



Effects of Mobile Phone Usage among Primary School Students in City Faisalabad

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ABSTRACT

The mobile phone is a modern device that has spread to the world's farthest corners and into the lives of people of all ages. Mobile phones have developed into much more than just a communication tool due to technological advancements. The present research was conducted to investigate the impact of social media usage on academic performance among school students. The study employed quantitative methods and conducted in Faisalabad. According to the School Information System (SIS), there were 111 public primary schools and 2501 PSTs/ESEs. The study comprised all primary school students of the city Faisalabad. Four primary schools namely, GPS Gulistan Colony, GPS 225 RB, MalkhahWala, GPS MC Ramzan Abad and GGPS MC Gulshan Colony were selected randomly. One hundred twenty (120) primary school students (30 from each school) were randomly gathered from the study area. It was found that only 27.5% of primary school students had personal cell phones, while majority of them did not have direct access to cell phones. More than half (51.7%) of the respondents spent up to one hour daily on cell phones. The majority of students (80.0%) perceived that excessive mobile phone usage was contributing to behavioral issues in the classroom, that it adversely impacted their academic performance (74.2%), and that they predominantly utilized their phones for non-academic purposes (70.0%). The overuse of mobile phones significantly impairs children's verbal communication (85.8%), diminishes engagement in group activities, and contributes to social isolation (70.8%). -sConversely, 68.3% of respondents agreed that mobile phones are beneficial learning tools when used appropriately, while 76.7% said that restricting cell phone usage enhances pupils' social behavior. The findings indicated that excessive mobile phone use adversely impacted on students' physical activity (90%), physical health (85.0%), and sports participation (86.7%), while also contributing to increased fatigue (82.5%). There should be need to promote students' participation in consistent physical exercise and limit their cell phone use during study hours.



Introduction

The mobile phone is a very helpful instrument in every field, including law, business, sports, culture, and study. Nonetheless, addiction may arise from the excessive use and misuse of this beneficial instrument. The contemporary era is defined by communication and information, enabling swifter connections to the external world than in previous times, facilitated by advanced communication infrastructure. The predominant kind of technology is the cell phone, the utilization of which has markedly escalated in recent years owing to cultural influences. Clinicians, sociologists, and training specialists are considering mobile phone reliance as a mental health problem induced by contemporary technology. Excessive usage may be seen as a manifestation of technological addiction. The user has developed such a reliance on their phone that they feel incapable of functioning without it, and research has shown that prolonged usage of the gadget may adversely affect both mental and physical health (Igarashi *et al.*, 2018).

There has been a steady increase in the volume and variety of new electronic media used by children and teenagers since the turn of the century. However, this is mostly related to the services of communication and entertainment that are provided by these kinds of gadgets (Tomczyk and Kopecký, 2016). In today's world, young people's lives would be incomplete without their mobile phones (Ruiz *et al.*, 2016). According to the international data on youth and media reports, there has been a staggering surge in the usage of mobile phones, particularly among younger age groups (Besolíet *al.*, 2016). According to Lange and Osiecki (2014), the first engagement with this device often begins at the age of 7. This is because digital culture has caused a shift in young people's habits (Cornish, 2014).

Previous study indicates that interpersonal interactions may be disrupted for several reasons, with excessive mobile phone use being a primary factor. Divecha (2017) asserts that each generation of adolescents is influenced by contemporary social, political, and economic events. Contemporary adolescents are distinct in that they represent the first generation whose existence is permeated by mobile technology and social media. Certain academics have shown that mobile phone use may impact individuals' lives both favorably and badly.

Consequently, there has been a significant rise in the utilization of mobile phones among children and adolescents in the initial phases. This increase is linked to two variants of its application: the communicative skill, which emphasizes calls, messages, and predominantly, the utilization of social networks; and the recreational aspect, which pertains to the consumption of multimedia content and the engagement in various mobile games (Ruvalcabaet *al.*, 2015). The emergence of phenomena like YouTubers, which transform young individuals into both consumers and creators of content, has resulted in heightened mobile device use rates in recent years (Kopeckýet *al.*, 2020).

With the advent and widespread use of new portable devices like smartphones and tablets, which may give on-the-go internet access, the information and communication environment has seen a dramatic shift in the past decade. Among British youngsters in the 12–15 age bracket, 83% have a smartphone and 59% have a tablet, suggesting that smartphone ownership is on the rise. Of the youths in this age bracket, as many as 64 percent own three or more electronic gadgets. Internet access, games, apps, education, communication, and social media can all be accessible on a child's phone, thanks to the proliferation of both ownership and multifunctioning features (OFCOM, 2019).

