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THE EFFECT OF EXCESSIVE SMARTPHONE USE ON MENTAL WELLBEING, SLEEP QUALITY AND ACTIVE LIFESTYLE BEHAVIOURS

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ABSTRACT

Introduction: Mobile phone addiction has become a very common phenomenon among young people. It leads to a number of negative consequences for their health, both physical and mental. The aim of this paper is to present the most important consequences of excessive phone use in terms of mental health, such as depression, anxiety and feelings of loneliness. Issues such as the impact of phone addiction on sleep disorders, orthorexia and eating behaviour are also discussed. The paper highlights that excessive use of mobile devices can significantly affect the quality of life of young people, contributing to emotional disturbances and reduced psychological well-being. Conclusions point to the need for further research and educational activities to reduce the negative impact of this phenomenon.

Methodology: For this work, we conducted a search in the PubMed and Google Scholar databases using the keywords: "phone addiction," "health," "lifestyle," "mental wellbeing" followed by an analysis of the selected materials.

Aim of the study: The aim of this work is to analyse the impact of smartphone addiction on young people's mental health, with a focus on aspects such as depression, anxiety, sleep disorders, orthorexia, social relationships and feelings of loneliness.

Conclusion: Excessive use of mobile devices can have a significant impact on the quality of life of young people, contributing to emotional, sleep and eating disorders. Preventive measures are advisable, including education on sleep hygiene, limiting the time spent in front of screens before bedtime and promoting healthy lifestyles among young people and students.

KEYWORDS

Phone Addiction, Health, Lifestyle, Mental Wellbeing

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Introduction

The modern world is characterised by rapid technological advances. This has made the use of digital devices such as smartphones, tablets and computers commonplace. This is particularly noticeable among young people, especially students, who use smartphones for both social and educational purposes. The number of smartphone users worldwide has already exceeded 7 billion and forecasts indicate that it could reach more than 8 billion by 2028. Studies show that almost all students own at least one mobile phone, highlighting the scale of the phenomenon. Although smartphones offer many benefits, such as ease of communication, access to information or educational support, their excessive use carries a significant risk of addiction. In the literature, this problem is referred to as smartphone addiction, which can be similar in nature to internet addiction.

As the time spent using smartphones increases, the likelihood of health and mental health problems such as sleep disorders, depression and anxiety increases. One of the main effects of excessive technology use is the deterioration of sleep quality. Studies show that people who spend more than three hours a day in front of screens are more likely to have sleep problems. Lack of adequate sleep among young people can lead to lower melatonin levels, which in turn increases the risk of mental disorders such as depression, anxiety and stress. Smartphone addiction has also been linked to other health problems, such as an excessive focus on healthy eating (orthorexia), unhealthy eating habits and an increased risk of eating disorders. Furthermore, frequent smartphone use can lead to deterioration of social relationships and increased loneliness. The aim of this study is to analyse the impact of smartphone addiction on young people's mental health, with a focus on aspects such as depression, anxiety, sleep disorders, orthorexia, social relationships and feelings of loneliness. The analysis of existing research will provide a better understanding of this phenomenon and highlight the need for preventive action. (Chaputula & Mutula, 2018; Hysing et al., 2015; Thomée, 2018)

The impact of stress and negative life events on mobile phone addiction

The importance of stress and negative life events as significant risk factors for the development of behavioural addictions, including problematic mobile phone use, is increasingly being emphasised. Negative experiences, such as interpersonal conflicts, school pressure, family difficulties or academic failures, can lead to a decline in mental well-being and encourage the search for alternative strategies for regulating emotions, including excessive use of digital technologies.

A study conducted among adolescents showed that negative life events significantly increase the risk of mobile phone addiction, and that this relationship is indirect. The authors proposed a chain mediation model in which personality traits and emotion regulation styles play a key role. The results suggest that exposure to stressors promotes the development of maladaptive personality traits (e.g., high neuroticism), which in turn are associated with less effective emotional regulation strategies, such as suppression or avoidance. These mechanisms mediate the transition from experiencing stress to compulsive use of the phone as a tool for escaping negative emotional states.

