

An Evaluation of the Relationship Between Self-Compassion and Nomophobia and Comorbid Mental Disorders in Adolescents

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Main Points

- With the increase in telephone use by young people in particular during the coronavirus disease 2019 (COVID-19) pandemic to be able to continue socializing, communicating, and even for academic life, it was predicted that there could be an increase in the tendency to nomophobia.
- The results of this study, which examined the relationship between self-compassion and nomophobia, demonstrated that nomophobia during the COVID-19 pandemic was similar in males and females and increased with decreased self-compassion.
- The level of self-compassion was found to be lower in young females than in males.
- The relationship between self-compassion and nomophobia is a subject not yet seen in the literature, but self-compassion could be considered a significant variable indicating mental health.

Abstract

The aim of this study was to evaluate self-compassion and nomophobia in adolescents aged 14 – 18 years and to investigate the relationship between self-compassion and nomophobia and comorbid mental health disorders. A questionnaire formed from the self-compassion scale, Nomophobia Scale, and a sociodemographic form was delivered online to adolescents who presented at the Child and Adolescent Mental Health and Diseases Polyclinic of Pamukkale University between January and June 2020. A total of 234 adolescents completed the questionnaires. The level of nomophobia was found to be statistically significantly higher in females than in males ($p = .024$). The level of self-compassion was found to be statistically significantly lower in females than in males ($p < .001$). A negative weak correlation was determined between the total self-compassion scores and the total nomophobia scores ($r = -.308, p < .001$). As self-compassion decreased, the tendency to nomophobia increased. No statistically significant difference was found between total Nomophobia Scale and total self-compassion scores between those with and without comorbid mental disorders. The relationship between self-compassion and nomophobia is a subject not yet seen in the literature, but self-compassion could be considered a significant variable indicating mental health.

Keywords: Adolescent, behavioral addiction, comorbidity, nomophobia, self-compassion

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Introduction

Self-compassion is defined as a compassionate attitude and behavior directed at oneself. As a concept, it includes the ability of an individual to take a gentle and compassionate approach to themselves in difficult circumstances when they feel troubled,

hopeless, inadequate, or a failure, and the awareness and acceptance of negative feelings, and to be aware that all types of difficulties that can be experienced are a component of being human. Self-compassion is also defined as a healthy coping strategy (Neff, 2003). Previous studies have determined a positive relationship between self-compassion

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and psychological health, happiness, optimism, life satisfaction, humor and communication skills, awareness, self-acceptance, positive parenting attitudes, self-perception, self-respect, and social support (Aydın Sünbül & Yerin Güneri, 2019; Neff, 2003; Neff et al., 2007; Neff & McGehee, 2010; Tel & Sarı, 2016). In parallel, a negative relationship has been shown between self-compassion and anxiety, depression, post-traumatic stress disorder, eating disorders, internet addiction and abuse, cognitive distortions associated with difficulties in mood regulation, and loneliness (Akin, 2010; Aydın Sünbül & Yerin Güneri, 2019; Ferreira et al., 2013; Pauley & McPherson, 2010; Raes, 2010; Thompson & Waltz, 2008). According to study results, self-compassion can be said to be an important variable indicating mental health (Neff, 2003).

Adolescence is a time of transition when difficulties are experienced. Changes in brain structure and functions are observed at this developmental stage (Bussey, 2013; DiVall & Radovick, 2008; Giedd, 2008). When this is combined with physiological changes, the world of the adolescent becomes more complex and new cognitive abilities emerge, primarily the ability of abstract thought. The capacity for critical thinking increases and the ability to formulate their own beliefs and values is developed. Self-compassion has been reported to be a valuable trait in adolescence as it provides protection against developmental fragility (Bluth et al., 2018). Together with the rapid increase in technological developments in recent years, the adaptability of adolescents to this technology should be examined. Interpersonal communication has been affected by this rapid change. A behavioral addiction indicator, known as “nomophobia,” has emerged with the excessive use of smartphones and mobile internet devices (Eren et al., 2019; King et al., 2013).

Nomophobia is defined as the unrealistic fear experienced by an individual that they cannot communicate when they do not have access to a mobile device (Anna Lucia Spear King et al., 2014). Nomophobia has been reported to cause concentration problems, insomnia, and stress, increase the tendency for workplace accidents, and decrease performance and productivity (Augner & Hacker, 2012). The use of phone applications is an important combination with gambling disorder which is classified under the heading of non-substance-related disorders in the section of internet gaming disorder, substance-related disorders and addiction disorders, which are classified in The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) as conditions for which further research is recommended (Denizci Nazlıgül et al., 2018). Therefore, as nomophobia could be an indicator of behavioral addiction, it has become a focus of great interest (Eren et al., 2019).

It has been shown in various studies that self-compassion is negatively related to addictions (Liu et al., 2020; Phelps et al., 2018; Wisener & Khoury, 2020). Phelps et al. (2018) reported that six sub-dimensions of self-compassion (self-kindness, common humanity, mindfulness, self-judgment, isolation, and over-identification) were strongly negatively related to substance use disorder.

