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Need to Belong and Smartphone Addiction Risk: Mediating Role of Anxiety Symptoms And Cognitive Flexibility

Aidiyet İhtiyacı ve Akıllı Telefon Bağımlılığı Riski: Anksiyete Semptomları ve Bilişsel Esnekliğin Aracı Rolü

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Abstract

Objective: The main aim of the current study was to scrutinize the role of anxiety symptoms and cognitive flexibility in the relationship between the need to belong and smartphone addiction risk with the help of a model.
Method: A total of 324 healthy university students, 214 female and 110 male, engaged in the study (M ± SD age = 22.16 ± 1.73). Need to belong, anxiety symptoms, cognitive flexibility, and smartphone addiction risk were measured via the Need to Belong Scale, Beck Anxiety Inventory, Cognitive Flexibility Scale, and Smartphone Addiction Scale, respectively.
Results: Results of the Pearson correlation analyses indicated that the need to belong was positively correlated with anxiety symptoms (r = .28, p<.001) and smartphone addiction risk (r =.30, p<.001) and negatively correlated with cognitive flexibility (r = -.34, p<.001). In multiple mediation analysis, it was seen that there was a significant indirect effect of the need to belong on smartphone addiction risk through cognitive flexibility (b =.1417, SE =.06, 95%CI [0.03,0.27]) and anxiety symptoms (b = .2416, SE =.06, 95%CI [0.12, 0.37]).
Conclusion: The need to belong may give rise to a smartphone addiction risk by increasing anxiety symptoms and decreasing cognitive flexibility.

Keywords: Behavioral addiction, smartphone addiction, anxiety level, flexible thinking

Öz

Amaç: Bu çalışmanın temel amacı, aidiyet ihtiyacı ile akıllı telefon bağımlılığı riski arasındaki ilişkide anksiyete belirtilerinin ve bilişsel esnekliğin rolünü bir model aracılığıyla incelemektir.
Yöntem: Çalışmaya 214 kadın ve 110 erkek olmak üzere toplam 324 sağlıklı üniversite öğrencisi katılmıştır (M ± SD yaş = 22.16 ± 1.73). Aidiyet ihtiyacı, anksiyete semptomları, bilişsel esneklik ve akıllı telefon bağımlılığı riski sırasıyla Aidiyet İhtiyacı Ölçeği, Beck Anksiyete Envanteri, Bilişsel Esneklik Ölçeği ve Akıllı Telefon Bağımlılığı Ölçeği ile ölçülmüştür.
Bulgular: Pearson korelasyon analizlerinin sonuçları, aidiyet ihtiyacının anksiyete semptomları (r = .28, p<.001) ve akıllı telefon bağımlılığı riski (r = .30, p<.001) ile pozitif, bilişsel esneklik (r = -.34, p<.001) ile negatif ilişkili olduğunu göstermiştir. Çoklu aracılık analizinde, aidiyet ihtiyacının bilişsel esneklik (b = .1417, SE = .06, %95CI [0.03,0.27]) ve anksiyete semptomları (b = .2416, SE = .06, %95CI [0.12, 0.37]) aracılığıyla akıllı telefon bağımlılığı riski üzerinde anlamlı dolaylı bir etkisi olduğu görülmüştür.
Sonuç: Aidiyet ihtiyacı anksiyete semptomlarını artırarak ve bilişsel esnekliği azaltarak akıllı telefon bağımlılığı riskine yol açabilir.

Anahtar kelimeler: Davranışsal bağımlılık, akıllı telefon bağımlılığı, anksiyete düzeyi, esnek düşünme.

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Introduction

Smartphones have become an essential component of our lives due to their superior mobility and multifunctional features. They allow users to access the internet anytime and anywhere, listen to music, play games, watch videos, and communicate with others, so more and more people tend to spend most of their time on them. Given their convenience and variety of functions, smartphones are quite popular, and the percentage of smartphone users was 95.5% in 2023 in Turkey (1).

