

Smartphone Use and Its Self-Reported Effects on Academic Performance, Psychological Well-being, Physical Health, and Social Interaction Among Secondary Students in Jalalaqsi, Somalia

 Abdukadir Sugow Amin

Abstract

Smartphones have become essential tools for students, offering numerous benefits. However, their widespread use has raised concerns about negative impacts on academic performance and overall well-being.

This study examines the impact of smartphone use on secondary school students in Jalalaqsi District, focusing on academic performance, well-being, physical health, and social interactions. It revealed that smartphones are primarily used for entertainment causing academic distractions and decreased performance along with less face-to-face interactions. Excessive use led to sleep disruptions, discomfort, and higher stress. Contextual factors, such as limited parental oversight and a lack of school policies, contribute to misuse.

The study recommends implementing structured regulations and awareness campaigns to promote balanced smartphone use. It also calls for collaboration among stakeholders to mitigate the negative effects while leveraging smartphones' educational potential.

Keywords: Smartphone addiction, academic performance, psychological well-being, physical health, social interaction, Somalia.

1. Introduction

The rapid advancement of technology has transformed smartphones from mere communication tools into multifunctional devices that are deeply integrated into daily life. Globally, smartphones are considered essential, particularly among students, due to their wide-ranging capabilities. They support educational activities, enable real-time information retrieval, and facilitate collaboration and time management through features such as educational apps, reminders, and digital libraries. Used positively, smartphones can enhance academic performance, digital literacy, and knowledge acquisition.

However, concerns have emerged about their negative effects, especially regarding non-academic usage. Many students misuse smartphones for entertainment, including online gaming and social media use (e.g., Facebook, TikTok), which detracts from academic focus. Excessive use can also result in reduced face-to-face interaction, physical health issues (e.g., vision problems, poor sleep), and psychological health challenges such as anxiety and depression. The debate now centers on whether smartphones serve as cognitive enhancers or behavioral distractors. Empirical evidence shows mixed results, prompting calls for balanced, context-sensitive strategies that regulate smartphone use without undermining its academic potential.

Across Africa, studies consistently reveal the dual-edged nature of smartphone use in educational environments. In Nigeria, Obilor (2022) found that 72% of students experienced classroom distractions due to mobile phone notifications, primarily from social media. He also observed signs of phone dependency, with students often engaging in non-academic activities like gaming and chatting rather than educational tasks. This behavioral pattern was linked to diminished classroom focus and academic disengagement.

Similarly, Babayo and Mohammed (2022) reported a 15% drop in exam scores among students using WhatsApp during lectures, highlighting a clear correlation between digital distraction and academic underperformance. These findings underline the widespread impact of smartphone misuse in African classrooms. Yet, regional variations exist. These contextual differences suggest that local socio-cultural and institutional factors may shape how smartphones affect student outcomes. Thus, Africa's educational systems face the urgent challenge of maximizing smartphones' educational benefits while mitigating their misuse.

In Somalia, the educational implications of smartphone use remain largely understudied, particularly in post-conflict settings. With increasing smartphone penetration among youth, secondary school students. While these tools offer access to educational materials and improve communication, their usage is often skewed toward entertainment, causing academic and behavioral concerns.

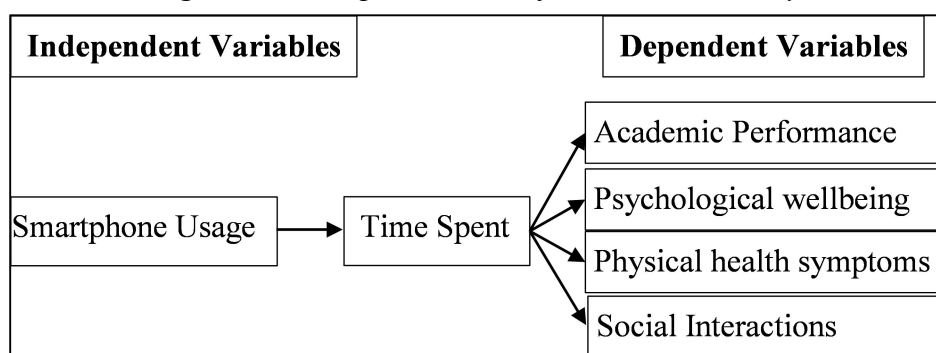
Omar (2023) noted a growing trend of smartphone-related academic misconduct and psychological dependency among Somali students. Despite global evidence linking excessive smartphone use to reduced academic performance, no empirical study has yet examined the mediating role of time spent using smartphones in Somalia. This study fills this gap by analyzing how smartphone use influences performance, health, and social behavior of students in Jalalaqsi District. It explores how unregulated smartphone usage in a fragile state exacerbates academic and health risks, offering insights for post-conflict education planning.