In a study investigating the relationship between internet addiction and self-compassion, it was shown that as the level of self-compassion decreases, internet addiction increases and

psychological well-being decreases. It has been suggested that addiction and problematic internet use could be reduced by increasing the level of self-compassion and this could be used in intervention programs (Iyer et al., 2022).

The first study in the literature examining the relationship between self-compassion and internet addiction was conducted by Iskender and Akın (2011) with 261 university students. The results showed a negative relationship between self-compassion and internet addiction (Iskender & Akın, 2011). Self-compassion provides the individual with a high level of adaptability. When faced with negative events, self-compassion can make the individual treat themselves well.

A previous study of 120 university students showed that self-compassion could predict 71.9% of internet addiction and was more important and effective than social support ($p < .001$) (Shahabinejad et al., 2018).

In the light of all this information, it has been predicted that self-compassion could be a protective factor in terms of addiction and other mental disorders and could therefore play a protective role in nomophobia, which can be interpreted as an indicator of behavioral addictions. The hypotheses of this study were that self-compassion is a protective factor against nomophobia, there is a negative relationship between self-compassion and nomophobia, those with high self-compassion have fewer additional mental illnesses, and those with high nomophobia scores have more additional mental illnesses. Considering that adolescents now use technology intensively, it was thought that nomophobia scores would be high. To the best of our knowledge, there are no studies in the literature that have examined the relationship between self-compassion and nomophobia in adolescents.

The aim of this study was to evaluate self-compassion and nomophobia in adolescents who presented at the Child and Adolescent Mental Health and Diseases Outpatient Clinic of a university hospital, to examine the relationship with mental disorders, and to determine whether there are any gender differences in terms of self-compassion and nomophobia.

Methods

Research Design and Participants

The research universe of this cross-sectional, epidemiological study was formed of adolescents aged 14 – 18 years who presented at the Child and Adolescent Mental Health and Diseases Polyclinic of Pamukkale University Medical Faculty Hospital between January 2020 and June 2020. Approval for this study was granted by the Non-Interventional Clinical Research Ethics Committee of Pamukkale University Medical Faculty (decision no: 11, dated: 09/06/2020). All adolescents aged 14 – 18 years who presented at the outpatient clinic between January 1, 2020, and June 1, 2020, were listed from the hospital records with their diagnoses and contact numbers. From the hospital records, it was determined that 1171 adolescents aged 14 – 18 years presented in that time period. The diagnoses were examined and 102 cases were excluded as they had diagnoses which could affect perceptions of reality (acute mania, acute psychotic disorder, autism spectrum disorder, mental retardation). Due to the coronavirus disease 2019 (COVID-19) pandemic restrictions, the parents of

the adolescents were contacted by phone. After being informed about the research, the questionnaire was sent to the participants and their parents/caregivers who had internet access and agreed to participate in the research via the WhatsApp application. The families of 1069 adolescents were initially contacted, and the survey link was sent to 567 adolescents whose parents could be contacted by phone and agreed to participate in the study. The study included 234 adolescents who fully completed the questionnaire.

The psychiatric diagnoses of the 234 adolescents participating in the study were obtained from the hospital records. The scores of the cases from the applied scales, sociodemographic data, smartphone usage characteristics (duration of use, frequency of smartphone control, number of applications used), and psychiatric diagnoses were evaluated.

A response was mandatory for all the items on the questionnaire, and it was not possible to move on to the next question without answering the questions in order. If the participant did not complete the questionnaire in full, they were excluded from the study. The online survey system prevents duplication of the scale from the same internet port address, and so each participant completed the questionnaire once only.

Inclusion criteria for the study were defined as adolescents aged 14 – 18 years who presented at the outpatient clinic between January 1, 2020, and June 1, 2020, and their families, with internet access and who agreed to participate in the study.

Exclusion criteria for the study were defined as the presence of any mental disorder that could impair the assessment of reality (acute mania, acute psychotic disorder, autism spectrum disorder, mental retardation) according to the information obtained from the hospital records. The children of parents who could not be contacted by phone and those who did not want to participate were not included in the study.

Data Collection Tools

An online questionnaire of 60 items was created from the Self-Compassion Scale (SCS), the Nomophobia Scale, and a sociodemographic data form prepared by the researchers and was delivered online to the study participants.

Sociodemographic Data Form

This form was prepared by the researchers in order to determine the age and educational status of the child and the parent, the family structure, and the adolescent's smartphone usage characteristics (time spent, smartphone check frequency, number of applications used).

Self-Compassion Scale

This scale was developed by Neff (2003) and consists of 26 items in 6 subscales of self-kindness (items 2, 6, 13, 17, 21), self-judgment (items 4, 7, 15, 20, 26), common humanity (items 1, 8, 12, 22), isolation (items 5, 11, 19, 25), mindfulness (items 9, 14, 18, 23), and over-identification (items 3, 10, 16, 24). All the items are answered on a 5-point Likert-type scale scored from 1 (almost never) to 5 (almost always) (Neff, 2003). Higher scores obtained on the scale indicate a high level of self-compassion.