As the number of smartphone users increases, smartphone addiction has been increasing as well. Although not included in the Diagnostic and Statistical Manual for Mental Disorders, fifth edition (2), research studies defined smartphone addiction as the uncontrolled and excessive use of smartphones with related withdrawal and tolerance symptoms and experiencing negative consequences in life (3,4).

Kwon et al (5) classified smartphone addiction as a behavioral addiction, similar to gaming, gambling, and the internet. Accordingly, smartphone addiction also includes the basic characteristics of addiction, such as salience, mood modification, tolerance, withdrawal symptoms, and conflict in other behavioral addictions, and therefore has become an important social problem.

In fact, there are many advantages to using smartphones, but smartphone addiction may give rise to physical and mental health problems, such as poor sleep quality, eye syndromes, physiological dysfunction, depression, anxiety, loneliness, and so on (6-10). Particularly recent studies have associated smartphone addiction mostly with sleep problems and musculoskeletal symptoms, such as neck disability (11,12), as well as psychological distress, depression, and anxiety symptoms. (13,14). Furthermore, the increased usage of smartphones has led most people to communicate online rather than through face-to-face human contact. Therefore, smartphone use may lead to interpersonal relationship problems by decreasing interpersonal in-person social interaction in real life (15). Although it is uncertain if smartphone addiction falls within the category of behavioral addictions (16), it is clear that it has several detrimental effects. Thus, further studies on determining the underlying triggering and mediating psychological mechanisms in the development of smartphone addiction may guide its prevention and early intervention.

The need to belong is described as a basic human motivation that entails people's efforts to build and sustain a specific number of positive and supportive interpersonal interactions with others (17). According to the need to belong theory, the need to belong is an integral part of the construction of the self, cognition, emotions, and behaviors can be shaped by this fundamental motivation (18). To satisfy the need to belong, individuals must have frequent positive emotional relationships with the same people and keep these interactions in a stable and permanent manner over time for each other's well-being. It is predicted that failure to meet the need to belong may lead to a lack of belongingness, which may lead to physical, psychological (adaptation problems and stress), or behavioral problems rather than temporary emotional distress (18,19).

People with a high need to belong are concerned about acceptance and belongingness; therefore, they seek more interpersonal interactions and attempt to maintain these relationships (17). Previous studies revealed that an increased need to belong may be a risk factor for smartphone addiction. (20-23). Studies on smartphone use reported that smartphone addiction had increased with decreasing psychological need satisfaction (24-27). This indicates that the opportunities created by smartphones, such as social networking sites, video games, and social media, can enable individuals to compensate for their unmet psychological needs. On the one hand, Ng and Fam (28) suggested that there was no direct and significant association between the need to belong and smartphone addiction risk. In fact, studies generally demonstrated that some psychological mechanisms, such as social anxiety, loneliness, and self-esteem, mediate the predictive role of the need to belong on smartphone addiction (21,24,25). High levels of social anxiety and low self-esteem can cause individuals to experience more psychological stress in social environments, feel unaccepted by their environment, and thus lead to a feeling of loneliness (29). This may encourage them to meet their increased need to belong online via smartphones rather than face-to-face communication. As a

consequence, it is important to determine which potential mediating psychological processes play an effective role in the link between the need to belong and smartphone addiction risk.

The literature provides us with evidence that anxiety tends to increase with an increase in the need to belong (17,21,30). According to the Need for Belonging Theory (18), when individuals lose their social relationships through social exclusion or rejection, they may have to cope with negative emotions such as anxiety. It was emphasized in the literature that social exclusion (also known as ostracism) procedures can induce negative emotions, especially anxiety, by threatening the need to belong (31-33).

Most previous studies indicated that anxiety is an important risk factor for smartphone addiction (24,25,34-36). Accordingly, these studies emphasized that individuals with an increased anxiety level were more prone to smartphone addiction. In brief, individuals with a high level of anxiety symptoms might turn to smartphones to alleviate their anxiety symptoms and develop smartphone addiction by developing immoderate use habits, such as excessive use or abuse. In light of the above, the current study hypothesizes (H1) that anxiety symptoms would mediate the association between the need to belong and smartphone addiction risk.