Specifically, the study explores how smartphone use affects four domains: academic performance (including GPA, classroom achievement, and competence), psychological well-being, physical health (such as sleep and vision), and social behaviour and interpersonal relationships.

Given the lack of national regulation and digital education policies, Somali students risk developing unhealthy technology habits. The study focuses on secondary schools in Jalalaqsi District, Hiran Region, providing context-specific data that can inform education policy in Somalia's evolving digital landscape. By examining these four dimensions (academic, psychological, physical, social), this study evaluates whether smartphones primarily function as learning tools or behavioral disruptors, informing context-specific interventions.

This research is particularly significant because it highlights how the type of smartphone application and the amount of time spent using it critically affect students' academic performance. For instance, while prolonged engagement with social media may diminish academic competence, using smartphones for educational purposes can enhance academic outcomes. By proposing and validating a context-specific conceptual model, this study offers vital insights for educators, parents, and policymakers.

Figure 1: Conceptual Model of the Research Study



As depicted in Figure 1, the model treats smartphone usage frequency as the independent variable, hypothesizing that time on devices mediates its effect on four dependent variables: academic performance, psychological well-being, physical health symptoms, and social interaction patterns. Age, gender, and grade level were statistically controlled.

2. Multidimensional Effects of Smartphone Use on Students

Smartphones have become a major part of students' daily lives, both inside and outside the classroom. While they provide useful tools for learning, such as quick access to information, educational apps, and communication with teachers, they also bring some serious downsides. This literature review examines studies exploring how smartphones affect students across four main areas: academic performance, mental health, physical health, and social interactions. The following sections discuss these effects in more detail based on recent research.

2.1 Academic Performance

Smartphone use among students has become a widespread phenomenon, deeply intertwined with both their academic and social lives. Numerous studies in Africa have underscored the negative impacts of smartphone use on academic performance. Obilor (2022), in a Nigerian context, found that 72% of students reported being distracted in class due to smartphone notifications, primarily from social media platforms like WhatsApp and Messenger. Although phones were initially brought to school for communication or educational assistance, students often shifted their focus to entertainment and social interaction. This behavioral drift demonstrates how even well-intentioned use can degrade into habitual, non-academic activities. The issue is compounded by what appears to be signs of smartphone dependency, bordering on addiction, which leads to reduced classroom engagement and retention of learning materials.

The problem is not just individual distraction, but systemic. Babayo and Mohammed (2022) quantified this decline in performance, noting a 15% reduction in exam scores linked to students' use of WhatsApp during lectures. This statistically significant finding supports a broader claim that smartphones, when used irresponsibly, contribute to diminished academic outcomes. Their study also highlighted behavioral patterns like checking

social media during lectures and chatting with peers, which together create a fragmented learning experience.

Omar's (2023) research in Somalia further advanced the analysis by identifying more extreme cases of academic compromise. He reported widespread exam malpractice facilitated by smartphones—students stored previous exam papers, accessed answers online during tests, and communicated covertly with others. These actions not only harmed academic integrity but also indicated deeper cultural and regulatory issues. Unlike studies where smartphone use causes passive distraction, in Somalia, it enabled active manipulation of academic systems. This suggests that institutional factors, such as lax enforcement and the digital literacy gap, play a major role in shaping student behaviors.

Conversely, some research, such as by Amialchuk & Montag (2021), provides a nuanced perspective. They examined how the type and purpose of application use matter more than mere smartphone access. Their results showed that students who used educational apps or digital tools for assignments performed significantly better than those who used entertainment or social media apps. The data suggests that when used intentionally, smartphones can support academic success. However, the amount of time spent is a critical mediating factor, as excessive use, even of educational apps, may result in fatigue and distraction.

Babayo & Mohammed also noted that while some students use smartphones constructively (e.g., accessing lecture materials or communicating with course instructors), the temptation of social media often outweighs these benefits. Their findings suggest that institutional policies should balance between outright bans and thoughtful regulations that promote academic use while curbing non-academic distractions.

In summary, smartphone use is a double-edged sword in academic settings: offering tools for enhanced learning, but also opening the door to distraction, dependency, and academic dishonesty. The effect is context-dependent and mediated by socio-cultural factors, user discipline, and institutional control mechanisms.

2.2 Psychological Well-being

Smartphone usage among students is not only an academic concern but also a significant factor influencing their psychological well-being. Nalini (2020) highlighted the growing psychological dependence on smartphones among students, particularly those between the ages of 18 and 30. Her findings revealed that students often feel anxious, insecure, and even panicked when separated from their devices. This growing reliance leads to emotional volatility, including irritability, impatience, and increased levels of stress. Such behavioral symptoms are indicative of digital addiction, a condition recognized by mental health professionals.