Subscales that are stated negatively are reverse coded before obtaining the total scores (Neff, 2003). The total scores are

interpreted as 1 – 2.5 points: low, 2.5 – 3.5 points: moderate, and 3.5 – 5 points: high-level self-compassion (Neff, 2003). Reliability for the whole scale was found to be .93, and for the subscales, .85 for self-kindness, .88 for self-judgment, .88 for common humanity, .80 for isolation, .85 for mindfulness, and .88 for over-identification (Neff, 2003). The validity and reliability study of the scale in Turkish was conducted by Akin et al. (2007). The reliability correlation was found to be .94 for the whole scale, and in the subscales, .94 for self-kindness, .94 for self-judgment, .87 for common humanity, .89 for isolation, .92 for mindfulness, and .94 for over-identification.

In a study of high school students to test the validity of the SCS, confirmatory factor analysis was performed. The confirmatory factor analysis fit indexes of the scale were seen to be significant ($\chi^2 = 529.76$, $SD = 282$, $p = .00$, $\chi^2/SD = 1.88$). Model fit values were as follows: Root Mean Square Error of Approximation (RMSEA) = .05, Normed Fit Index (NFI) = .91, Non Normed Fit Index (NNFI) = .95, Comparative Fit Index (CFI) = .95, Incremental Fit Index (IFI) = .95, Goodness-of-fit Index (GFI) = .90, Standardized Root Mean Square Residual (SRMR) = .05. In addition, the Cronbach alpha reliability coefficient of the scale was calculated as .79 in this study. Thus, the SCS can be said to be valid for high school students (Toksoy & Oktan, 2019).

The Nomophobia Scale

The Nomophobia Scale (NMP-Q), which was developed by Yildirim and Correia (2015) and has proven validity in Turkish, consists of 20 items. The responses to the items are scored on a 7-point Likert-type scale from 1 (definitely disagree) to 7 (definitely agree) to provide total scores in the range of 20 – 140. The scores are interpreted as 21 – 60 points: mild, 61 – 100 points: moderate, and 101 – 140 points: severe nomophobia. The Cronbach alpha value of the Turkish version of the scale is .92. The scale has four subheadings of not being able to access information, losing connectedness, not being able to communicate, and giving up convenience. The Cronbach alpha values of the subsections of the Turkish version of the scale have been reported to be .90, .74, .94, and .91, respectively. Scores between 21 and 59 are described as mildly nomophobic, 60 – 99 as moderately nomophobic, and over 100 as severely nomophobic (Yildirim et al., 2016).

In the study conducted by Ergin (2020), the nomophobia levels of high school students were investigated. The suitability of the scale to the sample group was examined with confirmatory factor analysis. The coefficients of fit were $\chi^2 = 511.36$, $df = 164$; $GFI = .92$, $\chi^2/SD = 3.12$, $CFI = .96$, $SRMR = .05$, $RMSEA = .06$ (90% CI: .05-.07). In addition, the Cronbach alpha reliability coefficient of the scale was calculated as .93 in this study. The Cronbach's alpha reliability coefficient for the subscales of the scale is .85 for the dimension of not being able to access information, .82 for the dimension of giving up convenience, .95 for the dimension of not being able to communicate, and .90 for the dimension of losing connectedness (Ergin, 2020).

Statistical Analysis

Data obtained in the study were analyzed statistically using Statistical Package for Social Sciences v. 22.0 software. Descriptive statistics were stated as mean \pm standard deviation values or number (n) and percentage (%). The normality of the data was evaluated with Skewness – Kurtosis Analysis. The difference

between independent groups of measured variables was examined with the t-test and one-way ANOVA test when parametric test assumptions were met, otherwise the Mann – Whitney U-test and the Kruskal – Wallis test were applied. Correlations between variables were examined with the Spearman correlation test. Statistical significance in all the tests was evaluated in a 95% confidence interval at a value of $p < .05$.

Results

Sociodemographic Data

The sociodemographic data of the study participants are shown in Table 1. The evaluation was made of 234 adolescents, comprising 130 (55.6%) females and 104 (44.4%) males, with a mean age of 16.12 ± 1.24 years (range, 14 – 18 years), as 16.30 ± 1.22 years (14 – 18) for females and 15.89 ± 1.24 years (14 – 18) for males. Of the total adolescents, 2.1% ($n = 5$) were not in education, 8.5% ($n = 20$) had finished school, 2.6% ($n = 6$) were in external education (open high school), and 86.8% ($n=203$) were continuing in formal education at high school. The family structure was seen to be a nuclear family in 79.5% ($n = 186$) of cases and a fragmented family in 12.4% ($n = 29$). Maternal age was recorded as mean 43.52 ± 5.41 years (range, 32 – 62), and paternal age as 47.74 ± 6.55 years (range, 36 – 70). The educational level of the mother and father was mostly primary school level at the rates of 50% ($n = 117$) and 41.9% ($n = 98$), respectively. The most common place of residence was the provincial center at the rate of 70.5% ($n = 165$)

Characteristics Related to Smartphone Use

It was determined that 29.9% ($n = 70$) of the study participants used a telephone for more than 6 hours a day. Checking the telephone every 20 minutes was reported by 20.5% ($n = 48$), and 76.1% ($n = 178$) reported that they checked their phone as soon as they woke up in the morning. The number of applications actively used was mostly 0 – 3 applications by 59.8% ($n = 140$) of the adolescents. The distribution of the characteristics related to smartphone use is shown together with the sociodemographic data in Table 1.

