

The dual nature of smartphones in the growth of teenagers: Psychological emotion regulation and improper usage behavior

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Abstract: In the digital age, smartphones have become ubiquitous among adolescents, serving as tools for communication, entertainment, and emotional regulation. This study employs a mixed-methods approach to explore the complex relationship between smartphone use-particularly social media-and adolescent mental health. Quantitative survey data from 79 respondents reveals that social media applications dominate usage patterns and are closely linked to both positive emotional connection and negative outcomes such as anxiety, stress, and emotional volatility. Qualitative interviews provide deeper insight, showing that adolescents use smartphones as informal tools for coping with distress but are often critical of existing mental health applications for lacking personalization and emotional depth. The findings suggest that smartphones play a dual role, acting as both sources of psychological strain and accessible resources for emotional support. The paper concludes by arguing for a nuanced understanding that moves beyond simple prohibition toward guided, intentional use, and highlights the need for integrating mental health support into everyday digital environments.

1. Introduction

In the contemporary era of big data and rapid technological development, smartphones have become deeply embedded in everyday life. They are no longer merely tools for communication but multifunctional devices that integrate social interaction, entertainment, learning, and even health management into a single platform. For adolescents and young adults, smartphones often function as constant companions, shaping daily routines, social relationships, emotional regulation, and self-perception. While the convenience and efficiency of smartphones are widely acknowledged, the increasing prevalence of mental health problems has raised important questions about the relationship between smartphone use and psychological well-being. This tension has prompted growing academic and public concern: are smartphones contributing to mental health problems, or can they also serve as tools for emotional support and psychological improvement?

This paper aims to explore how different types of smartphone applications-specifically social media, games, and learning tools-affect users' mental health in both positive and negative ways. In

addition, it examines whether smartphone technology, including mental health–related applications, has the potential to improve users' psychological well-being. Drawing on a mixed-methods approach that combines quantitative survey data with qualitative interview material, this study seeks to provide both a broad overview of usage patterns and a deeper understanding of individual experiences. By doing so, it contributes to ongoing debates about the necessity, feasibility, and direction of mental health–related smartphone interventions, especially for adolescents.

The central argument of this paper is that smartphones, particularly social media applications, play a significant role in shaping emotional experiences and mental health outcomes. While they can intensify stress and emotional volatility, they also function as accessible tools for emotional regulation and social support. Therefore, rather than advocating for simple restriction or rejection of smartphone use, this paper argues for a more nuanced understanding of how smartphones can be guided, designed, and used to support mental well-being.

2. Literature Review

Previous research suggests that smartphone use, especially through social media applications, has a complex and sometimes contradictory relationship with mental health. On the one hand, excessive or problematic use has been associated with negative outcomes such as loneliness, anxiety, depression, sleep disorders, and emotional instability^[1]. The constant exposure to curated content and social comparison on platforms like Instagram and TikTok can exacerbate feelings of inadequacy and distress. On the other hand, smartphones can provide social connection, access to information, and emotional expression, which may enhance well-being, particularly for individuals who feel isolated in their offline lives^[2]. Rather than being inherently harmful or beneficial, smartphone use appears to have a dual nature, with its impact depending on factors such as the type of application, intensity of use, individual psychological characteristics, and social context.

A growing body of research has also focused on the potential of smartphone-based interventions to improve mental health. Studies have explored the efficacy of mental health apps designed to treat depression and anxiety, with mixed results. A systematic review by^[3] found that while many apps show promise, their effectiveness is often limited by low user engagement and a lack of personalization. Users frequently abandon apps that feel generic or fail to address their specific emotional context. This finding highlights a critical gap between the potential of digital mental health tools and their real-world application. The present study builds on this existing literature by using a mixed-methods approach to investigate not only patterns of use but also the subjective experiences of adolescents, offering insight into why these gaps exist and how they might be addressed.

3. Methodology

This study adopts a mixed-methods research design, combining quantitative survey data with qualitative interviews. The quantitative component is based on survey data provided through Moodle, which offers a general overview of smartphone usage patterns and self-reported psychological states. This data allows for the identification of broad trends, such as the predominance of social media use and the prevalence of stress and anxiety related to smartphone dependence.

The qualitative component consists of interviews designed to explore participants' personal experiences with smartphone use in greater depth. Through open-ended questions, respondents were encouraged to reflect on how they use their phones during emotional distress, their perceptions of mental health apps, and their views on the role of smartphones in emotional regulation. These interviews provide contextual richness and help explain the meanings behind the quantitative patterns.

The combination of quantitative and qualitative methods offers several advantages. Quantitative data provides a broad empirical foundation, while qualitative data captures individual perspectives

and emotional nuances that cannot be reduced to numerical indicators. Together, these approaches allow for a more comprehensive understanding of the relationship between smartphone use and mental health.

Nevertheless, this methodology also has limitations. Some interview questions are inherently subjective, and respondents' answers may be influenced by personal bias or social desirability. In addition, the survey data provided through Moodle may not be directly aligned with all interview themes, requiring careful interpretation. Despite these challenges, the mixed-methods approach remains valuable for exploring a complex and multifaceted phenomenon.

4. Discover and Analysis

The quantitative data includes a variable labeled "type of use," which categorizes respondents' primary smartphone activities into social media and communication, gaming and entertainment, and learning-related tools. This variable provides a clear starting point for examining how different forms of smartphone engagement are distributed among respondents. By comparing these categories with mental health indicators such as reported happiness, stress levels, emotional stability, anxiety related to phone absence, and sleep-related concerns over the course of a week, it becomes possible to analyze patterns linking application type and psychological state.

