41.81±12.54	1.54[a]	0.124	14.29±13.30	1.44[a]	0.151
	Single	738(97.2)	30.48±12.39			38.20±10.52			18.54±13.37		
Family type	Extended	122(16.1)	27.73±11.41	2.49[a]	**0.013**	39.57±10.62	1.44[a]	0.150	18.07±13.27	0.32[a]	0.752
	Nuclear	637(83.9)	30.78±12.55			38.06±10.57			18.49±13.41		
Mother's Education	Primary S.	458(60.3)	30.69±12.36	0.45[b]	0.715	38.02±10.58	2.14[b]	0.094	18.41±13.10	0.67[b]	0.569
	Secondary S.	103(13.6)	30.03±13.22			36.77±10.69			19.75±15.39		
	High S.	137(18.1)	29.45±12.40			39.50±10.29			18.25±12.84		
	University	61(8.0)	29.56±11.58			40.30±10.82			16.72±13.16		
Father's Education	Primary S.	279(36.8)	31.25±12.58	1.78[b]	0.150	37.56±10.02	0.99[b]	0.396	19.31±13.19	0.98[b]	0.400
	Secondary S.	156(20.6)	30.05±12.16			38.60±10.88			18.15±13.12		
	High S.	209(27.5)	28.76±12.22			38.42±11.03			17.26±13.43		
	University	115(15.2)	31.05±12.59			39.49±10.71			18.78±14.10		
Income	Low	173(22.8)	31.94±13.39	2.13[b]	0.120	36.34±10.88	8.01[b]	**<0.001**	21.14±13.79	4.95[b]	**0.007**
	Moderate [2]	503(66.3)	29.91±12.08			38.38±10.45	*1<3*		17.80±13.26	*3,2<1*	
	High[3]	83(10.9)	29.12±12.18			41.93±9.92			16.58±12.61		
Chronic Disease	Yes	64(8.4)	31.44±12.24	0.77[a]	0.439	37.03±9.62	1.00[a]	0.317	25.33±13.85	4.36[a]	**<0.001**
	No	695(91.6)	30.18±12.44			38.42±10.67			17.79±13.17		
Smoking	Yes	96(12.6)	31.53±14.70	0.91[a]	0.367	38.07±10.82	0.22[a]	0.822	21.63±14.44	2.52[a]	**0.012**
	No	663(87.4)	30.11±12.05			38.33±10.56			17.96±13.17		
Alcohol	Yes	96(12.6)	33.21±14.40	2.17[a]	**0.032**	35.94±11.00	2.35[a]	**0.019**	23.77±14.15	4.23[a]	**<0.001**
	No	663(87.4)	29.86±12.06			38.64±10.49			17.65±13.10		
Doing sports	Yes	351(46.2)	27.96±12.09	4.87[a]	**<0.001**	40.77±9.77	6.15[a]	**<0.001**	17.25±13.20	2.26[a]	**0.024**
	No	408(53.8)	32.29±12.36			36.17±10.81			19.44±13.47		
Sleep quality	Very poor[1]	32(4.2)	40.59±13.85	18.79[b]	**<0.001**	30.25±10.23	21.82[b]	**<0.001**	31.69±13.52	40.42[b]	**<0.001**
	poor[2]	198(26.1)	33.75±12.19	*4<3<2<1*		34.64±10.54	*1<2<3<4*		24.37±13.48	*4<3<2<1*	
	Good[3]	471(62.1)	28.67±11.98			39.93±9.88			15.95±12.07		
	Very good[4]	58(7.6)	25.91±10.35			42.00±11.22			10.93±11.09		
Vision problem	Yes	604(79.6)	31.68±12.37	6.69[a]	**<0.001**	37.38±10.47	4.81[a]	**<0.001**	20.14±13.43	8.17[a]	**<0.001**
	No	155(20.4)	24.86±11.04			41.90±10.29			11.73±10.88		