In developed nations, the use of mobile phones by kids of school age has been stigmatized as detrimental to their involvement and mental health, as well as disruptive to their study and a contributor to cyberbullying and excessive internet use (Duke & Montag, 2017; Bennett, 2020). It has been argued by politicians that the use of mobile phones by students is detrimental to their mental health, increases the incidence of cyberbullying, and distracts them from their academic work (Selwyn & Aagaard, 2021).

Need for the study

All aspects of a child's development such as physical, cognitive, psychological and emotional are most heavily concentrated throughout childhood. Piaget classified the era of childhood into three distinct stages: early childhood, the middle childhood, and the adolescent youth. The physical, emotional, and psychological growth of a kid all take place during this time, which is known as the transitional phase. The increasing prevalence of mobile phones among primary school students in District Faisalabad necessitates a comprehensive study to understand their effects on educational outcomes and overall development. Mobile phones offer unprecedented access to information and learning resources and pose significant risks such as distraction, reduced academic performance, and potential health issues related to excessive use. Previous studies indicate that students often prioritize entertainment over educational content when using mobile devices, leading to a decline in their learning independence and responsibility toward academic tasks (Salsabila, 2024; Saleem and Bakhsh, 2017). Understanding these dynamics is crucial for educators and policymakers to develop effective strategies that harness the positive aspects of mobile technology while mitigating its negative consequences. This research examines the influence of mobile phones on the education and health of school-aged children, as they engage in various bad and good behaviors throughout this developmental stage. Mobile technology exerts a dual influence on child development. Therefore, the current study will examine how mobile phone usages affect primary school students in Faisalabad city.

Objectives

1. To analyze the effects of mobile phone usage on the academic performance of primary school students.
2. To explore the impact of mobile phone usage on students' health.
3. To propose some suggestions based on the findings.

List of hypothesis

Hypothesis # 1:

H₁: There is a relationship between gender and the negative effect of mobile phones on students' academic performance

H₀: There is no relationship between gender and the negative impact of mobile phones on students' academic performance

Hypothesis # 2:

Main hypothesis: Parental educational level influences the effect of mobile phones on children's academic performance.

Hypothesis 2.1

H₁: Fathers' educational level influences the effect of mobile phones on children's academic performance.

H₀: Fathers' educational level does not influence the effect of mobile phones on children's academic performance.

Sub Hypothesis 2.2

H₁: Mothers' educational level influences the effect of mobile phones on children's academic performance.

H₀: Mothers' educational level does not influence the effect of mobile phones on children's academic performance.

Hypothesis # 3:

H₁: Spending more time on cell phones has a negative impact on students' academic performance.

H₀: Spending more time on cell phones has no impact on students' academic performance.

Review of Literature

Iqbal *et al.* (2022) assessed the impact of mobile phones on certain aspects of children. Children and adolescents are progressively relying on their mobile devices for entertainment, education, self-expression, and maintaining communication with friends and family. Extended usage of mobile phones might adversely affect youngsters. The research comprised 399 individuals aged 2 to 12 years. Among youngsters who utilized mobile devices for over 2 hours, 50.3% experienced sleep durations of fewer than 6 hours daily, while 68.9% exhibited disruptions in their sleep patterns. 33.9% of youngsters reported wearing glasses, whereas 34.8% showed an increase in weight. Concerning social contact and conduct, 39.9% of youngsters exhibited impolite behavior towards their parents, 53.2% of children utilizing mobile devices exhibited behavioral problems such as isolation, therefore evading social interactions, while 77.3% showed addiction to mobile devices, displaying rage and frustration when these devices were removed. The usage of mobile phones adversely affects several facets of a child's life.

To explore the effects of social media usage among school-age children on their behavioral health and academic performance, Rafiq-uz-Zaman and Malik (2025) conducted a literature review from 2016 to 2024. The study pointed out that children's reliance on digital platforms has brought opportunities and behavioral issues for the education system. Students' psychological well-being and development, socialization, concentration and academic achievement can be affected by overuse of mobile phone and social media. It was pointed out that an excessive use of digital devices can be a source of distraction, disengagement from learning, and/or behavioural issues for learners. Digital platforms can facilitate communication, information sharing and learning activities, when implemented correctly and guided by an educational framework. The study suggested the promotion of balanced and responsible use of technology among students to

reap the maximum educational benefits while keeping the adverse impacts of excessive dependence on mobile technology to a minimum (Rafiq-uz-Zaman & Malik, 2025).