Research by Huang et al. (2025) conducted among students also points to a significant relationship between negative life events and internet addiction, taking protective factors into account. The authors showed that physical activity and prosocial behaviour weaken the negative impact of stress on the development of addiction. These results suggest that access to adaptive stress coping strategies may reduce the need for compensatory use of digital technologies, including mobile phones. From the perspective of behavioural addiction prevention, this highlights the importance of environmental and lifestyle factors in modifying the impact of stress on problem behaviours.

In summary, empirical research findings consistently indicate that stress and negative life events are important risk factors for mobile phone addiction, acting both directly and indirectly through psychological variables such as personality traits, emotion regulation, social anxiety, boredom, and motivations for using digital media. Taking these mechanisms into account in research and preventive interventions may contribute to more effective countermeasures against behavioural addictions among children, adolescents, and young adults. (Huang et al., 2025; Ji et al., 2025)

Depression

In the WHO International Classification of Diseases ICD-11, a depressive episode is characterised as a lowered mood or loss of interest in activities that occurs for most of the day, almost every day for at least two weeks. According to the World Health Organisation (WHO), depression is the fourth most serious illness in the world and one of the leading causes of suicide. Experts predict that by 2030 it will also become the first most commonly diagnosed medical condition worldwide.

In recent years, there has been a significant increase in the use of social media and the internet, not only for social or entertainment purposes, but also as tools for work and meetings, especially during the COVID-19 pandemic.

This has made the use of these tools an integral part of everyday life. However, as research indicates, this phenomenon can have a significant impact on mental health, particularly in the context of depression and mood disorders.

The results of systematic studies on the association of social media use with depression and anxiety indicate a strong, often bidirectional relationship between these variables. Excessive and compulsive use of these platforms has been found to be particularly problematic and can lead to poorer psychological wellbeing. It has been noted that the longer the duration of use, the worse the effects can be. (Ay et al., 2024; Jamir et al., 2019)

Another study involving more than 23,000 adult technology users found a positive correlation between symptoms of depression, anxiety and addiction to technologies such as social media and video games. Heavy social media users were more likely to report symptoms of depression and anxiety than those with moderate activity. Furthermore, women were more likely to be addicted to social media, while men were more likely to be addicted to video games. Age appeared to be a protective factor, as younger people were more likely to develop addiction than older people. (Andreassen et al., 2016; K. Wang et al., 2024; Y. Xie & Tang, 2024)

Research indicates that heavy smartphone use significantly correlates with the severity of depressive symptoms. A study of 819 students found that those spending more than four hours a day on their phone and checking it more than 30 times a day had significantly higher Beck Depression Inventory (BDI) scores compared to participants who used their phone less. In addition, students declaring a subjective feeling of smartphone addiction were more likely to have moderate or severe depression. Participants cited social

isolation and the negative impact of social media as the main factors affecting mood, confirming previous reports of the destructive effects of excessive internet use on mental health.

A key mechanism linking phone addiction to depression is a decrease in physical activity, which mediates the development of depressive symptoms. Research suggests that people who spend excessive amounts of time in the virtual world often neglect physical activity, which increases their vulnerability to mood disorders. In contrast, moderate internet use may have a protective effect by encouraging users to engage in physical activity, which benefits mental health. (Ay et al., 2024; K. Wang et al., 2024)

Loneliness

A similar effect has been observed in the context of social adaptation - smartphone addiction can reduce actual social interactions, leading to feelings of isolation and reduced adaptability.

Low social adaptation, in turn, is one of the important predictors of depression. A study of addiction to social media platforms such as WeChat found that a central symptom of addiction was the use of the app to relieve stress and loneliness, which was also strongly associated with depressive symptoms. (Agrawal et al., 2024; Shan et al., 2024)

The research suggests the existence of a U-shaped curve, where both low and high levels of internet use increase the risk of depression, while moderate use may have a protective effect. Such complex relationships require further research in different demographic groups, as the impact of phone addiction on mental health may vary by gender, age and cultural context. For example, research on gender differences in social app addiction found that women were more likely to use social media to relieve stress and loneliness, while men reported greater satisfaction with using these platforms. As a result, women may be more likely to develop depressive symptoms resulting from smartphone addiction.