[a]Independent samples *t* test, [b]One-way ANOVA test

3.1. Beck Anxiety Inventory Scores

The students' anxiety score was calculated as 18.43 ± 13.38. In the analysis performed for the internal consistency of the scale, it was determined that the Cronbach alpha reliability coefficient was α = 0.935. In the comparisons between the groups, it was found out that the anxiety level of the students, who had low income (F = 4.95; p = 0.007) and a chronic disease (t = 4.36; p = <0.001), smoked (t = 2.52; p = 0.012), used alcohol (t = 4.23; p <0.001), had poor/very poor sleep duration and quality (F = 40.42; p <0.001), and experienced vision problems during distance education (t = 8.17; p <0.001), was statistically significantly higher. The students who did sports had lower anxiety levels (t = 2.26; p = 0.024) than the students who did not do sports. When the variables, which were statistically significant in the single analyzes, were included the linear regression model, it was determined that chronic disease (β= 0.12, t = 4.01, p <0.001), alcohol use (β= 0.09, t = 2.64, p = 0.009), poor/very poor sleep quality (β= 0.19, t = 5.84, p <0.001), vision problems during the distance education period (β= 0.11, t = 3.36, p = 0.001), and smartphone addiction (β= 0.32, t = 10.01, p = <0.001) and psychological well-being levels (β= -0.18, t = -5.57, p = <0.001) were the independent factors related to the students' anxiety levels (Adjusted R2 = 0.32; F = 40.02; p = <0.001). In addition, as a result of the Spearman correlation analysis, it was found that there was a positive (r = 0.432; p = <0.001) relationship between the students 'anxiety and smartphone addiction levels and that there was a negative relationship (r = -0.319; p = <0.001) between the students' anxiety and psychological well-being levels (Table 2).

3.2. Smartphone Addiction Scores

While the mean score of the smartphone addiction scale of the students was calculated as 30.29 ± 12.42, the high addiction level (> 33 points) of the students was found to be 36.4% (n = 276). In addition, the Cronbach alpha reliability coefficient of the smartphone addiction scale was determined to be α = 0.927. In the comparisons between the groups, it was determined that the smartphone addiction level of the students, who were single (t = 2.51; p = 0.012), had a nuclear family (t = 2.49; p = 0.013), used alcohol (t = 2.17; p = 0.032), had poor/very poor sleep quality (F = 18.79; p = <0.001), and experienced vision problems during distance education (t = 6.69; p = <0.001), was statistically significantly higher. It was also found out that the students who did sports had lower smartphone addiction (t = 4.87; p = <0.001) than the students who did not do sports. When the variables, which were statistically significant in the single analyzes, were included in the linear regression model, it was found that all significant variables were independent factors associated with the students' smartphone addiction. (Adjusted R^2 = 0.07; F = 12.04; p <0.001). In addition, as a result of the Spearman correlation analysis, a negative correlation (r = -0.188; p <0.001) was found between the students' smartphone addiction and psychological well-being levels (Table 2).

3.3. Psychological Well-being

The psychological well-being mean score of the students was 38.30 ± 10.59, and the Cronbach's alpha reliability coefficient of the scale was α = 0.928. In the comparisons between the groups, it was found that the psychological well-being level of the students, who were over 20 years old (t = 2.41; p = 0.016), had medium/high income level (F = 8.01; p = <0.001), were non-alcoholic (t = 2.35; p = 0.019), did exercising (t = 6.15; p = <0.001), had good/very good sleep quality (F = 21.82; p = <0.001), and experienced no vision problems during distance education (t = 4.81; p = <0.001), was statistically significantly higher. When the variables, which were statistically significant in the single analyzes, were included the linear regression model, it was determined that being over 20 years old (β= 0.08, t = 2.28, p = 0.023), doing sports (β= 0.18, t = 5.26, p = <0.001), having good/very good sleep quality (β= 0.14, t = 3.81, p = <0.001), not experiencing visual problems during distance education (β= 0.08, t = 2.38, p

= 0.018), and beck anxiety level (β= -0.22, t = -5.58, p = <0.001) were the independent factors associated with the students' psychological well-being levels (Adjusted R2 = 0.18; F = 19.97; p <0.001) (Table 2).

