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REVIEW ARTICLE / DERLEME YAZISI

A Review on the Psychological Effects of Smartphone Addiction

Akıllı Telefon Bağımlılığının Psikolojik Etkileri Üzerine Bir Derleme

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Abstract:

Smartphone addiction is a type of addiction that has started to gain importance among behavioral addictions in recent years and has not yet been diagnostically classified. In this review, it is aimed to bring together the results of studies on the psychological harms of smartphone addiction and to determine what kind of psychological harm smartphone addiction related. This research was conducted with the systematic review method. Systematic review is the synthesis and presentation of many studies conducted by experts in the field with similar methods in a qualified and organized manner. The keywords "smartphone addiction" "mobile phone addiction", "problematic mobile phone use", "excessive mobile phone use", "psychological effect" and "psychological symptoms" were reviewed in July 2023. The fact that the articles must have been published in 2019-2023. In the research, articles written in Turkish and English were examined. In the databases during this initial review, the main sources of information for this study were selected using certain criteria for including and excluding data. A total of twelve research articles were examined. As a result, it was found that there is a relationship between smartphone addiction/problematic smartphone use and psychopathological symptoms such as depression, anxiety, neuroticism, eating disorders, insomnia and psychological effects such as stress, feeling sad, aggression, appearance anxiety, and loneliness. The findings are discussed within the scope of the relevant literature.

Keywords: Smartphone, Smartphone addiction, psychological impact

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Öz:

Akıllı telefon bağımlılığı son yıllarda davranış bağımlılıkları arasında önem arz etmeye başlayan henüz tanı sınıflandırılması yapılmamış bir bağımlılık türü olarak karşımıza çıkmaktadır. Bu derlemede akıllı telefon bağımlılığının psikolojik zararları üzerine yapılmış olan çalışma sonuçlarını bir araya getirerek akıllı telefon bağımlılığının ne gibi psikolojik zararı olduğunu belirlemek amaçlanmıştır. Bu araştırma sistematik derleme yöntemiyle yapılmıştır. Sistematik derleme, alanında uzman kişiler tarafından benzer yöntemlerle yürütülen birçok çalışmanın nitelikli ve düzenli bir şekilde sentezlenmesi ve sunulmasıdır. Temmuz 2023'de "Akıllı telefon bağımlılığı", "cep telefonu bağımlılığı", "sorunlu cep telefonu kullanımı", "aşırı cep telefonu kullanımı", "psikolojik etki" ve "psikolojik belirtiler" anahtar kelimelerini içeren makaleler taranmıştır. Makalelerin 2019-2023 yıllarında yayınlanmış olması gerekmektedir. Araştırmada Türkçe ve İngilizce dilinde yazılmış makaleler incelenmiştir. Veritabanlarındaki makalelerin ilk tanımlanmasının ardından, bu çalışma için ana bilgi kaynakları, verilerin dahil edilmesi ve hariç tutulmasına ilişkin belirli kriterler kullanılarak yapılmıştır. Toplam on iki araştırma makalesi incelenmiştir. Sonuç olarak akıllı telefon bağımlılığı/sorunlu akıllı telefon kullanımının depresyon, anksiyete, nevrotiklik, yeme bozuklukları, uykusuzluk gibi psikopatolojik belirtilere ve stres, üzgün hissetme, saldırganlık, görünüş kaygısı, yalnızlık gibi psikolojik süreçlere neden olduğu bulunmuştur. Elde edilen bulgular ilgili literatür çerçevesinde tartışılmıştır.

Anahtar Kelimeler: Akıllı telefon, Akıllı telefon bağımlılığı, psikolojik etki

Giriş

A smartphone is a portable device that combines the functionality of a cell phone and a computer in a single unit. They are distinguished from feature phones by more powerful hardware capabilities, functions such as voice calls and text messaging, and comprehensive mobile operating systems that facilitate broader software, internet (including web browsing over mobile broadband) and multimedia functionality (including music, video, camera and gaming) in addition to the basic phone (Wikipedia, 2023). The first smartphone was invented in 1992 by IBM as the Simon Smartphone. This was a major breakthrough in the field of technology and for people's needs. Smartphones provide easy, fast and affordable access to information. They are electronic devices that can effectively perform the functions established by the combination of both hardware and software parts. They can perform many tasks that a computer does, such as talking, sending messages, taking photos, watching and sharing videos, working, and entertaining etc. Smartphones also have many physical features that distinguish them from regular phones. In particular, all kinds of activities are done by touching the screen (Rather & Khazer, 2019).