Singh & Samah (2018) similarly identified negative psychological effects among medical students. The majority of respondents reported using their smartphones for over three hours daily, primarily for social media. This pattern of usage correlated with feelings of mental fatigue, a short attention span, and difficulty managing academic stress. The researchers noted a concerning lack of awareness among students regarding the psychological toll of their digital habits. Students tend to view their devices as essential tools, unaware of the subtle, long-term psychological effects.

Further exacerbating these mental health issues is the loss of sleep due to late-night smartphone use. As Nalini (2020) observed, students who use their devices well into the night suffer from poor sleep quality, leading to chronic fatigue, emotional instability, and difficulty concentrating during

the day. Sleep deprivation, in turn, aggravates psychological symptoms such as anxiety, depression, and excessive worry. The cyclical nature of this pattern, where stress leads to more screen time, which then worsens sleep and mental health, forms a dangerous feedback loop.

Importantly, many students also equate smartphone use with social validation, e.g., checking for likes, comments, or messages, which reinforces compulsive behavior. This need for digital affirmation may foster a fragile sense of self-esteem that is overly dependent on virtual interactions, rather than real-world achievement or relationships.

Critically, while smartphones can offer mental health resources such as mindfulness apps or support groups, their addictive design and constant connectivity often outweigh these benefits. The evidence strongly suggests that schools and parents should implement digital literacy programs that include mental health education, helping students understand how overuse can affect their emotional well-being and academic resilience.

2.3 Physical Health Symptoms

The physical health implications of excessive smartphone use are profound and often underestimated. Nalini (2020) provided an in-depth look at how smartphone overuse, especially during nighttime, affects students' physical health. One of the most direct consequences is chronic sleep deprivation. Students stay up late engaging with social media, watching videos, or gaming, disrupting their circadian rhythms and reducing overall sleep quality. Over time, this leads to persistent fatigue, reduced concentration, and a drop in academic performance.

Sleep is critical for cognitive functioning, and its disruption is linked with long-term health risks such as hypertension, diabetes, cardiovascular

disease, and even depression. The physical tiredness observed in students is often compounded by mental burnout, creating a dual burden on their ability to function effectively throughout the day.

Poor posture due to prolonged smartphone use is another emerging concern. Students who use phones for extended periods are at risk of developing musculoskeletal issues, particularly neck and back pain (commonly referred to as “text neck”), as well as carpal tunnel syndrome. These physical strains, while seemingly minor, can become chronic if left unaddressed.

Additionally, the blue light emitted from smartphone screens suppresses melatonin production, which regulates sleep. Exposure to this light in the evening can shift the body's natural clock, delaying sleep onset and reducing the duration and quality of sleep. Many students report feeling lethargic during the day despite having been in bed for hours, which points to disrupted sleep cycles rather than mere lack of rest.

Physical symptoms such as headaches, blurred vision, and eye strain, also known as Computer Vision Syndrome (CVS), are frequently reported among students who engage in prolonged smartphone use. These symptoms, combined with mental fatigue, reduce students' capacity for sustained academic engagement and contribute to lower physical and cognitive endurance.

Given the cumulative impact of these physical symptoms, educational institutions should consider integrating health awareness campaigns that promote ergonomic smartphone use, limit screen time, and emphasize the importance of sleep hygiene. While technology is indispensable in modern education, its misuse has clear and measurable health consequences that demand urgent attention.

2.4 Social Interactions

Smartphone usage has significantly altered the nature and quality of students' social interactions. Both Singh & Samah (2018) and Nalini (2020) identified a growing trend of reduced face-to-face communication, as students increasingly rely on digital platforms for social engagement. While smartphones facilitate connectivity, they also contribute to social isolation by replacing in-person interactions with virtual ones. This substitution often leads to weaker interpersonal relationships and a decline in essential social skills such as empathy, conflict resolution, and active listening.

Nalini (2020) particularly emphasized that students aged 18 – 30, the demographic most engaged with smartphones, are increasingly unable to maintain real-world relationships without digital mediation. This can lead to a phenomenon known as “pubbing” where individuals ignore those physically present in favor of engaging with their phones. Such behaviors damage peer relationships and erode trust within social groups.

Babayo & Mohammed (2022) highlighted a paradox in smartphone use: while devices enable communication among students and help in sharing academic materials, they are also used extensively for non-academic purposes in social settings, such as viewing WhatsApp statuses or browsing media. This duality reveals a blurring of boundaries between meaningful academic collaboration and superficial digital engagement.