Table 2. Factors Associated with Students' Smartphone Addiction, Psychological Well-Being and Beck Anxiety Level (Multiple Linear Regression Analysis Results)

		Unstandardized Coefficients		Standardized Coefficients			
	Factors	**B**	**SE**	***β***	**t**	**p**	**Model[a]**
Beck Anxiety	**Income**	-1.327	0.977	-0.042	-1.359	0.175	R^2=0.325
	Chronic Disease	5.846	1.460	0.121	4.005	**<0.001**	Adjusted R^2=0.317
	Smoking	0.769	1.354	0.019	0.568	0.570	F=40.024
	Alcohol	3.565	1.352	0.089	2.636	**0.009**	p=<0.001
	Sports	0.915	0.843	0.034	1.085	0.278	
	Sleep quality	5.554	0.950	0.191	5.844	**<0.001**	
	Vision Problems	3.510	1.043	0.106	3.364	**0.001**	
	Smartphone Addiction	0.346	0.035	0.321	10.014	**<0.001**	
	Psychological Well-Being	-0.228	0.041	-0.180	-5.572	**<0.001**	
Smartphone Addiction	**Marital Status**	7.221	2.667	0.095	2.708	**0.007**	R^2=0.074
	Family Type	2.585	1.190	0.077	2.171	**0.030**	*Adjusted* R^2=0.068
	Alcohol	2.827	1.317	0.076	2.147	**0.032**	F=12.043
	Sports	-3.579	0.896	-0.144	-3.994	**<0.001**	p=<0.001
	Psychological Well-Being	-0.166	0.042	-0.141	-3.911	**<0.001**	
Psychological Well-being	**Age group**	1.628	0.714	0.077	2.282	**0.023**	R^2=0.176
	Income	1.047	0.852	0.042	1.229	0.219	*Adjusted* R^2=0.167
	Alcohol	-1.725	1.078	-0.054	-1.600	0.110	F=19.966
	Sports	3.799	0.722	0.179	5.260	**<0.001**	p=<0.001
	Sleep quality	-3.180	0.834	-0.138	-3.814	**<0.001**	
	Vision Problems	-2.177	0.916	-0.083	-2.378	**0.018**	
	Smartphone addiction	-0.003	0.032	-0.004	-0.096	0.923	
	Beck anxiety level	-0.173	0.031	-0.218	-5.578	**<0.001**	

[a]Multiple Linear Regression Model

4. Discussion

In the study, it was observed that 36.4% of the students had high smartphone addiction. Similarly, in the study conducted by Alhazmi, Alzahrani, Baig and Salawati (2018) [22] with medical students, 36.5% of the students were found to be smartphone addicts. In a study conducted by Alsalameh, Harisi, Alduayji, Almutham, and Mahmood (2019) [23] with medical students, 60.3% of the students were reported as smartphone addicts. According to another study conducted by Elserty, Helmy, and Mounir (2018) [24] on physical therapy students, the rate of smartphone addiction was found to be 62.4% higher in women than men. The rate in those studies is higher than the rate in this study. In another study carried out with medical faculty and nursing students, smartphone addiction scores for nursing students were determined to be significantly higher than those for medical students. Since most of the participants from the nursing department were female, it was concluded that this difference may also be due to gender [5]. It is thought that the findings of the study will contribute to the literature, because midwives, who

have important roles in both women's health and community mental health, will be the health professionals of the future.

In a large sample of university students, a study found that problematic smartphone use was common and associated with lower Grade Point Average (GPAs), worse self-esteem, higher impulsivity, mental health problems, and symptoms of alcohol use disorder [25]. In the study, it was reported that the smartphone addiction level of the students who used alcohol was statistically significantly higher. It was emphasized in different studies that excessive use of smartphones could cause smartphone addiction, as well as a public health problem equivalent to alcohol, cigarette, and drug addiction [5,26]. The results of the study support those in the literature.

In the study, it was found that most of the students had vision problems. While the smartphone addiction and anxiety levels of the students with vision problems were statistically significantly higher, their psychological well-being level was lower. In other studies conducted on this subject, it was emphasized that vision problems (burning, dryness) were also experienced [5, 24]. It is thought that the pandemic period also increased the problems caused by this situation due to the continuation of distance education.

The students who did sports had lower anxiety and smartphone addiction levels compared to the students who did not do sports, whereas their psychological well-being levels were higher. A meta-analysis study concluded that exercise interventions could have positive effects on the treatment of smartphone addiction and that longer intervention times could produce greater intervention effects [27]. These results confirm that regular sports reduce anxiety and depression since it causes an increase in the secretion of happiness hormones, such as dopamine and endorphins, and that sports have positive effects on human psychology.