The data reveals that social media and communication applications are by far the most frequently used category. Out of 79 recorded data points, 40 are associated with social media and messaging applications, accounting for more than half of total usage. This finding suggests that social media occupies a central position in respondents' daily smartphone behavior, regardless of their recent mood or emotional state. As a result, social media emerges as the category with the greatest potential impact on users' mental health, both positively and negatively.

The dominance of social media use is not surprising, given its role in facilitating instant communication, social validation, entertainment, and information sharing. However, its emotional impact appears deeply ambivalent. For some users, social media provides a sense of belonging and emotional connection, allowing them to share experiences, receive support, and feel less alone. For others, constant exposure to messages, notifications, comparisons, and social expectations can increase psychological stress and emotional exhaustion. The quantitative data supports this duality: while many respondents rely on social media for emotional regulation, a significant proportion also report anxiety, stress, and emotional volatility associated with smartphone use.

For example, 30 respondents reported that others had told them they spend too much time on their phones, suggesting a perception of excessive use. Additionally, 22 respondents stated that they feel anxious when they do not receive messages from others, indicating a dependence on external feedback for emotional reassurance. Furthermore, 38 respondents reported becoming emotionally volatile when they stopped using their phones, and 32 reported feeling stressed. These findings suggest that smartphones, particularly social media, have become closely tied to emotional stability for many users, functioning as both sources of comfort and triggers of distress.

Beyond social media, gaming and entertainment applications also play a role in users' emotional lives. Some respondents reported using games as a way to distract themselves from negative emotions or to numb unpleasant feelings. While this strategy may provide temporary relief, it raises questions about long-term emotional processing. Learning tools, although less frequently used, were generally associated with more neutral or positive emotional states, suggesting that purposeful and goal-oriented smartphone use may have a different psychological impact compared to passive consumption.

5. Smartphones as Tools for Coping and Improvement

The question of how smartphone technology can improve users' mental health is not directly

addressed in the quantitative dataset. However, qualitative interviews provide valuable insight. Several interviewees described moments of emotional distress in which they turned to their smartphones in search of comfort or understanding. One respondent explained that during a period of depression, she searched online for general advice but found it insufficient. Eventually, she sought help from a therapist, whose personalized communication made a significant difference. She expressed a desire for future applications that could offer tailored, AI-like communication based on users' specific emotional situations.

Interestingly, the same respondent mentioned using ChatGPT to gain positive emotions when feeling sad. Although not designed as a mental health app, conversational AI provided a sense of interaction and emotional engagement she found comforting. This example illustrates how users may repurpose general technologies to meet emotional needs when specialized tools fall short. It also underscores that engagement, personalization, and interactivity are crucial for digital mental health interventions.

Qualitative interviews further revealed that many respondents do not actively seek out mental health apps because they do not perceive themselves as having mental illnesses. Instead, they view their emotional difficulties as temporary stress related to academic pressure. For these individuals, mental health apps are seen as unnecessary or stigmatizing. In contrast, social media platforms are perceived as informal, familiar spaces where emotional expression can occur naturally. This perception highlights an important barrier to the adoption of mental health apps: the way they are framed and marketed. If such apps are associated exclusively with illness, many potential users may reject them even if they could benefit from emotional support.

The qualitative data also provides rich insight into coping strategies. Many respondents described turning to social media to express unhappiness, seek validation, or simply feel connected to others. Sharing feelings through messages can function as emotional release. For some, even passive activities like scrolling through entertaining content can temporarily lift their mood. A smaller number reported using video games intensively as a way to cope, which, while providing short-term escape, raises concerns about avoidance.

At the same time, respondents acknowledged that the emotional value derived from smartphones is double-sided. While most reported gaining positive emotions, they were also aware of the potential for overuse and dependency. One respondent stated that when experiencing very negative emotions, she had no interest in using her phone and preferred to be alone. This response reminds us that smartphones are not universal solutions and that individuals differ significantly in how they cope.

6. Conclusion

In conclusion, this paper demonstrates that smartphones, particularly social media applications, play a complex and influential role in users' mental health. They can intensify stress, emotional dependency, and anxiety, but they also provide valuable sources of connection, comfort, and emotional regulation. The impact of smartphone use depends not only on frequency but on purpose, context, individual vulnerability, and the meanings users attach to their digital practices.

One important insight is that adolescents do not use smartphones in a psychologically neutral way. Instead, smartphone use is deeply embedded in their emotional lives. Notifications, messages, and online interactions are often interpreted as signals of social inclusion or exclusion, which can directly influence self-esteem and mood. This emotional sensitivity helps explain why many respondents reported anxiety when not receiving messages and emotional volatility when they stopped using their phones.

At the same time, the findings challenge the assumption that high smartphone use is inherently pathological. For many respondents, frequent phone use reflects attempts to cope with stress,

loneliness, and academic pressure. Social media and entertainment function as accessible coping resources. From this perspective, smartphones should not only be viewed as sources of risk but also as informal emotional tools that young people actively use to manage their psychological states.

This dual role highlights the importance of guidance rather than prohibition. Blanket restrictions may overlook the emotional functions that phones serve. Instead, education about mindful use and healthy boundaries may be more effective. The discussion of mental health applications further reinforces the need for a nuanced approach. Integrating mental health support into familiar digital environments may reduce stigma and increase engagement.

Ultimately, addressing mental health in relation to smartphone technology requires balance. Overuse and emotional dependency pose real risks, but rejection of technology ignores its potential benefits. By recognizing both sides of this relationship, educators, developers, and users can work toward healthier, more intentional forms of smartphone engagement in the future.

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