Furthermore, the constant online presence required by social platforms fosters a fear of missing out (FOMO), which pressures students to remain continually connected. This often leads to compulsive checking behaviors, reduced attentiveness in social situations, and a diminished capacity for meaningful engagement. Social media-driven interactions

tend to be more curated and performative, contributing to unrealistic social comparisons and decreased self-esteem.

Critically, these altered patterns of interaction affect group dynamics in classrooms, clubs, and peer networks. Students may find it harder to collaborate in group settings or feel anxious during face-to-face communication. This represents a shift not only in how students interact but also in their social development trajectory. In Somalia, where social ties and in-person networks traditionally underpin community cohesion, smartphones may supplement, but cannot fully replace, conventional communication. This tension between digital connectivity and eroded interpersonal skills poses unique challenges in a society where oral culture and collective identity remain central.

Addressing these issues requires a conscious effort by schools and communities to promote in-person engagement through workshops, digital detox initiatives, and awareness campaigns on the importance of authentic social interactions. Technology, while a powerful connector, must be used with balance to prevent the erosion of vital social competencies.

3. Research Methodology

This study employed a quantitative, cross-sectional survey design to examine the relationship between smartphone usage patterns (independent variable) and four dependent variables: (1) academic performance, (2) psychological well-being, (3) physical health, and (4) social interaction. This design allowed for the measurement of key variables while controlling for demographic factors, ensuring validity and reliability, consistent with similar studies in educational technology (Babayo & Mohammed, 2022; Omar, 2023).

The target population consisted of 315 students from two public secondary schools in Jalalaqsi District, Hiran, Somalia. These schools were selected through purposive sampling to represent urban Somali adolescents. Using Slovin's formula with a 5% margin of error standard in social science research a sample size of 176 students was determined. A stratified random sampling method ensured proportional representation by gender (111 males (63%), 65 females (37%) and grade level (Grades 9 – 12; see Table 1 for distribution).

A 25-item Likert-scale questionnaire was used to measure students' attitudes toward smartphone usage on their habits, academic performance, psychological well-being, physical health symptoms, and social interaction patterns. Responses were analyzed using Statistical Package for the Social Sciences (SPSS). The analysis used the mean (M) and standard deviation (SD) to summarize the findings.

4. Results: Smartphone Usage Patterns and Their Effects

This section presents the study results. The data was collected through a survey of 176 students from two secondary schools, focusing on three demographic factors relevant to the study: gender, age, and grade level.

The first demographic variable was gender, where respondents were asked to classify themselves as either male or female. Of the 176 respondents, 111 (61.1%) were male, and 65 (36.9%) were female. Thus, the number of male respondents exceeded that of female respondents. In Table 1 below, age is the second factor used to gather the demographic data relevant to the research. The second section of the table shows that 27 respondents (15.3%) were between the ages of 13-15 years, 114 respondents (64.8%) were between the ages of 17-19 years, and 35 respondents (19.9%) were 19 years old or older. Therefore, the most of the respondents of this study were the age between 13 and 15 years.

Table 1: Demographic Information

Variable		Frequency	Percentage
Gender	Male	111	63.1
	Female	65	36.9
Total		176	100
Age	13-15 years	27	15.3
	17-19 years	114	64.8
	19 years or above	35	19.9
Total		176	100
Grade	Grade 9	28	15.9
	Grade 10	24	13.6
	Grade 11	62	35.2
	Grade 12	62	35.2
Total		176	100

As shown in Table 1 above, grade level was one of the three factors used to collect the demographic information relevant to the study. It was the third demographic variable, where respondents were asked to specify their grade level. Out of 176 respondents, 28 (15.9%) were in grade 9, 24 (13.6%) were in grade 10, 62 (35.2%) were in grade 11, and 62 (35.2%) were in grade 12. As show the above study the most of the respondents were grades 11 and 12. Students in Grades 11 and 12 accounted for 70.4% of the sample, reflecting higher smartphone ownership among older adolescents in Jalalaqsi.

4.1 Smartphone Usage Patterns

According to Table 2, respondents rated Statements 1 and 5 as "Low Frequency," indicating that students are reluctant to spend more time on their smartphones and rarely use them for educational purposes, as reflected by mean scores of $M = 2.34$ and $M = 2.49$, respectively. In contrast, students typically bring their smartphones to school and

frequently check text messages and social media posts during school hours, distracting their attention while the teacher is explaining the lesson. This behavior is reflected in mean scores of $M = 2.93$ and $M = 2.98$.