In the study, a positive relationship was found between the students' anxiety and smartphone addiction levels. Similar studies also found a relationship between depression, and anxiety, and smartphone addiction [28,29]. Excessive use of digital devices and mobile phones decreases students' academic success and satisfaction with life disrupts their sleep quality, negatively affects them and isolates their social life and verbal communication [8,30]. In the study, it was found that the level of smartphone addiction was statistically significantly higher in the students with poor/very poor sleep time and quality. A negative relationship was found between smartphone addiction and psychological well-being. The results support those in the literature. These results suggest that smartphone addiction threatens public health because it creates negative consequences for the mental health of the community.

In the study conducted by Battashi et al. (2020), a significant positive relationship was found between excessive use of smartphones, insomnia, anxiety, and stress among university students. In the study, it was concluded that it was important to encourage healthy ways of using smartphones and to develop an awareness plan for the identification of these problems and that students should be supported in reducing their anxiety levels [11]. In other studies, it was stated that addiction could be prevented by providing guidance services by increasing self-awareness and peer education programs [31,32]. The results of the study are similar and support the importance of education programs to improve psychological symptoms, such as sleep and anxiety, in terms of reducing smartphone addiction among university students.

In the study of Çiçek, Tanriverdi, Şanlı, and Buluş, (2021), there was a negative and significant relationship between democratic and authoritarian parental attitudes and smartphone addiction in university students, while a positive and significant relationship was found between protective parental attitudes and smartphone addiction [33]. A positive and significant relationship between high levels of internet addiction and loneliness in university students was also emphasized in studies [34,35]. The results show that smartphone addiction may be related to family structure and loneliness.

In the study conducted among Italian children and adolescents, it was stated that smartphone use was more frequent during the COVID-19 pandemic compared to the pre-epidemic period. It was reported that the increase in smartphone addiction led to sleep and musculoskeletal disorders, and psychological and social negativities. It was emphasized that negative effects should be monitored in cooperation with parents in order to recognize signs and symptoms early and to reduce addiction [36]. In a similar study conducted with medical students during the pandemic period, a relationship was found between smartphone use and anxiety and sleep disorders. It was thought that the harmful effect of problematic smartphone use and the importance of sleep health in reducing anxiety should be emphasized and included in medical education [37]. The results of the study are similar, which confirms that the addiction has been caused by social distancing measures, which have been applied for months, and distance education.

5. Conclusions and Recommendations

In this study, it was concluded that smartphone addiction increased students' anxiety and decreased their psychological well-being. However, it was found that the level of smartphone addiction was statistically significantly higher in those students who used alcohol, had poor/very poor sleep duration and quality, and experienced vision problems during distance education. It was also determined that those students who did sports had lower smartphone addiction than those who did not do sports. Students can get rid of the addiction that negatively affects and isolates their social lives and verbal communication by being directed to arts, sports, and social activities, which would be provided through the social support of their families. Due to the restrictions during the pandemic period, students can be supported to adopt a hobby to protect their mental health. Smartphone addiction can be managed by strengthening self-control to encourage the healthy use of smartphones. In order to prevent the problem of addiction, specialist psychiatric nursing educators and psychotherapists advise students to organize distance education programs during distance education about the potential harms of smartphone addiction and its negative impacts on school success and mental health. It is recommended to increase studies on etiological factors and psycho-social problems in determining the risk of smartphone addiction in students. By conducting interventional research and providing online counseling, students' anxiety and depression levels can be reduced. It is also recommended to make awareness-raising education programs to prevent health problems caused by smartphone addiction and to encourage the appropriate use of smartphones.

Ethical statement

For the application of the study, the ethical approval of the Scientific Research Ethics Committee of Canakkale Onsekiz Mart University (Ethics Committee No: 2021-YÖNP-0137, Decision No: 05/19, Decision Date: 11.03.2021) and the electronic consent of the students, who participated in the study, were obtained. The students were informed about the objective of the study at the beginning of the questionnaire form on online platforms. In order to ensure the confidentiality of participant information, we did not include any identifying information in the online questionnaire.

Conflict of interest

The authors report no actual or potential conflicts of interest.

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Limitations of the Study

The sample of the study is limited to midwifery students who received distance education at the time of the study and could be reached only through online platforms.

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The compliance to the Research and Publication Ethics

This study was carried out in accordance with the rules of research and publication ethics.

Authors' Contributions

E.C: Conceptualization, Methodology, Formal analysis, Resources, Investigation, Writing - Original draft preparation (%50)

S.S: Conceptualization, Methodology, Formal analysis, Resources, Investigation, Writing - Original draft preparation (%50)

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