In an exploratory study, Bukhari et al. (2026) examined parents' perceptions of children's screen time, developmental implications, and attempts to mediate their screen time among Pakistani families. The study centred on the issue of the increasing exposure of children to digital devices and the parent's role in controlling digital device use. The findings highlighted the potential impact of excessive screen time on developmental patterns, daily routines and behavioural outcomes in children, and the role of effective parental monitoring and mediation in the development of children's healthier digital habits. The study emphasized the need for parental awareness, supervision, and the healthy use of digital media, including the ability to monitor younger children's media use and self-regulate their behavior. The research has significant implications for understanding mobile phone use among primary school students as the use of mobile phones is significantly influenced by family environment, parental guidance and control measures (Bukhari et al., 2026).

Rafiq-uz-Zaman (2023) discussed digital literacy and students' learning outcomes, highlighting how digital literacy is becoming more crucial in today's education. The study provided explanations of the ways in which digital devices, and mobile phones in particular, can be used as valuable learning tools, if the students have good digital skills and are using them in an educational learning context. Digital Literacy helps students access educational resources, enhance information processing skills and be effective users of technologically enhanced learning environments. The study also recommended that poor digital awareness can lead to poor technology application, with students having mobile devices for entertainment purposes only and not for educational development. Thus, building up digital literacy among the students is crucial as the use of mobile phones should be used constructively in academic performance instead of being a distraction (Rafiq-uz-Zaman, 2023).

Rafiq-uz-Zaman et al., (2026) conducted a systematic review and meta-analysis of the impact of online and blended learning on student academic achievement in Pakistan. The study pointed out the increasing application of digital technologies in the context of education and showed that the use of technologies in learning space can improve the learning access for students. The results showed that digital tools can have a positive impact on academic engagement if used with appropriate educational strategies. But, the effectiveness of technology is reliant on students' readiness, support of the teacher, infrastructure availability, and responsible usage patterns. The findings have implications for the research of mobile phones in primary schools as the same can be beneficial in the right hands with educational guidance and monitoring, but can also pose problems if used without educational guidance and monitoring (Rafiq-uz-Zaman et al., 2026).

Rafiq-uz-Zaman (2025) delved into the future of artificial intelligence and digital transformation in the educational landscape, emphasizing the growing influence of cutting-edge technologies on teaching and learning. Opportunities and challenges of technology use in educational settings were reviewed. Digital technologies can facilitate access to information, support personalized learning and enrich learning experiences, but poorly managed digital technology use can present problems of dependency, misuse, and decreased attention to learning. The study highlighted the need to educate students and build up responsible use of technology and awareness of it. In the primary education setting, these findings indicate that the use of mobile phones must be regulated carefully with the cooperation and collaboration of a school, teachers and parents so

that technology will be used as a facilitator for children's educational development, rather than negatively impacting on their educational and social development (Rafiq-uz-Zaman, 2025).

Wang et al. (2023) examined the impact of smartphone use on the perceived academic achievement of primary school children. The study investigated the correlation between smartphone use and academic achievement among fifth and sixth students in Taiwan. Multiple background factors, including parental control and students' self-regulation, were also examined. The results provide novel perspectives on student perceptions of smartphone use and its effects on academic achievement. The behavior associated with smartphones was connected with academic success. The kids in the high smartphone use group academically surpassed those in the low smartphone usage group. This outcome suggests that smartphone use may create a disparity in the learning chances of primary school kids. This may be elucidated as follows: Elevated smartphone use indicates that the participants had the time and opportunity to engage with cellphones. In contrast, little smartphone use indicates that the participants lacked enough time and opportunity for this objective. Students' academic achievement may be negatively impacted by limited access possibilities.

Dorriset *al.* (2024) conducted a review to examine the utilization of mobile devices in primary education globally, specifically to assess how activities performed with these devices in primary classrooms may influence students' reading and numeracy achievement. The review concluded that the specific interventions and studies examined indicate that mobile device usage in the classroom significantly enhances literacy and numeracy outcomes for the participating children, suggesting favorable implications for their ongoing application in primary education. Nonetheless, considering the aforementioned problems with risk of bias evaluation and the varying situations, interventions, and treatment conditions and intensities, the results should be regarded cautiously. The study advocates for further comprehensive research to elucidate effective strategies, contextual factors, and target demographics regarding the utilization of mobile devices in educational assistance.