Table 2: Smartphone Usage Frequency

	Statement	Mean	SD	Interpretation
1	I use my smartphone for more than 4 hours a day.	2.34	1.193	Low Frequency
2	I use my smartphone mainly for Entertainment purposes.	3.93	1.093	High Frequency
3	I bring my smartphone to school regularly	2.93	1.487	Moderate Frequency
4	I often use my smartphone during school hours, even when it is not allowed.	2.98	1.545	Moderate Frequency
5	I frequently use my smartphone for educational purposes	2.49	1.586	Low Frequency

As table 2 above, the analysis revealed significantly higher engagement with entertainment-related smartphone use ($M = 3.93 \pm 1.09$) compared to educational purposes ($M = 2.49 \pm 1.59$), with Statement 2 ("I use my smartphone mainly for entertainment purposes") receiving a "High Frequency" rating contrast to Statement 5 ("I frequently use my smartphone for educational purposes") receiving a "Low Frequency". These findings indicate a predominant pattern of recreational smartphone use among participants. Furthermore, 64% of respondents reported daily smartphone usage exceeding four hours. While moderate levels of in-school smartphone use were observed (Table 2), the data demonstrate substantially lower utilization for academic activities relative to entertainment.

4.2 Effects on Academic Performance

Table 3: Effects of Smartphone Use on Academic Performance

No	Statement	Mean	SD	Interpretation
1	I spend more time on social media than on academic tasks, which affects my performance negatively.	3.83	1.123	Agree
2	I have improved my academic performance through the educational apps and resources available on my phone.	2.69	1.472	Neutral
3	Using a smartphone has increased distractions and negatively affected my academic performance.	3.57	1.487	Agree
4	I feel that smartphone use diminishes my ability to focus during study sessions or classroom learning.	2.32	1.248	Disagree
5	I have neglected academic assignments due to excessive smartphone usage.	2.28	1.174	Disagree

As shown in Table 3, respondents rated Statements 1 and 3 as "Agree," indicating that students primarily use their smartphones for social media and entertainment, which increases distractions and negatively affects their academic performance. This is reflected by the mean scores of $M = 3.83$ and $M = 3.57$, respectively. In contrast, responses to Statement 2 were rated as "Neutral," suggesting that while smartphones may

somewhat enhance academic performance; their excessive use can lead students to neglect academic assignments.

Notably, respondents rated Statements 4 and 5 as "Disagree," indicating that smartphone usage rarely diminishes students' ability to focus during study sessions or classroom learning, with mean scores of $M = 2.32$ and $M = 2.28$, respectively.

Overall, Table 3 highlights that while smartphone use for entertainment and social media increases distractions and leads students to neglect assignments ultimately harming academic performance it is also evident that smartphones can offer academic benefits when used appropriately. As indicated in Table 3, social media distractions ($M = 3.83$) had a stronger negative impact compared to the benefits gained from educational apps ($M = 2.69$).

4.3 Psychological and Physical Health Outcomes

As shown in Table 4 below, excessive smartphone users (more than 4 hours per day) reported significantly higher levels of stress ($M = 3.30 \pm 1.41$) and physical discomfort ($M = 3.35 \pm 1.49$) compared to moderate users ($M = 2.10 \pm 1.20$), with sleep disruption being the most severe symptom ($M = 3.74 \pm 1.13$).

According to Table 4, respondents rated Statements 1 and 4 as "Neutral," indicating that excessive smartphone use for social media cause mental stress and physical discomfort, such as eye strain, headaches, and neck pain, with mean scores of $M = 3.30$ and $M = 3.35$, respectively. In contrast, respondents rated Statement 2 as 'Disagree' and Statement 5 as 'Neutral,' suggesting that smartphone use for social media has a minimal negative impact on self-esteem and mental health, and that students do not feel significant stress when without access to their smartphones.

These findings are reflected in mean scores of $M = 2.35$ and $M = 2.55$. Additionally, respondents rated Statement 3 as "Agree," linking excessive smartphone use to poor sleep quality, with a mean score of $M = 3.74$.

Table 4: Effects of Smartphone Use on Psychological Well-being and Physical Health

	Statement	Mean	SD	Interpretation
1	I feel mentally stressed or anxious after excessive use of my smartphone, particularly social media.	3.30	1.412	Neutral
2	I find social media usage has a negative effect on my self-esteem and mental health.	2.35	1.265	Disagree
3	Excessive use of smartphone has been linked to poor sleep.	3.74	1.125	Agree
4	Excess use of smartphones has caused me physical discomfort (eye-strain, headache or neckpain)	3.35	1.493	Neutral
5	I feel stressed when I do not have access to my smartphone.	2.55	1.291	Neutral

Overall, Table 4 emphasizes that excessive smartphone use has a negative impact on both the physical and mental health of students, particularly in terms of sleep quality and physical discomfort. Furthermore, as shown in Table 5 below, while social media use enhanced feelings of connection ($M = 3.79$), it simultaneously contributed to feelings of isolation ($M = 3.26$).