Evaluation of the Nomophobia and Self-Compassion Scales

According to the total scores obtained on the Nomophobia Scale, no nomophobia was determined in 0.4% ($n = 1$), and 73% ($n = 171$) of the adolescents were evaluated as nomophobic at a mild level, 22.6% ($n = 53$) at a moderate level, and 4% ($n = 10$) at a severe level. The total Nomophobia Scale scores were mean 52.25 ± 22.06 (range, 20 – 123), and the subscale mean scores were found to be 11.86 ± 5.05 (4 – 28) for not being able to access information, 13.57 ± 6.87 (5 – 35) for giving up convenience, 16.93 ± 8.93 (6 – 42) for losing connectedness, and 9.88 ± 6.4 (5 – 35) for not being able to communicate (Table 2).

According to the mean total SCS scores, 29% ($n = 70$) of the adolescents were evaluated as having self-compassion at a low level, 47% ($n = 110$) at a moderate level, and 23.1% ($n = 54$) at a high level. The total self-compassion scores were mean 2.94 ± 0.75 (1.16 – 4.73), and subscale scores were self-judgment: 3.26 ± 1.12 (1 – 5), isolation: 3.03 ± 1.11 (1 – 5), over-identification: 2.96 ± 1.06 (1 – 5), self-kindness: 2.83 ± 0.92 (1 – 5), common humanity: 2.64 ± 0.85 (1 – 5), and mindfulness: 2.92 ± 0.9 (1 – 5) (Table 2).

Table 1. Distribution of Sociodemographic Data and Smartphone Usage Characteristics

	n	%
Gender		
Girl	130	55.6
Boy	104	44.4
Education status		
Formal education (high school)	203	86.8
External education (open high school)	6	2.6
Graduate	20	8.5
Does not go to school	5	2.1
Family structure		
Nuclear family	186	79.5
Extended family	13	5.6
Broken family (divorced)	29	12.4
Mother and/or father died	6	2.6
Mother's education status		
Uneducated	3	1.3
Primary education	117	50.0
High school	52	22.2
University	51	21.8
Master's degree	11	4.7
Father's education status		
Uneducated	4	1.7
Primary education	98	41.9
High school	54	23.1
University	60	25.6
Master's degree	18	7.7
Living place		
City	165	70.5
County	58	24.8
Village	11	4.7
Average phone usage time per day		
0 – 2 hours	31	13.2
2 – 4 hours	69	29.5
4 – 6 hours	64	27.4
>6 hours	70	29.9
Phone check frequency		
5 min/1	43	18.4
10 min/1	37	15.8
20 min/1	48	20.5
30 min/1	36	15.4
1 h/1	42	17.9
2 h/1	18	7.7
3 h/1	10	4.3
Checking the phone when waking up in the morning		
Yes	178	76.1
No	56	23.9
Number of actively used apps		
0 – 3 applications	140	59.8
3 – 6 applications	73	31.2
6 – 9 applications	12	5.1
>9 applications	9	3.8

Note: h = hour; min = minute.

Table 2.
Distribution of Nomophobia and Self-Compassion Scale Scores

Scales		Mean \pm SD	Min – Max
Nomophobia subscales	Not being able to access information	11.86 \pm 5.05	4 – 28
	Giving up convenience	13.57 \pm 6.87	5 – 35
	Losing connectedness	16.93 \pm 8.93	6 – 42
	Not being able to communicate	9.88 \pm 6.4	5 – 35
	Total nomophobia score	52.25 \pm 22.06	20 – 123
Self-compassion subscales	Self-judgment	3.26 \pm 1.12	1 – 5
	Isolation	3.03 \pm 1.11	1 – 5
	Over-identification	2.96 \pm 1.06	1 – 5
	Self-kindness	2.83 \pm 0.92	1 – 5
	Common humanity	2.64 \pm 0.85	1 – 5
	Mindfulness	2.92 \pm 0.9	1 – 5
Total self-compassion score	2.94 \pm 0.75	1.16 – 4.73	

Note: SD = standard deviation.

When the mean scores of the Nomophobia Scale were compared according to gender, the total nomophobia score ($p = .024$), the giving up convenience ($p = .049$), and not being able to communicate ($p = .018$) subscale scores were determined to be statistically significantly higher in females than males. The total self-compassion score ($p < .001$) and the self-judgment ($p = .003$), isolation ($p = .001$), over-identification ($p < .001$), self-kindness ($p < .001$), and mindfulness ($p < .001$) subscale scores were determined to

be statistically significantly higher in males than females. The common humanity subscale scores were found to be similar in both genders ($p = .369$). The scale scores according to gender are shown in Table 3.

The total and subscale scores of the SCS according to the number of applications actively used were found to be statistically similar ($p > .05$), and a statistically significant difference was determined between the groups in respect of nomophobia total scores ($p = .003$) and the subscales of not being able to access information ($p = .024$), giving up convenience ($p < .001$), and not being able to communicate ($p = .017$). Those using nine or more applications had the highest mean scores for the subscale of not being able to access information (15.22 \pm 7.12), and those using six to nine applications had the highest mean scores for nomophobia total scores (60.67 \pm 15.61), giving up convenience (17.33 \pm 6.08), and not being able to communicate (13.08 \pm 4.83) (Table 4).