Iqbal *et al.* (2024) evaluated the impact of smartphone use on the academic performance of students at Sahiwal Medical College. A cross-sectional research approach was used. A validated questionnaire was sent to 114 undergraduate students in the first and second years of the MBBS program. The majority of participants were female (78.4%), and most students used smartphones for two to six hours daily (66.7%). No statistically significant correlation was seen between smartphone use and pupils' academic achievement. Conclusion: No correlation exists between smartphone use and the academic achievement of undergraduate medical students.

Jabbaret *al.* (2025) examined the correlation between students' mental health (MH) and mobile phone addiction (MPA), responding to increasing apprehensions over the effects of excessive phone use on school-aged youngsters. A quantitative research methodology was used to gather data using a standardized questionnaire, which was then evaluated using Cronbach's Alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and factor loadings to ascertain construct validity and reliability. Structural equation modeling (SEM) was used to assess the influence of MPA on MH. The results indicate that mobile phone addiction accounts for 61.5% of the variation in mental health ($R^2 = 0.615$), demonstrating a robust positive correlation between mobile phone addiction and mental health disorders ($\beta = 0.784$, $p = 0.000$). This suggests that excessive mobile phone use adversely impacts students' mental health, perhaps resulting in stress, anxiety, and worse academic performance. The research underscores the need

for digital wellness programs and strategies to encourage appropriate mobile use and reduce screen time. Concentrating on adolescents in educational settings enhances comprehension of the psychosocial and academic ramifications of MPA, providing essential insights for policymakers, guardians, and educational entities. The findings highlight the need to promote conscious phone use to protect students' mental health. Future study should investigate the long-term consequences and devise focused methods to alleviate the detrimental effects of cell phone addiction. This research underscores the need to treat MPA to foster improved mental and academic outcomes for adolescents.

Methodology

The current research was conducted in one conveniently selected tehsil of district Faisalabad, and primary school students of city Faisalabad were included in the study's population. The study employed descriptivequantitative research design. According to the School Information System (SIS), there were 111 public primary schools and 2501 PSTs/ESEs. The study comprised all primary school students of the city Faisalabad. Four primary schools, namely, GPS Gulistan Colony, GPS 225 RB I MalkhahWala, GPS MC Ramzan Abad and GGPS MC Gulshan Colony were selected randomly. One hundred twenty (120) primary school students (30 from each school) were randomly gathered from the study area. A sample size of 120 respondents is deemed adequate for agricultural social research, as it allows for meaningful statistical analysis while maintaining feasibility in terms of time and resources (Sekaran and Bougie, 2016).

The researcher designed his own interview schedule in order to accomplish the goal of data collecting. Collected data were analyzed by using SPSS and descriptive and inferential statistical techniques were used to analyze the data.

Results and Discussion

Table 1: Socio-economic characteristics of the respondents (n = 120)

Socio-economic characteristics	Categories	<i>f</i>	%
Gender	Male	90	75.0
	Female	30	25.0
Father's education level	Illiterate	18	15.0
	Primary-Middle	23	19.2
	Matric	55	45.8
	Above Matric	24	20.0
Mother's education level	Illiterate	24	20.0
	Primary-Middle	29	24.2
	Matric	47	39.2
	Above Matric	20	16.7
Monthly household earning	Up to 50000	30	25.0
	50001-75000	50	41.7
	Above 75000	40	33.3

Gender: Table 1 reveals that three-fourths (75.0%) of the participants were male and one-fourth (25.0%) were females. According to Kabaliet *al.* (2015), the use of cell phones among school-going children at the primary level has increased significantly, with notable gender-based

differences. They observed that boys spend more time on mobile phones for gaming and video content, while girls are likelier to use them for communication and social interaction. Around 75% of children under 13 had access to a mobile device, with usage patterns varying by gender. Similarly, a survey conducted by Common Sense Media (2019) revealed that boys were more engaged in screen-based entertainment, while girls showed a slightly higher preference for educational apps and communication tools. These trends suggest that mobile phone access is widespread among primary school children regardless of gender, gender-specific interests and behaviors influence the nature and purpose of usage.

Father's education level: Table 1 further represents the fathers' education level of the selected school-going children. It was found that only 15.0 percent of fathers were illiterate, 19.2 percent were primary-middle passed and a considerable percentage (45.8%) were matriculated. However, one-fifth of the fathers had above-matric level education.