4.4 Social Interaction Trends

As presented in Table 5, respondents rated Statements 1, 3, and 4 as "Occasionally," suggesting that students experience emotional fulfillment when interacting with friends or peers on social media. They feel closer to their friends, yet the use of smartphones and social media also exposes them to negative influences. This is reflected in mean scores of $M = 3.51$, $M = 3.79$, and $M = 3.66$, respectively.

*Table 5: Effects of Smartphone Use
on Social and Behavioral Interaction*

	Statement	Mean	SD	Interpretation
1	I experience emotional fulfillment when interacting with friends or peers on social media.	3.51	1.219	Occasionally
2	Smartphone have reduced my face-to-face interactions with family and friends.	3.12	1.392	Sometimes
3	I feel closer to my friends because smartphones allow us to communicate easily.	3.79	1.056	Occasionally
4	Social media and smartphone expose me to negative influences.	3.66	1.277	Occasionally
5	I feel lonely or isolated if I don't use my smartphone for a while.	3.26	1.512	Sometimes

Conversely, Statements 2 and 5 were rated as "Sometimes," indicating that smartphone use has led to a reduction in face-to-face interactions with friends. Students also reported feelings of loneliness or isolation

when they are not using their smartphones, as shown by mean scores of $M = 3.12$ and $M = 3.26$.

In summary, students increasingly rely on online communication, feeling less need to meet friends in person. Over time, this shift has contributed to reduced face-to-face social interactions, ultimately leading to greater social silence and feelings of isolation. Additionally, the data reveal that female students reported higher levels of stress from social media use ($M = 3.6$) compared to male students ($M = 3.1$), while seniors (Grade 12) reported more frequent educational use of smartphones ($M = 2.9$) than their younger peers ($M = 2.3$).

5. Discussion

This study examined smartphone usage among Somali secondary school students, using students in Jalalaqsi, Hiiraan Region, Somalia, as a case study, and identified four key patterns: predominant use for entertainment, compromises in academic performance, health-related impacts, and multifaceted social effects. The findings across all areas aligned with the time-spent mediation model, indicating that prolonged smartphone use influences both the perceived benefits and the associated risks. The following thematic analysis explores each of these patterns in detail, drawing links to existing research and contextualizing the findings within the Somali educational and cultural landscape.

5.1 Entertainment-Dominated Use

The data indicated that students primarily used smartphones for entertainment and social media ($M = 3.93$), reflecting a pattern of gratification-seeking behavior. This finding is consistent with the Uses and Gratifications Theory (Katz et al., 1973), which suggests that individuals engage with media to satisfy specific emotional and

psychological needs. In the Somali context, where digital infrastructure remains underdeveloped, students often rely on offline, pre-downloaded entertainment content rather than interactive e-learning tools. In contrast to tech-enabled environments such as Malaysia where access to educational apps is widespread (Singh & Samah, 2018), the students in Somalia in this study lacked structured digital learning alternatives. This imbalance reinforces the dominance of entertainment-related use and highlights the urgent need to diversify and expand accessible educational resources, particularly those designed for low-bandwidth Environment.

5.2 Academic Implications

Although some students reported moderate educational use of smartphones ($M = 2.69$), the data revealed a stronger link between smartphone-related distractions and academic decline ($M = 3.83$). This pattern aligns with Obilor's (2022) findings in Nigeria; however, the even higher rate of entertainment use among Somali students suggests a heightened academic vulnerability. The lack of school-based smartphone policies observed during fieldwork—appears to exacerbate the problem. Furthermore, teachers' limited capacity or awareness in monitoring or managing smartphone use in the classroom highlights broader institutional challenges. In the Somali educational context, where teacher shortages, overcrowded classrooms, and inadequate infrastructure remain persistent issues, unregulated smartphone use may further compromise academic performance unless targeted policy interventions are implemented. However, even if such policies are developed, their implementation will likely be challenging in this context.

5.3 Health Consequences

The findings also revealed significant negative physical and psychological health outcomes associated with excessive smartphone use

most notably sleep disruption ($M = 3.74$) and physical discomfort ($M = 3.35$). These figures exceed those reported in comparative studies, such as in Malaysia, where sleep-related issues were rated lower ($M = 2.9$), underscoring an emerging yet largely overlooked health concern in the Somali context. A general lack of awareness regarding screen exposure's impact on sleep particularly among students who use smartphones late at night calls for targeted awareness campaigns. Additionally, the prevalence of post-conflict trauma and anxiety may drive adolescents to overuse smartphones as a coping mechanism. This dynamic highlights the need for integrated interventions that combine health education and digital literacy, delivered through schools and community health providers.