When the diagnoses of the study group were examined, 8.1% ($n = 19$) had no diagnosis, 50% ($n = 117$) had a single psychiatric diagnosis, 34.2% ($n = 80$) had 2 diagnoses, and 7.7% ($n = 18$) had 3 diagnoses. When all the diagnoses were evaluated, the most common was attention deficit and hyperactivity disorder (ADHD) in 55.8% ($n = 120$), followed by depressive disorder in 32.1% ($n = 69$), and anxiety disorder in 31.6% ($n = 68$). Apart from these mental disorders, there were also cases diagnosed with obsessive-compulsive disorder and related disorders ($n = 21$), behavioral disorder ($n = 16$), specific learning disorder ($n = 5$), eating disorder ($n = 4$), enuresis ($n = 4$), tic disorder ($n = 3$), post-traumatic stress disorder ($n = 1$), and dissociation disorder ($n = 1$). The total SCS and subscale scores were found to be similar according to whether or not a mental health diagnosis had been made ($p > .05$), and the total Nomophobia Scale scores were found to be similar in those with and without a mental health disorder diagnosis ($p > .05$). Only the "giving up convenience" subscale scores from the nomophobia subscales were found to be statistically significantly higher in those with mental disorders than in those without ($p =$

Table 3.
Comparison of Nomophobia and Self-Compassion Scale Scores by Gender

Scales		Girl	Boy	p^*
		Mean \pm SD	Mean \pm SD	
Nomophobia subscales	Not being able to access information	12.16 \pm 5.22	11.49 \pm 4.83	.313
	Giving up convenience	14.36 \pm 7.26	12.59 \pm 6.25	.049
	Losing connectedness	17.85 \pm 9.21	15.79 \pm 8.48	.080
	Not being able to communicate	10.73 \pm 7.24	8.83 \pm 4.98	.018
	Total nomophobia score	55.1 \pm 23.75	48.69 \pm 19.29	.024
Self-compassion subscales	Self-judgment	3.05 \pm 1.16	3.51 \pm 1.01	.001
	Isolation	2.82 \pm 1.13	3.29 \pm 1.03	.001
	Over-identification	2.7 \pm 1.06	3.28 \pm 0.96	<.001
	Self-kindness	2.62 \pm 0.97	3.09 \pm 0.78	<.001
	Common humanity	2.59 \pm 0.94	2.69 \pm 0.72	.369
	Mindfulness	2.74 \pm 0.96	3.15 \pm 0.77	<.001
Total self-compassion score	2.75 \pm 0.78	3.17 \pm 0.64	<.001	

Note: * t -test.

* $p < .05$ statistically significant. SD = standard deviation.

Table 4.
Comparison of Nomophobia and Self-Compassion Scale Scores According to the Number of Actively Used Applications

Scales		Number of Actively Used Applications				p*
		0 – 3	3 – 6	6 – 9	>9	
Nomophobia subscales	Not being able to access information	11.14 ± 4.95	12.66 ± 4.75	13 ± 4.79	15.22 ± 7.12	.024
	Giving up convenience	12.07 ± 6	15.59 ± 7.54	17.33 ± 6.08	15.56 ± 9.28	<.001
	Losing connectedness	15.89 ± 8.11	19.21 ± 10.45	17.25 ± 8.07	14.33 ± 6.02	.058
	not being able to communicate	8.85 ± 5.48	11.22 ± 7.43	13.08 ± 4.83	10.89 ± 9.47	.017
	Total nomophobia score	47.94 ± 19.8	58.67 ± 24.97	60.67 ± 15.61	56 ± 24.44	.003
Self-compassion subscales	Self-judgment	3.33 ± 1.06	3.15 ± 1.22	3.05 ± 1.11	3.36 ± 1.2	.630
	Isolation	3.09 ± 1.08	3 ± 1.18	2.48 ± 0.94	3.11 ± 1.19	.332
	Over-identification	2.98 ± 1.02	2.93 ± 1.11	2.88 ± 1.09	2.92 ± 1.4	.973
	Self-kindness	2.76 ± 0.9	2.94 ± 0.97	2.93 ± 0.88	2.71 ± 0.88	.566
	Common humanity	2.56 ± 0.78	2.73 ± 0.9	3.13 ± 1.07	2.36 ± 0.96	.075
	Mindfulness	2.87 ± 0.89	3.02 ± 0.94	3.08 ± 0.99	2.78 ± 0.72	.564
	Total self-compassion score	2.93 ± 0.73	2.96 ± 0.82	2.92 ± 0.79	2.87 ± 0.52	.985

Note: *One-way ANOVA test. $p < .05$ statistically significant.

.013). The comparisons of the scales according to the presence or absence of a mental health disorder are shown in Table 5.