Mother's education level: Table 1 further represents the mothers' education level of the selected school-going children. It was found that 20.0 percent of mothers were illiterate, 24.2 percent were primary-middle passed and over one-third (39.2%) were matriculated. However, only 16.7 percent of the mothers had above-matric level education.

Monthly household earning: The relationship between household income and students' use of social media is a multifaceted subject that intersects socioeconomic factors with digital engagement. Research indicates that household income can significantly influence both the frequency and nature of social media use among students. Higher-income households typically have greater access to advanced technology and high-speed internet, facilitating more frequent and varied use of social media platforms for educational and recreational purposes. Conversely, students from lower-income households may face limitations in accessing reliable internet and digital devices, which can affect their overall engagement with social media (Divecha, D. 2017). Table 1 represents the earnings of selected students' families. Table discloses that 25.0% of selected students had up to 50000 PKR monthly family earnings, while a vast proportion (41.7%) of the sampled population had Rs. 50001-75000 monthly family income and about thirty-three percent of the selected students had above 75000 PKR monthly family earnings.

Table 2: Classification of the participants concerning time spent on cell phone

Time spent on cell phone	<i>f</i>	Percent
Up to one hour	62	51.7
Over one hour	58	48.3
Total	120	100.0

Table 2 shows that more than half (51.7%) of the respondents spend up to one hour daily on cell phones. However, less than half (48.3%) of the students were spending more than one hour daily on cell phones, using the internet and making calls. According to Wang *et al.* (2011), 45% of the university students acknowledged dedicating 6-8 hours daily to the act of monitoring social media platforms. Additionally, 23% of the respondents reported spending over 8 hours, while 20% allocated 2-4 hours, and a mere 12% devoted less than 2 hours to this particular activity.

Table 3: Ranking of respondents' perceptions about the effects of mobile phone usage on their academic performance

Statements	Mean	S.D.	S.S.	Rank
Excessive usage of cell phones is creating behavioral issues in the classroom.	2.74	0.25	329	1
Academic performance suffered from excessive cell phone usage.	2.67	0.31	320	2
I mostly use phones for non-academic purposes.	2.62	0.36	314	3
Cell phones are valuable devices for learning when used properly.	2.59	0.41	311	4
I am distracted in my schoolwork by using mobile phones.	2.53	0.42	304	5
The usage of cell phones in class should be prohibited.	2.51	0.47	301	6
Mobile phones facilitate students' access to educational information.	2.46	0.55	295	7
Excessive cell phone use adversely impacts my concentration.	2.37	0.52	284	8

Table 3 represents the ranking of respondents' perceptions about the effects of mobile phone usage on their academic performance. Excessive usage of cell phones creates behavioral issues in the classroom, ranked highest, with a mean value of 2.74, a standard deviation (S.D.) of 0.25, and a sum of scores of 329, indicating that it is the most adverse effect of cell phone usage. The mean value of 2.74 indicates that the responses lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category. The statement "academic performance suffered from excessive cell phone usage" (mean = 2.67, S.D. = 0.31, Sum of score = 320), I mostly use phones for non-academic purposes (mean = 2.62, S.D. = 0.36, S.S. = 314) and cell phones are valuable devices for learning when used properly (mean = 2.59, S.D. = 0.41, S.S. = 311) which also shows relatively high effect and ranked 2nd to 4th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category.

Study findings show that the statement "I am distracted in my schoolwork by using mobile phones" (mean = 2.53, S.D. = 0.42, S.S. = 304) and "The usage of cell phones in class should be prohibited" (mean = 2.51, S.D. = 0.47, S.S. = 301) were ranked 5th to 6th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category.

However, the statement "Mobile phones facilitate students' access to educational information" (mean = 2.46, S.D. = 0.55, S.S. = 295) and Excessive cell phone use adversely impacts my concentration (mean = 2.37, S.D. = 0.52, S.S. = 284) are ranked as 7th to 8th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'neutral' category.

Based on the overall findings, it was concluded that excessive usage of cell phones is creating behavioral issues in the classroom and suffered academic performance. It was found that most students used phones for non-academic purposes. However, some students also noted that cell

phones are valuable devices for learning when used properly. Study findings were aligned with those of Kashifet *al.* (2019) who reported that prolonged smartphone usage was highly correlated with behavioral issues and psychological disorders. It has been discovered that children of school age who use smartphones for extended periods of time are much more likely to have behavioral and psychological problems.