The use of the internet in the world is becoming more widespread day by day. As a result, the purposes of internet use are also diversifying. Internet use was previously limited to places where computers could be used, but today it is possible to access the Internet from anywhere via smartphones. The proportion of people who use smartphones the most are the young segment of society. Increasing usage time of smartphones has negative effects on daily life, social life and relationships. These negative effects can also cause a type of addiction (Yıldırım, Ergüzel, & Sayar, 2019). Although excessive smartphone use is not officially classified as a clinical disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) or the International Classification of Diseases (ICD-10) it shares similarities with other addictive behaviors. Currently, the DSM-5 only considers gambling disorder as a behavioral addiction. Other behaviors like "internet gaming", "sex addiction", "exercise addiction" or "shopping addiction" are classified as impulse disorders (Amerikan Psikiyatri Birliği (APA), 2013). According to Ting, & Chen (2020) problematic smartphone use means using your phone too much, which can cause different problems for body, mind, or social life.

According to the results of the "Household Use of Information Technologies Survey" conducted by TÜİK (Turkish Statistical Institute) between 2002 and 2020, the proportion of households with internet access at home increased from 7% in 2004 to 90,7% in 2020. The newest report on the "Household Use of Information Technologies Survey 2022" conducted by TÜİK, while cell phone usage was 92,7% in 2018, it was 95,8% in 2022. Looking at 2022, it is seen that the 25-34 age group has the highest rate of cell phone use with 98,3% (TÜİK, 2023). The study by IDC (International Data Corporation) suggests that the worldwide mobile phone market by device type will reach total shipments of 1,674 million units in 2021, up 4,2% from approximately 1,607 million units in 2020. From that point, total cell phone shipments will increase to approximately 1,739 million units worldwide by 2025, which is projected to grow at a compound annual growth rate of 1,6% for 2020-2025. Anthony Scarsella (2021), research manager at IDC's Worldwide Quarterly Mobile Phone Tracker, said "Consumers continue to favor higher-end smartphones this year, despite the ongoing problems caused by the pandemic and the Delta variant." Premium smartphones (priced at $1,000+) are up 116% year-on-year. The average selling price across the entire market increased by 9% as buyer preferences shifted from entry-level devices to more costly 5G models. In statistical studies conducted in the US, it was found that Americans stay connected to their phones from the moment they wake up to the moment they fall asleep, resort to texting even to someone in the same room instead of talking and check their phones 262 times a day on average every 5.5 minutes (Wheelwright, 2021).

In their study, Choksi and Patel (2021) found that stress, anxiety, depression and sleep quality had a positive and significant relationship with smartphone addiction. Anxiety and stress are highly associated with smartphone addiction, followed by depression and sleep quality. Just as there is a significant positive relationship between smartphone addiction and anxiety, there is also a highly significant positive relationship between smartphone addiction and stress. Apart from this, a moderate relationship was found between smartphone use and sleep quality and between smartphone use and depression. Alavi et al., (2020) revealed that there is a strong relationship between smartphone addiction and some psychiatric disorders such as depression, anxiety, bipolar disorder, dependent personality disorder, compulsive personality disorder and somatization. According to Shi, X., Wang, A. and Zhu, Y. (2023) there is a bidirectional relationship between smartphone addiction and depressive symptoms, and loneliness mediates the relationship between smartphone addiction and depressive symptoms at the personal level. Yılmaz et al. (2023) appears to be a significant relationship between smartphone addiction and social appearance anxiety and aggression. This suggests that social appearance anxiety and aggression will affect smartphone addiction.

Smartphone addiction, which has many physical and cognitive indicators such as prolonged phone use throughout the day and the desire to pick up the phone as soon as you wake up in the morning, is a current issue that is being debated all over the world (Dula, & Güler, 2022).