Cognitive flexibility is considered an executive function that includes a comprehension of having options in unanticipated or changing settings, the avoidance of insisting upon choosing the existing setup to adjust to an unfamiliar circumstance, and self-efficacy (37,38). Namely, it is the process of creating a new mental setup by abandoning ineffective strategies and by modifying the present mental setup in response to environmental changes or feedback (39). Cognitive flexibility can permit the development of effective coping strategies under stress by helping people respond better to unpleasant thoughts and emotions (40).

Several studies on social exclusion revealed the threats to belongingness to be associated with poor cognitive skills (especially executive functions), such as impaired inhibitory control (41-43), and reduced working memory (44,45). It is assumed in the literature that cognitive flexibility, which is closely related to these cognitive functions, may also decrease as a result of unpleasant emotional experiences (46,47). In particular, satisfying a person's need to belong can protect them against cognitive deficits resulting from negative emotional experiences. (48). Thus, it is estimated that a greater need to belong may be associated with poor cognitive flexibility capability.

Numerous recent studies reported that cognitive flexibility and smartphone addiction were negatively associated (49-52). Accordingly, smartphone addiction tends to increase with a decrease in cognitive flexibility. In the literature, it was revealed that the relationship between negative emotions, especially anxiety, and depression, and smartphone addiction was mediated by executive dysfunction (53). Namely, anxiety and depression can disrupt executive functions and thereby promote smartphone addiction. In addition, it was suggested that increased smartphone addiction due to diminished cognitive flexibility mediated the increase in physical symptoms such as headaches, and poor sleep quality (49). Particularly, it is thought that cognitive flexibility may have a protective role in the possible negative effects of the increased need to belong. Thus, the current study speculated on the following hypothesis (H2): cognitive flexibility would mediate the association between the need to belong and smartphone addiction risk.

The literature gives us evidence that there may be an indirect association between the need to belong and smartphone addiction risk; furthermore, anxiety symptoms and cognitive flexibility may play a critical role in this relationship. Nevertheless, when the literature is examined, there is no research that investigates the mediator roles of all the processes through a model. Hence, the aims of the present study were to scrutinize whether the need to belong would be positively associated with smartphone addiction risk and whether anxiety symptoms and cognitive flexibility would mediate the relationship between the need to belong and smartphone addiction risk.

Method

Participants

The sample group for the current study consisted of 324 healthy university students who were smartphone

users. Of the participants, 214 (66%) were female, and 110 (34%) were male. The mean age of the subjects was 22.16 (SD = 1.73; age range, 19-26 years). The main reason for conducting this study only on university students was to ensure homogeneity by controlling some confounding variables (such as age and education level).

The convenience sampling method was utilized to select the participants. A power analysis was carried out via the G-Power 3.1 program in order to determine the sample size of the present study. Examining the sample size with regard to an effect size of 0.03, a margin of error of 0.05, and a power (1-β) of 0.80, it was estimated that this study should include at least 264 participants (54). Consequently, the current research was believed to have been sufficiently conducted with 324 people at a level of 80%.

Procedure

Prior to beginning the present study, the approval of the Adana Alparslan Türkeş University of Science and Technology Scientific Research and Publication Ethics Committee was obtained (Date: 30.01.2024, No. 2024/5). Given the participants' informed agreement to take part in the study, they voluntarily completed the paper-and-pencil questionnaire survey in their classroom. All participants were ensured that they could voluntarily withdraw from study participation at any time. They were given approximately 20 minutes to fill out all the data collection tools. In the study, which initially included 351 participants, twenty-seven people who reported any psychiatric or neurological diseases on the Standard Information Form were excluded. As a result, 324 healthy university students were eventually included in the study.

Measures

Standard Information Form

The researchers designed this questionnaire, which asks individuals about their age, gender, and if they have any neurologic or psychiatric diseases. Since the target population of the present study was determined to be healthy young adults, people who reported a history of neurological or psychiatric illness were excluded from the sample.