Another important aspect remains how social media is used. According to research, people who show higher levels of emotional engagement and who use social media mainly at night are more likely to experience negative mental health effects, such as lowered mood and reduced sleep quality. This indicates the need for conscious and controlled use of these tools to minimise their negative impact on mental health. (Ay et al., 2024; Duong et al., 2024; K. Wang et al., 2024)

Impact of phone addiction on sleep quality

The phenomenon of Problematic Smartphone Use (PSU) is increasingly being studied for its impact on sleep quality, particularly among young people. Studies show that prolonged smartphone use, especially before bedtime, is associated with a significant deterioration in sleep quality. The results of one study among university students showed that those with higher levels of smartphone addiction and increased ADHD symptoms experienced shorter sleep duration and poorer sleep quality. Importantly, in both male and female groups, there was a strong correlation between high levels of smartphone addiction and reduced sleep quality.

An additional factor that contributes to sleep disturbances is the use of smartphones as the main screen in daily life and the long time spent browsing content such as social media and entertainment apps. A study in Singapore indicates that excessive smartphone use was linked to poorer mental health, as well as sleep problems, particularly in younger age groups. These findings highlight the need to implement educational interventions and psychological support programmes to reduce problematic smartphone use. Similar findings emerged from a study of medical students, who also felt that excessive smartphone use had a significant impact on sleep quality. Improving smartphone use habits may not only have a positive impact on sleep quality, but also increase students' academic performance and overall quality of life. (Alhafi et al., 2024; Alimoradi et al., 2019; Demirci et al., 2015; Hoffmann et al., 2018; Liu et al., 2016; Ong et al., 2024; Randler et al., 2016; Thompson et al., 2020; Zeyrek et al., 2024)

In summary, numerous studies show a clear relationship between smartphone addiction and decreased sleep quality. The most commonly reported symptoms are reduced sleep duration, difficulty falling asleep and reduced sleep efficiency. In light of these findings, it seems crucial to take preventive measures, including education on sleep hygiene, limiting the time spent in front of screens before bed and promoting a healthy lifestyle among adolescents and students.

Impact of phone addiction on eating disorders

In recent years, there has been increasing interest in the relationship between excessive use of technology, including smartphones, and the incidence of eating disorders. Problematic smartphone use (PSU) can lead to reduced physical activity and changes in eating habits, which can result in overweight and obesity. Research indicates that obese people are more prone to technology addictions, manifested by impulsivity, risky behaviour and difficulty controlling their own actions. There is a significant association between social media addiction and obesity in young adults, with symptoms of depression and anxiety mediating this relationship.

The results of the study show significant differences depending on body mass index (BMI) - no significant correlation was found between social media addiction and emotional eating in normal-weight individuals, suggesting that the disorder may be characteristic of overweight or obese individuals.

The study also found that boys were four times more likely to be addicted to digital games, while girls were more likely to engage in emotional eating as a form of coping with difficult emotions. Furthermore, an increase in BMI was correlated with both social media addiction and digital entertainment addiction, confirming the need to include demographic factors in research on the impact of technology addiction on eating disorders.

One indirect mechanism for the impact of phone addiction on eating behaviour is the phenomenon of phubbing, which is associated with decreased life satisfaction and deterioration of interpersonal relationships. Research has shown that both partners and parents who practice phubbing reduce their loved ones' life satisfaction, which can lead to increased stress levels and the occurrence of compulsive behaviours such as emotional eating. Reduced life satisfaction, resulting from poor quality interpersonal relationships, may be one of the factors mediating between excessive use of technology and the development of eating disorders.

Unfortunately, most of the studies discussing the relationship between smartphone addiction and eating disorders are cross-sectional in nature, making it difficult to clearly identify the causal nature of these relationships. In addition, many of these studies are based on self-report questionnaires, which increases the risk of errors due to the subjective assessment of participants. Therefore, further longitudinal studies are recommended to gain a more thorough understanding of the long-term effects of smartphone addiction on eating behaviour. In conclusion, excessive use of smartphones and other digital technologies can lead to significant eating disorders, especially among overweight adolescents. Both direct and indirect influences are important here - through reduced quality of interpersonal relationships, increased stress levels and the occurrence of compulsive behaviour. In view of the increasing number of people addicted to technology, it seems necessary to undertake preventive and educational actions aimed at improving eating habits and reducing the risk of eating disorders, leading to a number of negative consequences for their physical and mental health. (Aydin et al., 2024; Caner & Evgin, 2021; Toklu Baloglu & Caferoglu Akin, 2024; J. Wang et al., 2023)