For the sample in the study; correlations between the SCS total scores and the Nomophobia Scale total scores were examined, and a weak negative correlation was found ($r = -.308, p < .001$). As self-compassion decreased, the tendency to nomophobia statistically significantly increased. When the subscale correlations were examined, the self-judgment, isolation, and over-identification subscales showed a negative weak-moderate correlation with all the nomophobia total and subscale scores ($p < .001$). No significant correlation was found between self-kindness and nomophobia scores ($p > .05$), and a positive very weak correlation

was determined between the common humanity subscale and the total Nomophobia Scale score and losing connectedness subscale ($r = .150, p = .022; r = .184, p = .005$). The total SCS scores showed a weak negative correlation with all the nomophobia subscale scores ($p < .001$). The total Nomophobia Scale scores were found to be correlated at a moderate level with the self-compassion subscales of self-judgment, isolation, and over-identification ($p < .001$). All the correlations are shown in Table 6.

Discussion

This study aimed to evaluate self-compassion and nomophobia in adolescents who presented at the Child and Adolescent

Table 5.
Comparison of Nomophobia and Self-Compassion Scale Scores According to the Presence or Absence of Any Mental Disorder

Scales		Have a Diagnosis of	No Diagnosis of	p*
		Mental Disorder	Mental Disorder	
Nomophobia subscales	Not being able to access information	12.01 ± 5.11	10.16 ± 4.03	.125
	Giving up convenience	13.81 ± 7.01	10.84 ± 4.4	.013
	Losing connectedness	17.25 ± 9.07	13.32 ± 6.37	.066
	Not being able to communicate	10 ± 6.48	8.53 ± 5.38	.335
	Total nomophobia score	53.08 ± 22.38	42.84 ± 15.6	.052
Self-compassion subscales	Self-judgment	3.23 ± 1.12	3.61 ± 1.01	.150
	Isolation	3 ± 1.1	3.34 ± 1.15	.203
	Over-identification	2.93 ± 1.06	3.33 ± 1.01	.111
	Self-kindness	2.84 ± 0.92	2.69 ± 0.96	.519
	Common humanity	2.64 ± 0.86	2.61 ± 0.71	.871
	Mindfulness	2.94 ± 0.9	2.76 ± 0.87	.418
	Total self-compassion score	2.93 ± 0.75	3.06 ± 0.76	.471

Note: *t-test.

Table 6.

Distribution of the Relationship Between Self-Compassion and Nomophobia Scale Scores

		Not Being Able to Access Information	Giving Up Convenience	Losing Connectedness	Not Being Able to Communicate	Total Nomophobia Score
Self-judgment	<i>r</i>	-.293	-.345	-.312	-.355	-.404
	<i>p</i>	<.001	<.001	<.001	<.001	<.001
Isolation	<i>r</i>	-.274	-.409	-.328	-.414	-.443
	<i>p</i>	<.001	<.001	<.001	<.001	<.001
Over-identification	<i>r</i>	-.231	-.405	-.426	-.362	-.456
	<i>p</i>	<.001	<.001	<.001	<.001	<.001
Self-kindness	<i>r</i>	-.015	-.025	.042	-.083	-.018
	<i>p</i>	.818	.701	.519	.204	.780
Common humanity	<i>r</i>	.057	.099	.184	.109	.150
	<i>p</i>	.389	.133	.005	.097	.022
Mindfulness	<i>r</i>	-.071	-.113	.027	-.126	-.077
	<i>p</i>	.277	.084	.680	.054	.239
Total self- compassion score	<i>r</i>	-.202	-.292	-.210	-.298	-.308
	<i>p</i>	.002	<.001	.001	<.001	<.001

Note: *p* = Pearson correlation test. *p* < .05 statistically significant.

Mental Health and Diseases Outpatient Clinic of a university hospital, to examine the relationship with mental disorders, and to determine whether there are any gender differences in terms of self-compassion and nomophobia. The study results showed a negative correlation between total self-compassion scores and total nomophobia scores. The level of nomophobia was found to be higher in females than in males, and the level of self-compassion was found to be lower in females than in males. The NMP-Q scores were found to be statistically significantly higher in those with a psychiatric diagnosis compared to those with no psychiatric diagnosis. No statistically significant difference was found between total NMP-Q and total self-compassion scores between those with and without comorbid mental disorders.

The total Nomophobia Scale scores of the current study participants were mean 52.25 ± 22.06 , and according to these scores, 0.4% of the adolescents were evaluated as not nomophobic, 73% were nomophobic at a mild level, 22.6% at a moderate level, and 4% at a severe level. In a previous study of medical students, the total nomophobia scores were 58.56 ± 20.14 , with 58.9% of the students evaluated as mildly nomophobic, 37% as moderate, and 4.1% as severe, which was consistent with the current study findings (Aktaş Terzioğlu & Toker Uğurlu, 2021). Although the mean age of the students in that study was older than that of the current study, the similarity can be explained by similar periodic features. The frequent and active use of mobile phones by the young age group increases the risk of nomophobia (Chen et al., 2016). The COVID-19 pandemic could be one of the reasons for increasing mobile phone use and the tendency to nomophobia, with the need for online socializing and education. The low number of individuals evaluated as not nomophobic could have been due to the scoring features of the scale. The responses to the 20 items are scored on a 7-point Likert-type scale from 1 (definitely disagree) to 7 (definitely agree) to provide total scores in the range of 20 – 140.