Need to Belong Scale

The original version of the Need to Belong Scale was developed by Leary et al (17) and adjusted into Turkish by Yilmaz and Alan (55). The Turkish version consists of 5 items on a 5-point Likert-type scale. The overall Cronbach's alpha coefficient for reliability was calculated to be .73. This value was determined to be .71 in the current study. A higher average test score corresponds to a higher level of need to belong. According to the results of the factor analysis, a single factor accounted for 48% of the total variance.

Beck Anxiety Inventory

The original Beck Anxiety Inventory (BAI) was created by Beck et al (56) so as to test anxiety levels. BDI adapted into a Turkish version by Ulusoy, Sahin and Erkmen (57). It contains 21 items that assess symptoms of anxiety scored on a four-point Likert-type scale (0 = "not at all" to 3 = "severely"). The highest score that can be received from the BAI is 63. A higher test score refers to more severe anxiety symptoms. Internal consistency for the adapted Turkish BAI was determined to be .93. In the present study, this value was found as .90. In line with the result of the criterion-related validity analysis, BAI indicated a correlation with the Automatic Thoughts Questionnaire ($r = .41$, $p<0.01$), Beck Hopelessness Scale ($r=.34$, $p<0.01$), Beck Depression Inventory ($r = .46$, $p<0.01$) and Trait Anxiety Inventory ($r = .45$, $p<0.01$) (57).

Cognitive Flexibility Scale

The initial version of the Cognitive Flexibility Scale was created by Martin and Rubin (37) to evaluate people's cognitive flexibility capacity and adapted into Turkish by Altunkol (58). 12 items on a 6-point Likert-type scale make up a one-dimensional measurement. Cronbach's alpha coefficient for reliability study was found to be .81 in the Turkish adaptation. This value was determined to be .78 in the current study. Based on the

criterion-related validity analysis, the scale was related to the Dysfunctional Attitudes Scale (r =-.23, p<0.01) and the Irrational Belief Scale (r =.14, p<0.01). Higher test scores are indicative of increased levels of cognitive flexibility.

Smartphone Addiction Scale

This scale was created by Kwon et al (5) and adjusted into Turkish by Noyan et al (59). It contains 10 items scored on a six-point Likert-type scale (1 = "strongly disagree" to 3 = "strongly agree"). The overall Cronbach's alpha coefficient for reliability was calculated to be .87. This value was determined to be .89 in the current study. A higher average test score corresponds to a higher level of smartphone addiction risk.

Statistical Analysis

SPSS 23 and Process Macro 4.2 were applied to analyze all the data from the current research. The analyses started by determining the normality presumptions of all the variables, and thereby skewness and kurtosis values were found to be within the acceptable range (-2, +2) (60). The mean, standard deviation, and range values of the need to belong, cognitive flexibility, anxiety, and smartphone addiction variables were calculated. Pearson correlation coefficient analysis was conducted to determine the association between all these mentioned variables. Process Macro Model 4 (Multiple Mediation Analysis) was applied to determine whether the need to belong has an indirect effect on smartphone addiction through anxiety and cognitive flexibility. The analysis of regression, total effect, indirect effect, and direct effect in this Model 4 occurred via the 5000 bootstrap samples method at a 95% confidence interval (CI) (61). If CI contains zero, the mediator hypothesis would not be supported.

Results

The descriptive statistics and Pearson correlation coefficients for each of the current study variables are demonstrated in Table 1. Accordingly, the need to belong was positively correlated with anxiety symptoms (r =.28, p<.001) and smartphone addiction risk (r =.30, p<.001), and negatively correlated with cognitive flexibility (r = -.34, p<.001). Moreover, smartphone addiction risk was positively correlated with anxiety symptoms (r = .39, p<.001) and negatively correlated with cognitive flexibility (r = -.28, p<.001). In addition, cognitive flexibility was negatively associated with anxiety symptoms (r = -.23, p<.001).

Table 1. Descriptive statistics and Pearson correlation coefficients of the variables (N = 324).