Impact of phone addiction on orthorexia

Orthorexia (orthorexia nervosa, ON) is an eating disorder characterised by an obsessive desire to eat healthily. Although the term is not yet formally recognised as a diagnostic entity in the DSM-5 or ICD-11 classifications, a growing body of research points to its association with psychiatric disorders, including behavioural addictions such as social media and smartphone addiction. Studies show a significant correlation between phone addiction, social media and orthorectic tendencies. Frequent use of smartphones, especially to view diet and healthy lifestyle content, can lead to increased obsession with healthy eating. Furthermore, constant exposure to idealised body images and misinformation about healthy eating on social media increases the risk of maladaptive eating behaviours, particularly in adolescents.

These studies emphasise the need to educate young people about the critical reception of content presented on social media. Due to the cross-sectional nature of the cited studies, a cause-and-effect relationship between smartphone addiction and orthorexia cannot be clearly established. Nevertheless, the results presented suggest that reducing compulsive social media use and education about healthy eating may play an important role in the prevention of orthorexia among young people. (Laughter et al., 2023; Unal & Kocatepe Avcı, 2024; Yurtdaş-Depboylu et al., 2022)

The impact of mindfulness therapy on preventing mobile phone addiction

In recent years, problematic mobile phone use has been the subject of intensive research, both in the context of mental health and social functioning. There is growing evidence that mindfulness-based interventions may be a promising tool in preventing and reducing phone addiction and other compulsive behaviours related to digital technology.

Empirical research provides promising results regarding the impact of mindfulness therapy on reducing the severity of mobile phone addiction. An example is an 8-week intervention conducted by Wang and Chen (2023), in which participants in the mindfulness programme showed a significant decrease in addiction symptoms compared to the control group. The benefits included better impulse control and a reduced tendency to use the phone as a way of coping with stress.

Mindfulness therapeutic mechanisms, such as increased awareness of internal impulses, non-judgmental observation of thoughts and emotions, and attention regulation, play a key role in reducing compulsive behaviours. Participants in mindfulness programmes learn to recognise moments when the impulse to reach for their phone arises, which promotes more conscious choice of response rather than automatic action.

The importance of mindfulness in the context of behaviour regulation is also emphasised by research in the field of self-determination theory. A meta-analysis conducted by Donald et al. (2020) showed that mindfulness is strongly associated with more balanced types of motivation and increased autonomy in action, which may translate into the ability to consciously limit maladaptive habits, such as excessive phone use.

In the context of behavioural addictions, this means that people who practise mindfulness may experience greater internal motivation to change problematic behaviours (e.g., limiting screen time) and greater resistance to impulsive responses to technological stimuli.

Research on mindfulness also shows that practising it is associated with a reduction in symptoms of anxiety and stress, which often co-occur with problematic technology use. Mindfulness training can reduce psychological stress and improve adaptive abilities in emotionally difficult everyday situations, which in turn can reduce the need to ‘escape’ into excessive phone use in order to regulate emotions.

Such mechanisms — both related to self-regulation of attention and improved psychological adaptation — are key in the discussion of the role of mindfulness as a preventive intervention against phone addiction.

A more general view of the effectiveness of interventions for problematic phone use is offered by the meta-analysis by Zhang et al. (2023), which covers both psychological interventions and physical activity programmes. The results of this analysis indicate that psychology-based programmes — including mindfulness training — and physical activity are associated with a significant reduction in symptoms of problematic phone use.

The authors emphasise that a combination of psychological techniques (e.g., mindfulness, cognitive behavioural therapy) and mental health-promoting elements, such as physical activity, may lead to the best results in reducing excessive use of digital devices.

Summary

Available research indicates that mindfulness-based therapies have promising potential in preventing and reducing mobile phone addiction. This approach works by: increasing awareness of impulses and emotional reactions, improving the ability to self-regulate attention, strengthening internal motivation to change, and reducing stress and emotional reactivity.