5.4 Social Consequences

Smartphones were found to foster a sense of emotional closeness among students ($M = 3.79$), echoing global research on digital communication (e.g., Ling, 2012). However, this perceived digital intimacy appears to come at the cost of physical interaction, as students reported reduced face-to-face engagement ($M = 3.12$). This paradox aligns with the Social Displacement Theory (Kraut et al., 1998), which posits that increased online interaction can gradually diminish real-world social connections. In the Somali context, where traditional social structures and community ties are central to adolescent development, such a shift may weaken vital communal bonds. These findings underscore the importance of promoting a balanced approach to digital engagement, one that supports in-person social interaction both in educational settings and within family environments.

5.5 Somali Contextual Factors

Several local factors may exacerbate excessive smartphone use and its negative consequences among Somali secondary school students. These

contextual realities, shaped by infrastructural limitations, social dynamics, and cultural norms, are essential to consider when interpreting the findings and developing effective, context-sensitive interventions.

A. Absence of School Policies on Phone Use: Field observations revealed that most Somali secondary schools lack formal policies regulating student smartphone use during instructional time. Teachers often expressed uncertainty about their authority to restrict phone usage, while school administrators typically intervened only in cases of severe disruption. In the absence of clear guidelines, students frequently used their phones during lessons for non-academic activities, particularly messaging and browsing medial eading to increased distractions and reduced academic engagement. This regulatory gap allows individual behaviors to take precedence over collective learning goals, a challenge that is especially detrimental in already resource-limited classrooms. Without clear boundaries or consistent enforcement, teachers struggle to maintain authority and structure during lessons, which further diminishes instructional quality. Over time, the normalization of in-class smartphone use for non-academic purposes can lead to a decline in academic discipline and overall student performance, making it harder to foster a focused and equitable learning environment.

B. Limited Parental Oversight: While mobile phone ownership is high among Somali adolescents, it is not accompanied by adequate levels of parental digital literacy or supervision. Many parents lack familiarity with app-based screen time management tools or are preoccupied with work and caregiving duties, limiting their ability to monitor their children's smartphone use. In households with multiple children, the challenge of consistent oversight becomes even more pronounced. This lack of structured parental guidance creates an unregulated digital environment in which adolescents are left to self-manage their usage—something many

are not developmentally prepared to do. As a result, excessive use and exposure to potentially harmful content become increasingly common.

C. Unreliable Internet Access: Despite growing mobile phone penetration, Somalia continues to struggle with widespread internet instability and uneven broadband access. Many students face slow connection speeds, frequent service interruptions, and high data costs, making consistent online access difficult. As a result, they often rely on pre-downloaded content, such as videos, music, and offline games for entertainment. This reliance reduces opportunities for real-time engagement with educational platforms or structured digital learning, reinforcing a pattern of entertainment-centered smartphone use. Consequently, the existing infrastructure gap redirects smartphone usage away from productive academic purposes toward passive, non-educational consumption.

D. Socioeconomic Pressures and Symbolic Value of Phones: In urban and semi-urban areas of Somalia, owning a modern smartphone is often regarded as a symbol of social status among youth (This trend seems to be extending to rural areas as well). The pressure to conform to peer expectations can lead students to prioritize smartphone use, even at the expense of their academic, health, or social well-being. This symbolic value drives ongoing engagement with popular platforms like TikTok and WhatsApp, increasing the social pressure to maintain a visible digital presence. As a result, even students with limited financial resources may overuse their phones or reallocate funds to sustain their online visibility, thereby reinforcing both social and economic inequalities.

Collectively, these findings highlight smartphones as both a lifeline and a liability in Somali education. While they help bridge gaps in digital access, unregulated use exacerbates academic, health, and social issues. The next step is to translate these insights into targeted interventions.

6. Conclusion

This study offers empirical evidence that Somali adolescents' smartphone use follows a time-spent mediation model, with entertainment use driving negative academic, health, and social outcomes. While smartphones offer opportunities for connection and learning, structured policies are urgently needed to mitigate the associated harms.

The purpose of this study was to investigate the effect of smartphone usage on the academic performance, physical and mental health, and social interactions of secondary school students in Jalalaqsi District, Hiran, Somalia. According to a survey completed by 176 respondents from two secondary schools in this district, both positive and negative effects were observed across these areas. In terms of academic performance, the study found that while smartphones offer some educational benefits, such as access to learning apps and digital resources, their primary use for social media and entertainment causes distractions during school hours. This diversion of attention, along with the neglect of academic tasks, negatively affects students' academic outcomes and learning progress.