Variables	$\bar{x}$	SD	Range	Skewness	Kurtosis	1	2	3	4
1.Need to belong	14.71	3.91	18	-.165	-.214	1			
2.Cognitive flexibility	53.94	8.02	40	.063	-.551	-.34***	1		
3.Anxiety symptoms	36.75	11.11	48	.635	-.247	.28***	-.23***	1	
4.Smartphone addiction risk	30.36	11.13	50	.395	-.272	.30***	-.28***	.39***	1

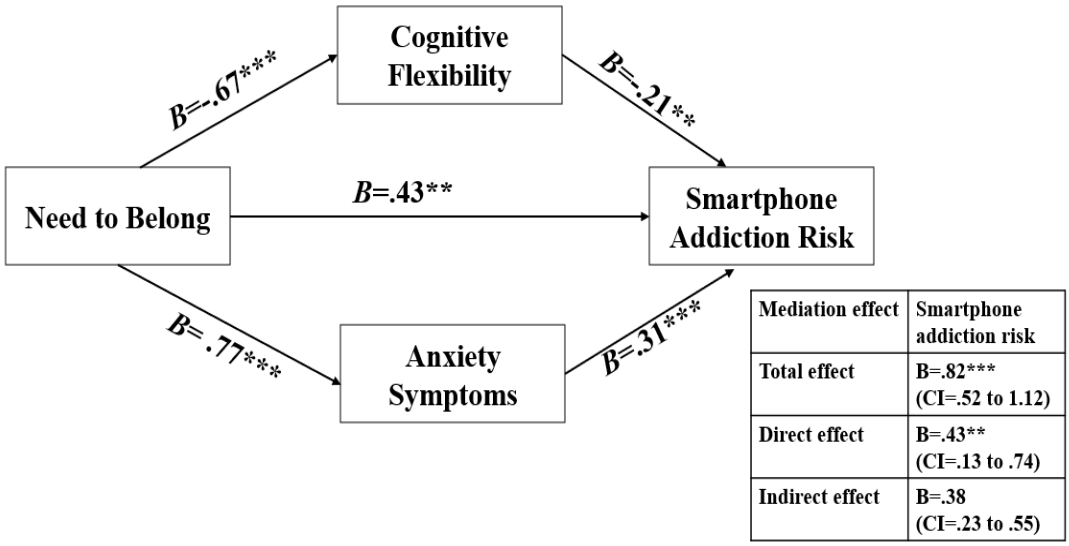
***p<.001

Mediation Model

A multiple mediator model (Process Model 4) was set forth to understand whether anxiety and cognitive flexibility have a mediating role in the effect of the need to belong on smartphone addiction (62). All the effects between the variables detailed in the model are detailed in Figure 1.

Need to belong has a significant effect on cognitive flexibility (b = -.6703, SE =.10, t =-6.1923, p <0.001). Need to belong significantly predicts anxiety symptoms (b = .7729, SE =.15, t =5.0556, p <0.001). Need to belong was also found to have a significant impact on smartphone addiction risk (b = .4347, SE=.15, t =2.834, p <0.01). Cognitive flexibility (b = -.2113, SE=.07, t =-2.851, p <0.01) and anxiety symptoms (b

=.3125, SE=.05, t =5.955, p <0.001) significantly predict smartphone addiction risk. The R-sq change was also determined to be significant (p <0.01). The multiple mediation analysis results showed a significant indirect effect of the need to belong on smartphone addiction risk through cognitive flexibility (b= .1417, SE=.06, 95%CI [0.03,0.27]) and anxiety (b= .2416, SE=.06, 95%CI [0.12, 0.37]). Moreover, the direct effect of need to belong on smartphone addiction risk in the presence of these mediators was also significant (b= .4374, p<.001). Thus, cognitive flexibility and anxiety symptoms partially mediated the association between the need to belong and smartphone addiction risk.