Meta-analyses confirm the effectiveness of mindfulness and other psychological interventions in reducing problematic phone use and indicate that integrating these strategies with physical activity programmes may bring additional benefits. The integration of such approaches into clinical, educational and public health practice has the potential to provide an effective response to the growing challenges associated with digital technology addiction. (Donald et al., 2020; H. Wang & Chen, 2023; Zhang et al., 2023)

Discussion

It is estimated that by 2026 the number of international mobile phone users will reach 7.516 billion. Although mobile phones offer convenience, they also carry potential risks, leading to new behavioural problems, including mobile phone addiction. Mobile phone addiction is considered an impulse control disorder. It is defined as inappropriate or excessive use of mobile phones, resulting in a loss of control over mobile phone use, disrupting daily life and causing extreme emotional changes and serious physical reactions in individuals. Mobile phone addiction reduces activity levels and leads to an increase in body fat and a decrease in muscle mass. It also reduces the quality of sleep in adolescents, causes damage to the lens of the eye and leads to immune system dysfunction. In addition, teenagers' skulls are thinner and their brain tissue conducts electricity better. They absorb mobile phone radiation more often than adults and are at greater risk of developing brain tumours than adults. Furthermore, mobile phone addiction can also cause anxiety in various aspects of life at home, at work and at university. Cognitive dissonance and negative, automatic thinking can further exacerbate depression, leading to more suicidal thoughts among teenagers. What is more, mobile phone addiction is negatively correlated with teenagers' academic performance.

Current evidence suggests that exercise improves brain function in addicted individuals through dopaminergic modulation. Physical activity stimulates dopamine secretion by the pituitary gland, which competes with addictive behaviours for receptors in the central nervous system, thereby generating pleasure and alleviating anxiety, stress and negative emotions associated with Internet addiction. Neurotrophic factors induced by physical exercise not only increase nerve plasticity and normalise cerebral cortex activity, but also improve cognitive functions through sustained activation of task-related brain areas, thus facilitating psychiatric rehabilitation. (Hardell et al., 2013; Kim et al., 2015; Peng et al., 2025; Sert et al., 2019; X. Xie et al., 2018)

In light of the research, the impact of phone addiction on young people's mental and physical health is multidimensional. With the increasing popularity of social media and other forms of digital entertainment during the COVID-19 pandemic, there are significant risks associated with excessive use of these technologies, including an increase in symptoms of depression, anxiety, eating disorders, and physical problems resulting from a lifestyle based on low physical activity. Although social media can play a positive role by enabling communication and providing entertainment, their excessive and uncontrolled use is associated with serious health consequences. Studies indicate a link between frequent social media use and poor eating habits, including increased consumption of unhealthy foods and increased risk of obesity.

In addition, social media users, especially young girls with low self-esteem, are more likely to have problems with their own body acceptance and to develop eating disorders. Overexposure to unrealistic images of ideal silhouettes promotes a negative self-image, which can lead to serious psychological consequences. Prolonged use of smartphones and social media has also been linked to sleep disorders, eye fatigue and behavioural problems. These phenomena require special attention from carers and child and adolescent health professionals. Paediatricians and other professionals can play an important role in counteracting these negative effects by conducting digital media exposure assessments during routine visits and advising parents on how to limit children's time online and how to choose appropriate content.

It is also crucial to educate families about the possible dangers of excessive social media use, such as misinformation about healthy lifestyles or the promotion of unhealthy products. In addition to educational efforts, it is also necessary to develop effective prevention and regulatory strategies to protect young users from the negative effects of excessive digital media use. Future research should focus on assessing the long-term effects of social media use, taking into account diverse demographic and cultural groups. Longitudinal studies may be particularly important to identify the direction of the relationship between technology use and mental health. In conclusion, there is an urgent need to develop comprehensive strategies that promote responsible use of social media while minimising its potential negative effects. Close collaboration between parents, educators, health professionals and app developers can play a key role in protecting the health of children and young people in the digital age. (Ahmed et al., 2024; Akhund et al., 2024; Lopes et al., 2022; Matar Boumosleh & Jaalouk, 2017; Ratan et al., 2021; Zhou et al., 2023)

Summary

Phone addiction poses a significant threat to mental health, especially among adolescents and students, increasing the risk of depression, mood, sleep and eating disorders. Mediating mechanisms, such as decreased physical activity and reduced social adaptation, play a key role in this process. At the same time, moderate phone use can have a beneficial effect on mental health, promoting healthy habits and supporting emotional well-being

Preventive measures are advisable, including education on sleep hygiene, limiting the time spent in front of screens before bedtime and promoting healthy lifestyles among young people and students.

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