The study also emphasizes how excessive smartphone use can cause physical discomfort, including neck pain and eye strain, which may impact both mental and physical health. Furthermore, it was found that prolonged social media use contributes to mental stress and poor sleep quality at night, despite some respondents reporting minimal effects on self-esteem or stress when separated from their smartphones. On the social front, smartphones facilitate emotional connections and ease of communication with peers, enhancing students' sense of social closeness. However, increased reliance on online interactions has reduced face-to-face communication with the broader community.

In conclusion, even though smartphones provide several benefits such as improved communication and access to educational resources, excessive use for social media and entertainment negatively impacts students' social connections, academic performance, and health. It is essential to promote responsible smartphone use among students, encouraging their use for educational purposes while mitigating their negative effects on health and social relationships. Schools, parents, and communities should collaborate to raise awareness and implement strategies that promote healthier smartphone habits to ensure students' well-rounded development.

Despite the valuable insights this study offers, several key limitations must be acknowledged. First, the data were based solely on self-reported measures of smartphone use, which are inherently susceptible to bias. Students may have underestimated their screen time or misrepresented certain behaviours due to social desirability or limited self-awareness, potentially compromising the accuracy of the findings. To address this, future research should incorporate data from additional stakeholders such as parents and teachers to provide a more comprehensive and objective account of smartphone usage. Second, the sample was drawn exclusively from two urban secondary schools in Jalalaqsi, which limits the generalizability of the findings to the broader Somali student population. Given that digital access, technological infrastructure, and cultural norms may vary considerably across different regions of Somalia, future studies should aim to include more geographically and socioeconomically diverse samples to enhance external validity.

7. Recommendations

Based on the findings of the study, the following multi-stakeholder strategies are recommended to promote responsible smartphone usage among Somali secondary students.

The Ministry of Education, Culture, and Higher Education (MOECHE) of the Federal Government of Somalia, along with the education ministries of the Federal Member States, leads the formulation and oversight of policies regulating smartphone use among students, specifically targeting social media and entertainment applications. These policies should provide clear guidelines for appropriate smartphone use both within and outside school environments. This may include restrictions on access to non-educational apps during school hours, the integration of monitoring systems in educational institutions, and potential partnerships with telecom providers to limit access to entertainment apps for student-registered devices. Additionally, incorporating digital literacy and responsible smartphone use into the national curriculum would help students better understand the consequences of digital overuse and develop healthier usage habits.

School principals and teachers also have a crucial role to play in shaping student behavior and creating a controlled learning environment. They should work together to establish school-level rules that limit or restrict smartphone use for non-academic purposes during school hours. Moreover, schools should conduct regular awareness programs for both parents and students to educate them on the positive and negative impacts of smartphone usage, particularly the consequences of excessive engagement with social media and entertainment platforms. These programs can be enhanced by involving mental health professionals, educators, and digital safety experts. Schools may also benefit from creating phone-free zones or designated usage periods, as well as incorporating structured guidance into extracurricular activities to promote healthier digital habits.

Parental guidance is essential for maintaining a balanced approach to smartphone usage at home. Parents can adopt practical strategies to monitor and control device use at home, such as setting device-free times

during study hours, meals, or family time. This helps promote healthier habits, improve academic focus, and encourage more meaningful face-to-face interactions. By actively involving parents in the process, a supportive environment can be created that encourages the positive use of smartphones while minimizing distractions and potential risks.

Students must take responsibility for managing screen time and prioritizing academic success. They should monitor social media and entertainment use, consciously reducing it, and instead leverage smartphones as educational tools, such as accessing e-learning platforms, educational apps, digital libraries, and online forums. Time management and productivity apps can help regulate usage and maintain focus on studies. Peer mentoring initiatives further support a positive environment, where students encourage one another to use technology in ways that enhance learning. By fostering mindful, goal-oriented smartphone use, students can balance digital engagement with academic priorities, improving both their educational outcomes and overall development.

By adopting these structured strategies, Somalia can leverage the educational potential of smartphones to enhance learning opportunities while simultaneously minimizing the associated risks to academic performance, physical health, and social well-being.

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About the Author

Abdukadir Sugow Amin holds a degree in Public Administration and has over ten years of professional experience in the education and humanitarian sectors. He began his career as a school teacher, gaining a foundational understanding of community needs, before transitioning into humanitarian work. Since 2021, he has served as a Field Officer for relief projects in Jalalaqsi district. His expertise in education, livelihood support, and community-level intervention informs his research interests in sustainable development and community resilience.

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