Mediation effect	Smartphone addiction risk
Total effect	B=.82*** (CI=.52 to 1.12)
Direct effect	B=.43** (CI=.13 to .74)
Indirect effect	B=.38 (CI=.23 to .55)

Figure 1. Mediated effects of need to belong on smartphone addiction risk

CI: Confidence Interval; ** p≤ 0.01; ***p < 0.001

Discussion

The current study is aimed to investigate the predictive role of the need to belong on smartphone addiction risk and the mediator roles of anxiety symptoms and cognitive flexibility. In accordance with the findings of the correlation analysis, increased need to belong is related to increased anxiety levels and increased smartphone addiction risk but decreased cognitive flexibility. Similarly, studies in the literature suggested that negative emotions such as anxiety may be induced (31,32) and that cognitive skills can be impaired when the need to belong is threatened (41-44). These results of the current study also support the view of the Need to Belong Theory (18) that the need to belong can guide human cognition, emotions, and behaviors. In addition, there are contradictory results regarding the association between the need to belong and smartphone addiction. For example, Ng and Fam (28) suggested that there was no direct and significant relationship between the need to belong and smartphone addiction risk. But, consistent with the findings obtained from the present study, some previous studies confirmed that smartphone addiction increased with an increasing need to belong (20-23). On the other hand, it is claimed that the relationship between these two processes is mediated by some emotional and cognitive mechanisms (21, 24,25). All in all, the indirect positive relationship between the need to belong and smartphone addiction risk through anxiety symptoms and cognitive flexibility is discussed below.

In parallel with the correlation analysis in the current research, the multiple mediation model indicated that the need to belong is one antecedent of smartphone addiction risk. Besides, when investigating the mediating role anxiety symptoms, H1 was confirmed to have partially mediated the relationship between the

need to belong and smartphone addiction risk. Notably, the positive relationship between the need to belong and smartphone addiction risk may result from an increasing anxiety symptom. Put differently, an increased need to belong would increase anxiety levels and then lead to a high level of smartphone addiction risk.

For the first pathway of the mediation analysis, the need to belong was positively associated with anxiety symptoms, which is consistent with the findings in the literature, and it is believed that anxiety levels tend to increase with an increase in the need to belong (17, 21, 30). Previous research reported that people with a high desire for social acceptance and approval may encounter negative emotions, such as anxiety, when they are ignored and feel separated from other people (17, 30). Most studies conducted with social exclusion procedures emphasized that social exclusion impedes people from establishing and sustaining desired social interactions, consequently threatening to gain a sense of belongingness, and thereby may give rise to the occurrence of negative outcomes, such as high levels of anxiety (31-33). Consistent with the Need to Belong Theory, it is suggested that individuals with a high need to belong have a higher motivation to belong and seek acceptance than individuals with a low need to belong, leading them to worry about social relationships (17). Consequently, it can be concluded that anxiety symptoms may be an emotional response to the increased need to belong.

The second pathway of the mediation analysis between anxiety symptoms and smartphone addiction risk indicated in the current study was consistent with the literature, which demonstrated that smartphone addiction increases with increasing anxiety levels (6, 24, 25, 35, 36). According to literature, individuals who have failed to establish positive and long-term interpersonal relationships try to get rid of their negative emotions temporarily by spending their time on smartphones (25, 29, 63). Indeed, it is thought that individuals may become more addicted to smartphones to alleviate the symptoms of increasing anxiety symptoms due to their increased need to belong. Furthermore, unsatisfied belongingness needs may motivate individuals to seek more social relationships (64). It is estimated that individuals with high levels of anxiety may be more willing to meet their need to belong via smartphones to avoid possible anxiety symptoms due to face-to-face interaction. In brief, the present study revealed evidence that people with a higher need to belong experience high levels of anxiety symptoms, which in turn result in smartphone addiction to cope with their negative feelings and satisfy their belongingness needs.

When the mediating role of cognitive flexibility was examined, H1 was confirmed: it partially mediated the relationship between the need to belong and smartphone addiction risk. Hence, the positive relationship between the need to belong and smartphone addiction risk may result from decreasing cognitive flexibility. In other words, an increased need to belong would decrease cognitive flexibility and then lead to a high level of smartphone addiction risk.