The scores are interpreted as 21 – 60 points: mild, 61 – 100 points: moderate, and 101 – 140 points: severe nomophobia. Thus, higher scores indicate increased severity of nomophobia (Yildirim et al., 2016). In a study conducted by Eren et al. (2019) in which nomophobia was evaluated in high school students, no subject had a score of 20 points or below and all the participants were found to be nomophobic of varying severity.

The total mean SCS scores were reported as 2.94 ± 0.75 , and from these results, 29.9% of the study participants were evaluated as having self-compassion at a low level, 47% at a moderate level, and 23.1% at a high level. A similar study of adolescents and young adults reported the mean self-compassion scores as 2.97 for adolescents and 2.99 for young adults (Neff & McGehee, 2010). In a study of middle school and high school students, the mean self-compassion scores were reported as 2.98 for male middle school students, 3.32 for female middle school students, 3.25 for male high school students, and 2.78 for female high school students (Bluth & Blanton, 2015). These results in the literature and in the current study demonstrate self-compassion at a moderate level in adolescents and young adults. Instead of resisting or suppressing negative emotions, welcoming and self-compassionate behaviors to create positive emotions are associated with psychological strength in adolescents, just as in adults (Neff, 2003). Despite the association of self-compassion with positive emotions in adults in several studies, it has been studied very little in adolescents (Bluth & Blanton, 2015; MacBeth & Gumley, 2012). Therefore, self-compassion should be examined in respect of the role it could play in the positive emotions experienced by adolescents.

In the current study, the total nomophobia score, the not being able to communicate, and giving up convenience subscale scores were determined to be statistically significantly higher in females than in males, whereas the self-compassion scores were

determined to be higher in males than females. In some previous studies of high school and university students, nomophobia scores have been determined to be higher in males (Aktaş Terzioğlu & Tokar Uğurlu, 2021; Yıldız Durak, 2019), and in some studies of high school students, the nomophobia scores have been shown to be higher in females (Eren et al., 2019; Gezgin et al., 2018). These differences between studies of the results of the effect of gender on nomophobia scores could be attributed to sociocultural and socioeconomic differences in the samples and comorbid mental health disorders (Burucuoğlu, 2017; Eren et al., 2019; Yıldız Durak, 2019). Moreover, the increased use of mobile phones during the COVID-19 pandemic, with more time spent on social networks and increased problematic internet use, could explain these gender differences (Burucuoğlu, 2017; Yarnell et al., 2015).

In the current study, the self-compassion scores of males were found to be statistically significantly higher than those of females. In a meta-analysis that examined gender differences in self-compassion, males were determined to have higher levels of self-compassion than females (Yarnell et al., 2015). Another study of middle school and high school students also found higher mean self-compassion scores in male high school students than in female high school students (Bluth & Blanton, 2015), and a study of adolescents and young adults also reported that the self-compassion scores of young adult males were higher than those of young adult females (Neff & McGehee, 2010). The results in the current study that males were more self-compassionate than females was consistent with the findings in the literature, which was interpreted as females being more self-critical than males and having a tendency to make more negative comments about themselves (DeVore & Pritchard, 2013; Leadbeater et al., 1999). These findings suggest that it could be important to provide help for females to learn to be more self-compassionate to develop their mental well-being (Yarnell et al., 2015). The difference between the levels of compassion shown by individuals to themselves and to others has been shown to be greater in females than males (Neff & Pommier, 2013). Studies have shown that showing compassionate care to another is usually helpful in preventing stress and burnout (Barnard & Curry, 2012; Neff & Faso, 2015; Shapiro et al., 2007). For females to learn how to balance care given to themselves and others, it could be beneficial for them to receive education directly on the subject of self-compassion (Yarnell et al., 2015).

The results of the current study showed no difference in the total and subscale self-compassion scores according to the number of applications actively used, while a significant difference was determined between the nomophobia scores and the number of applications actively used. The mean nomophobia total scores were highest in those who used 6–9 applications. In a previous study that investigated the tendency to nomophobia of high school students, a significant correlation was found between nomophobia and the number of applications and demonstrated that as the number of applications increased, so the Nomophobia Scale scores increased, which was also seen in the current study (Eren et al., 2019). Yıldırım et al. reported that applications increased the tendency to nomophobia as they encourage phone use (Yıldırım & Kişioğlu, 2018). The time spent on the telephone is increased when using applications, playing music and games, and this can explain the increase in the tendency to nomophobia.