Aim of the Study

While smartphones have become an integral part of our lives, it is undeniable that the use of these devices has physical, sociological and psychological harms. In this context, in this review, it is aimed to bring together the results of the studies on the psychological harms of smartphone addiction, to determine what kind of psychological harmful effects of smartphone addiction has and to contribute to the literature.

Method

This research was conducted with the systematic review method. Systematic review is the synthesis and presentation of many studies conducted by experts in the field with similar methods in a qualified and organized manner (Karaçam 2013). Because there are other words like mobile phone addiction, problematic mobile phone use, excessive mobile phone use, and smartphone addiction used in databases (Li, Li, Liu, & Wu, 2020; Zhang, Li, & Yu, 2020), the keywords "smartphone addiction" "mobile phone addiction", "problematic mobile phone use", "excessive mobile phone use", "psychological effect" and "psychological symptoms" were reviewed in July 2023. In the research, articles written in Turkish and English were examined. After the initial identification of the articles in the databases during this initial review, the main sources of information for this study were selected using certain criteria for including and excluding data. Accordingly, a total of twelve research articles were examined. The process of determining who is included and who is excluded in a study goes as follows;

The fact that the articles must have been published in 2019-2023.

The fact that the articles must have been published in the field of psychology and social sciences

The fact that the articles must include the term "smartphone addiction" in the title, keywords and abstract of the article.

Exclusion of articles in the form of letters to the editor.

Exclusion of studies conducted during the COVID-19 period.

Exclusion of scale development studies.

Findings

Herrero, Urueña, Torres, & Hidalgo (2019) in their study analyzed the association of 526 smartphone users in Spain with widespread use and addiction to smartphones as well as smartphone harm. Self-reported and screened data were obtained from users and their smartphones. The results shows that when low social support is coupled with heavy smartphone use, participants not only have a more positive attitude towards unsafe behaviors, but also experience higher levels of harm when using their smartphones. A total of 574 medical students participated in the study by Lei, Ismail, Mohammad, & Yusoff (2020), this study found that there is a relationship between using smartphones too much and having poor psychological health, such as feeling depressed, anxious, or stressed. However, a slight connection was discovered between being addicted to smartphones and having neurotic characteristics. When people become more addicted to their smartphones, they also experience higher levels of depression, anxiety, stress, and neuroticism. These findings show that smartphone addiction is related to mental health issues and feeling anxious or nervous. In another research study, they looked at how internet gaming addiction, smartphone addiction, feeling anxious about how one looks, and being aggressive were all related. They studied 383 undergraduate students from a university in Turkey who regularly play online video games. The study found that using smartphones too much is related to feeling anxious in social situations and being more aggressive. These results show that feeling anxious about how you look in front of others and being aggressive can cause people to become addicted to smartphones. Aggression played a role in connecting social appearance anxiety and smartphone addiction, but only to some extent. When people worry more about how they look to others, they might become more aggressive. This aggression could then increase the chance of becoming addicted to smartphones (Yılmaz et al., 2023).

The study looked at 3,827 university students (52,8% male, 47,2% female) in China to see how smartphone addiction and feeling sad or lonely are connected over time. The study was a four-wave longitudinal study over two years. The results showed that there is a bidirectional relationship between smartphone addiction and depressive symptoms and that loneliness mediates the relationship between smartphone addiction and depressive symptoms at the personal level (Shi, X., Wang, A., & Zhu, Y., 2023). In a research project conducted by Ge, Liu, Cao, & Zhou in the year 2023, 421 students from China's colleges participated. They were asked questions about anxiety, depression, addiction to smartphones, and problems with their thinking and decision-making abilities. The research aimed to find out how common depression, problems with thinking and decision-making, and addiction to smartphones are. The results showed that feeling anxious, depressed, and having difficulties with thinking were