For the first pathway of the mediation analysis, the need to belong was negatively associated with cognitive flexibility, which supports the prior studies. According to some studies, individuals who are high in perceived social acceptance have a higher cognitive flexibility ability (65,66). Likewise, it is estimated that executive functions such as working memory and inhibition, which are directly related to cognitive flexibility, decrease with a decreasing need for social acceptance (41-45). In particular, these studies, conducted with social exclusion procedures, confirm that such high-level cognitive processes can be suppressed by threats to the need to belong. These findings also support the view of the need to belong theory (32) that an increased need to belong might encourage people to engage in considerable cognitive processing to create social bonds and thereby limit cognitive capacity. In summary, it can be deduced that an increased need to belong might restrict one's flexible thinking skills.

The second pathway of the mediation analysis between cognitive flexibility and smartphone addiction risk indicated in the current study was consistent with the previous studies, which showed that smartphone addiction increases with decreasing cognitive flexibility (49-52). Cognitive flexibility plays a supportive role in healthy emotion regulation skills, especially by enabling individuals to cognitively reappraise negative emotions rather than suppressing them (67). Moreover, poor cognitive flexibility is related to increased negative affective reactions to social rejection (66). Thus, people with low cognitive flexibility capacity may turn to smartphones to get immediate release from their unpleasant emotions. As a result, an increased

need to belong may disrupt people's flexible thinking skills and subsequently increase the risk of developing smartphone addiction risk.

The current research finding extends the literature by clarifying, via a holistic model, that the predictive role of the need to belong on smartphone addiction risk might arise from increasing anxiety symptoms and decreasing cognitive flexibility. In parallel with the Need to Belong Theory (18), it can be estimated that an increased need to belong may restrict cognitive skills by interfering with both emotional and cognitive mechanisms. Consequently, it can be deduced that individuals can deal with increased anxiety symptoms due to their increased need to belong by improving their flexible thinking skills, thus reducing the risk of developing smartphone addiction risk.

One of the limitations of the current study is that the results can merely be generalized to university students who regularly use smartphones. For this reason, the current study should be expanded by future studies conducted on various age groups. The study's use of self-reports rather than psychiatric interviews to determine whether participants had a psychiatric illness is another limitation. Additionally, since merely cognitive flexibility is evaluated with a self-report test among executive functions, future studies in which cognitive flexibility and other executive functions are assessed with neuropsychological tests may expand the body of the literature. Finally, because the current study employed a cross-sectional and correlational design, no long-term relationship or causal relationship could be determined between the need to belong and smartphone addiction. Thus, future longitudinal and experimental studies will be promoted to clarify the stable effect of the need to belong, anxiety symptoms, and cognitive flexibility on smartphone addiction risk.

In conclusion, this study proposed a model showing the role of anxiety symptoms and cognitive flexibility in the association between the need to belong and smartphone addiction risk. Despite its limitations, the contribution of the study to the literature is to evaluate the connection between the need to belong and smartphone addiction risk within the framework of a holistic model by considering emotional and cognitive mechanisms together. The use of all variables together is important to explain which mechanisms are actually more predictive for smartphone addiction risk. Hence, it is estimated that the results of the current research provide insight into an understanding of the affective and cognitive risk factors of smartphone addiction risk, and preventive factors can diminish the negative effects of the risk factors. In line with the results of this study, it is thought that emotional regulation skills training focusing on reducing anxiety symptoms and cognitive rehabilitation programs aimed at improving executive functions (especially cognitive flexibility) may guide the prevention and intervention of smartphone addiction. Thus, it is thought that possible health problems that may arise from smartphone addiction can be prevented. Practically, understanding the relationships between the need to belong, anxiety symptoms, and cognitive flexibility with smartphone addiction may contribute to the re-evaluation and development of policies and interventions in this area. At this point, it is thought that interventions aimed at improving anxiety management strategies, emotion regulation, and communication skills may be more effective than applications that limit smartphone use.

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