When the diagnoses of the current study group were examined, the most frequent diagnoses were observed to be ADHD, depressive disorder, and anxiety disorder. The total Nomophobia Scale scores in the current study were found to be similar in those with and without a mental health disorder diagnosis. Only the "giving up convenience" subscale scores from the nomophobia subscales were found to be statistically significantly higher in those with mental disorders than in those without. In a previous study that examined nomophobia and psychiatric symptoms in adolescents aged 13–18 years, all the anxiety and depression symptoms, and hyperactivity and oppositional symptoms were reported to be correlated with nomophobia (Kuscu et al., 2021). Several studies have reported that nomophobia is associated with depressive disorder and anxiety disorder; as depressive and anxiety symptoms increase, the tendency to nomophobia increases (Apak & Yaman, 2019; Ozdemir et al., 2018; Samaha & Hawi, 2016; Thomée et al., 2012). In a study of adolescents in Korea, the causal relationship between depressive symptoms and nomophobia was found to be two-way, as nomophobia had a negative effect on depressive symptoms and depressive symptoms increased the level of nomophobia (Jun, 2016). It has been reported that patients with generalized anxiety disorder and especially panic disorder display more nomophobic behaviors than healthy control subjects and that carrying a mobile phone with them was a type of security-seeking behavior (Anna Lucia Spear King et al., 2014). King et al. (2014) reported that nomophobia could be a way of feeling secure in themselves for individuals with separation anxiety. In a previous study by King et al. (2013), it was suggested that social phobia led to exacerbations of nomophobic behaviors, and therefore, these individuals preferred to use virtual media to establish social relationships to feel safe and avoid anxiety symptoms. The behavioral addictions of ADHD are known to be associated with alcohol and substance abuse (Kafalı & Özbaran, 2019; Lee et al., 2011; Mannuzza et al., 1997). There are also studies in the literature that have shown the combination of ADHD and nomophobia (Dey et al., 2019; Kim et al., 2016; Vinayak & Malhotra, 2017; Zheng et al., 2014). In the current study, the total Nomophobia Scale scores were found to be similar whether or not there was a mental health disorder diagnosis, which was thought to be due to the statistically low number of adolescents without a diagnosis.

A negative correlation has been shown in the literature between self-compassion and mental health disorders (Akin, 2010; Aydin Sünbül & Yerin Güneri, 2019; Ferreira et al., 2013; Pauley & McPherson, 2010; Raes, 2010; Thompson & Waltz, 2008). In a meta-analysis that examined the relationship between self-compassion and psychopathology, it was concluded that a high level of self-compassion was protective against mental health disorders (MacBeth & Gumley, 2012). In the current study, the total and subscale self-compassion scores were found to be similar whether or not there was a mental health disorder diagnosis, which was thought to be due to the statistically low number of adolescents without a diagnosis.

When the correlations were examined in the current study between the total SCS scores and the total and subscale nomophobia scores, there was found to be a weak negative correlation. According to this, as self-compassion decreased, so the tendency to nomophobia increased. Although no previous study could be

found in the literature that has investigated the relationship between self-compassion and nomophobia in adolescents, a study which examined the relationships between psychological resilience, conscious awareness, and nomophobia determined a relationship between awareness and nomophobia (Arpaci & Gundogan, 2020). Lan et al. (2018) reported that awareness-based cognitive and behavioral interventions for smartphone addiction could be useful in preventing smartphone addiction in university students. Another study of adults that investigated the relationship between mindfulness and smartphone addiction found that a lack of awareness affected the quality of life more in young adults (Kim et al., 2018). This relationship determined between mindfulness and nomophobia is important because mindfulness is one of the three components of self-compassion. Self-compassion is formed of the three basic components of self-kindness, common humanity, and mindfulness (Neff, 2003). Therefore, the fact that studies investigating the relationship between mindfulness and nomophobia have determined a negative relationship allowed the prediction of the expected result in the current study that self-compassion, like mindfulness, is negatively related to nomophobia.

As smartphones are one of the most widely used technological devices in most societies, it is not surprising that human – smartphone interaction is explored in the context of classical attachment theory (Hodes et al., 2022). Effective stress coping strategies and high self-esteem are protective factors against developing smartphone addiction (Boumosleh & Jaalouk, 2017; Wang et al., 2017). İskender and Akın (2011) reported that internet addiction is more common in individuals with low self-compassion. There are studies reporting that self-compassion mediates the relationship between attachment style and psychological well-being. Individuals with a more secure attachment style have higher levels of self-compassion and higher psychological well-being (Homan, 2018; Wei et al., 2011), which shows that the behavior patterns of individuals with or without self-compassion affect their attachment to other people or objects (Hodes et al., 2022). In the study, the relationship between low self-compassion and nomophobia can be explained in this way. Not every individual with nomophobia may show very intense symptoms. Nomophobia can be defined as an addiction to a behavior, not a substance. Therefore, nomophobia may be an indicator of behavioral addiction. The use of smartphones for pleasure can have harmful consequences, with a loss of control over behavior (Carrión et al., 2018; Eren et al., 2019).

Limitations and Directions/Suggestions for Future Research

One of the limitations of this study was that patient diagnoses were obtained from the hospital records system. As the study was conducted at the beginning of the COVID-19 pandemic, the study participants could not be evaluated face-to-face, and therefore, the questionnaire was sent and completed online, and information about comorbid mental health disorders was obtained from polyclinic records. Despite this limitation, the number of participants was thought to be sufficient.

To confirm the results of this study, there is a need for further studies with larger samples, which would gather data face-to-face and evaluate comorbid mental health disorders with a structured interview technique.

Ethics Committee Approval: Ethical committee approval was received from the Ethics Committee of Pamukkale University (Approval No: 11, dated: 09/06/2020).

Informed Consent: Informed consent was obtained from all participants (and parents) who participated in this study.

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