strongly linked to being addicted to smartphones. Having difficulty controlling your actions and making decisions because of excessive smartphone use can make you more likely to feel anxious and depressed. More simply, difficulties in thinking, planning, and making decisions completely explain why anxiety and smartphone addiction are connected, and partially explain the connection between depression and smartphone addiction. Depression was found to strongly predict smartphone addiction, but anxiety was not found to have the same effect. The other research looked at how teenagers in China use their mobile phones and how it affects their feelings of anxiety and depression. It involved asking 1258 high school students questions about their phone use and their emotions. The study also looked at how mindfulness, which means being aware of your thoughts and feelings, can affect the relationship between mobile phone use and these negative emotions. The research found that when we took into account the factor of gender and grade, there was a connection between mobile phone addiction and anxiety and depression among teenagers. Furthermore, the connection between being addicted to cell phones and feeling anxious or depressed is stronger among teenagers who have less mindfulness. This study helped us understand if there is a connection between being addicted to cell phones and having mental health issues like anxiety and depression. It also looked at how certain personality traits like mindfulness might affect this connection (Yang, Zhou, Liu, & Fan, 2019). By Bhatt, & Gaur (2019), 320 dental students were evaluated in terms of internet and smartphone habits. The results showed that internet addiction and smartphone addiction were significantly associated with psychological parameters. A positive correlation was found between insomnia and smartphone addiction and internet addiction. Linear regression analysis also showed that internet addiction and smartphone were significant predictors of insomnia. There was a significant positive correlation between internet addiction and smartphone addiction with depression, anxiety and stress. Kim, Kwak, & Kim (2023) wanted to find out if "grit" affects how stress is related to smartphone addiction in teenagers. They studied 605 Korean students, aged 12 to 16 years (average age of 13,97 years). The study found that stress and determination in teenagers have a strong impact on their addiction to smartphones. Additionally, it was discovered that determination partially connects stress and obsessive smartphone use. This means that when people feel very stressed, they are less likely to have determination, and this makes them more likely to be addicted to their smartphones. This is especially true for teenagers.

Aslan (2023) did a study to see if high school students who are addicted to smartphones feel lonely and sad. The study included 3061 students who were in grades 9, 10, and 11 at different types of schools in the Besni district of Adıyaman province. These schools included Anatolian, Science, Imam Hatip, and Vocational Technical High Schools. Using smartphones, a lot is linked to feeling lonely and sad. Using the internet every day, spending a lot of time on smartphones, and engaging in social media were found to increase the likelihood of smartphone addiction by 36%. So, researchers found that high school students who use smartphones a lot also feel lonely. Jafari, H., Aghaei, A., & Khatony, A. (2019) included 439 medical sciences students in the study and aimed to investigate the relationship between smartphone addiction and loneliness. As a result, according to the degree of smartphone addiction, 17,8% of the students were moderately addicted and 10,9% were in the extreme addiction range. In addition, it was determined that 71,3% of the students were addicted to smartphones. There is a significant positive correlation between smartphone addiction scores and loneliness.

A study conducted by Wang et al. (2023) aimed to determine the relationship between smartphone addiction and eating disorders and lifestyle changes in university students. It was a descriptive, cross-sectional study involving 1,112 university students from various universities in Chengdu, China. 22,6% of the students who took part in the study were addicted to smartphones, and 10,4% of them were in danger of developing eating disorders. Female students had a stronger addiction to their cell phones and had more concerning attitudes towards their eating habits compared to male students. The students who were addicted to smartphones had higher scores in their eating attitudes compared to the rest of the students. The study found that people who were addicted to their cell phones were more likely to have unhealthy eating habits, and to feel depressed, anxious, and have trouble sleeping at night. They also tended to eat fast food and drink sugary drinks more often. This study found that smartphone addiction was strongly related to eating disorders, how people eat, and their everyday routines. Tayhan Kartal, & Yabancı Ayhan (2021) aimed to determine the relationship between eating behavior disorder and smartphone and internet in university students. This research was conducted on a total of 437 university students, 116 male and 321 female. Female students were found to have higher eating disorder scores than male students. 13% of the students had potential internet addiction. The level of smartphone addiction was found to be positively correlated with eating attitudes. The latest findings show that how long students use the internet can impact how addicted they are to smartphones and the internet. Additionally, both of these addictions can have an impact on students' eating behaviors, potentially leading to disorders. Furthermore, being addicted to smartphones and the internet, as well as having an unhealthy relationship with food, is strongly linked to being overweight.

Discussion

In this systematic review type study, when the literature was reviewed according to certain criteria and concepts, it was concluded that smartphones have been studied on neuroticism, depression, anxiety and insomnia in a common way and intensively. In all these studies, it was understood that smartphone addiction related with depression, anxiety, neuroticism and sleep disorders. In addition, it has been revealed that smartphone addiction, depression, anxiety, neuroticism, and sleep disturbance are interrelated. In a sample of 353 Korean university students, depression was found to be a significant predictor of smartphone addiction (Kim et al., 2015). In a convenience sample of 394 Chinese college students, mood regulation (defined as avoiding/reducing negative emotions such as loneliness, anxiety, depression, and stress) was found to have a significant positive effect on smartphone addiction (Zhang-Kem, Chongyang, & Matthew, 2014). In a survey of 414 Chinese university students, loneliness, which is highly positively associated with depression, emerged as the strongest independent predictor of smartphone addiction score (Bian, & Leung, 2015). Similarly, in a sample of 367 Turkish university students, loneliness score

showed a significant positive correlation with smartphone addiction score (Enez-Darçın et al., 2016). According to Demirci, Akgönül, & Akpınar (2015) depression and anxiety scores were found to be significantly higher among low smartphone users compared to high smartphone users, and a survey of 319 Turkish university students revealed that depression and anxiety were independent predictors of the severity of smartphone addiction. Kumar, Chandrasekaran, & Brahadeeswari (2019) found poor sleep quality in a study of 77 medical students using smartphones. In two other studies evaluating sleep quality, smartphone addiction was found to be statistically significantly associated with poor sleep quality (Ibrahim et al., 2018; Touitou, Touitou, & Reinberg, 2016). When the findings of the review and the literature are evaluated together, it is seen that there are similar results.

Another discovery made in the study shows that being addicted to smartphones is linked to feeling lonely. Research on 438 international students in China discovered that students are more likely to feel very lonely and have an excessive dependence on smartphones. In this research, they discovered that 5,3% of the people felt very lonely, and over half of the people showed signs of being addicted to their smartphones. In this research, they found that feeling lonely is the most important factor in predicting addiction to smartphones (Jiang, Li, & Shypenka, 2018). Other research has found that university students in China who feel lonely have a greater chance of being addicted to their smartphones. In a study on young people, Mahapatra (2019) found that feeling lonely is linked to being addicted to smartphones. Enez- Darçın et al. (2016) done study on college students found that feeling lonely is connected to being addicted to smartphones.

According to the last finding of the study, it was observed that smartphone addiction was positively associated with eating disorders in the studies compiled. According to a recent study by Tayhan Kartal and Yabancı Ayhan (2021), using smartphones obsessively and being addicted to them can make people lose track of how much they eat. This can impact their eating habits and preferences. It also makes you gain weight by making you move less and changing how your body is made up. A study by Alosaimi (2016) discovered that using a smartphone for a long time can make you live a more inactive life. To spend more time in front of the screen, people may start eating unhealthy and convenient foods or skipping regular meals and eating snacks instead. When the literature is examined and in this review study, it is understood that smart phone addiction may related with eating disorders.

Conclusion

In this systematic review, it was concluded that smartphone addiction / problematic smartphone use related with psychopathological symptoms such as depression, anxiety, neuroticism, eating disorders, insomnia and psychological effects such as stress, feeling sad, aggression, appearance anxiety, and loneliness. Smartphones are important technological inventions that provide many benefits to their users when used consciously for their intended purpose. Smartphones have important advantages such as effective use of time, easy access to information and the ability to do things without going anywhere. On the other hand, excessive use of smartphones outside their intended purpose negatively affects the biological, physiological, social and psychological conditions of the user. For adult, young and even child users, excessive use of smartphones can lead to negative consequences such as smartphone addiction. The limitations of this research, it has been examined studies in Turkish and English language between 2019-2023 and includes the keywords of the study were "smartphone addiction", "mobile phone addiction", "problematic mobile phone use", "excessive mobile phone use", "psychological effect" and "psychological symptoms". As with all types of addiction, it is important to prevent problematic use of smartphones before addiction develops was suggested.

Declarations

Ethics Approval and Consent to Participate

Not applicable

Consent for Publication

Not applicable

Availability of Data and Materials

Not applicable.

Competing Interests

The author declares that no competing interests in this manuscript.

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Authors' Contributions

E. E. M. created the design of the study, conducted the data collection phase, analyzed the data, drafted the article and undertook its critical revision. The author has read and approved the final version of the article.

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