Table 4: Ranking of respondents' perceptions of the impact of mobile phone usage on students' physical health

Excessive mobile phone use:	Mean	S.D.	S.S.	Rank
Reduces physical activities	2.87	0.22	344	1
Decrease sports and physical activities in schools.	2.82	0.17	338	2
Affecting physical well-being.	2.79	0.29	335	3
Increases fatigue or tiredness.	2.76	0.28	331	4
Create a headache problem.	2.34	0.60	281	5
Create a sleeping problem.	2.26	0.77	271	6
Increases eye strain.	2.17	0.83	260	7
Contributes to poor posture in students.	2.05	0.99	246	8

Table 4 represents the ranking of respondents' perceptions of the impact of mobile phone usage on students' physical health. Reduces physical activities., ranked highest effects on physical health, with a mean value of 2.87, a standard deviation (S.D.) of 0.22, and a sum of scores of 344. The mean value of 2.87 indicates that the responses lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category. The statement "Decrease sports and physical activities in schools" (mean = 2.82, S.D. = 0.17, Sum of score = 338), "Affecting physical well-being" (mean = 2.79, S.D. = 0.29, S.S. = 335) and "Increases fatigue or tiredness" (mean = 2.76, S.D. = 0.28, S.S. = 331) which shows relatively high effect on physical health and ranked 2nd to 4th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category.

Study findings show that the statement "Create a headache problem" (mean = 2.34, S.D. = 0.60, S.S. = 281) and "Create a sleeping problem" (mean = 2.26, S.D. = 0.77, S.S. = 271) were ranked 5th to 6th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'neutral' category.

Similarly, the statement "Increases eye strain" (mean = 2.17, S.D. = 0.83, S.S. = 260) and "Contributes to poor posture in students" (mean = 2.05, S.D. = 0.99, S.S. = 246) are ranked as 7th to 8th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'neutral' category.

Overall, the findings point to a link between excessive mobile phone usage and a decline in sports, physical education, and physical activity. Overuse of mobile phones also has an adverse effect on physical health and heightens feelings of tiredness. Igarashi *et al.* (2018) also found that prolonged usage of the gadget may adversely affect both mental and physical health

Table 5: Ranking of respondents' perceptions of the impact of mobile phone usage on students' academic health

Excessive mobile phone use:	Mean	S.D.	W.S.	Rank
Reduces focus on study.	2.91	0.10	349	1
Students perform poorly in tests and exams.	2.82	0.16	338	2
Negatively impacts study habits.	2.73	0.27	327	3
Interferes with homework completion.	2.44	0.63	293	4
Shorter attention spans in the classroom.	2.41	0.58	289	5
Reduces motivation for academic success.	2.38	0.58	285	6
Students depend more on mobile phones than books for academic work.	2.31	0.69	277	7

Table 5 represents the ranking of respondents' perceptions of the impact of mobile phone usage on students' academic health. Reduces focus on study is ranked highest effects on students' academic health, with a mean value of 2.91, a standard deviation (S.D.) of 0.10, and a sum of scores of 349. The mean value of 2.91 indicates that the responses lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category. The statement "Students perform poorly in tests and exams" (mean = 2.82, S.D. = 0.16, Sum of score = 338), "Negatively impacts study habits" (mean = 2.73, S.D. = 0.27, S.S. = 327) which shows relatively high effect on students' academic health and ranked 2nd to 3rd, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'agree' category.

Study findings show that the statement "Interferes with homework completion" (mean = 2.44, S.D. = 0.63, S.S. = 293) and "Shorter attention spans in the classroom" (mean = 2.41, S.D. = 0.58, S.S. = 289) were ranked 4th to 5th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'neutral' category.

Similarly, the statement "Reduces motivation for academic success" (mean = 2.38, S.D. = 0.58, S.S. = 285) and "Students depend more on mobile phones than books for academic work" (mean = 2.31, S.D. = 0.69, S.S. = 277) are ranked as 6th to 7th, respectively. The mean values of these effects lie between the 'neutral' and the 'agree' categories but tended towards the 'neutral' category.

Based on the overall results, it can be concluded that excessive use of mobile phones is a cause of reduced focus on study, students perform poorly in tests and exams and negatively impacts study habits. These results were enlightened by those of Leppet *et al.* (2015) who found a strong relationship between greater mobile phone use and diminished academic performance, along with increased disruption levels. Kates *et al.* (2018) established via meta-analysis that mobile phone use during study periods substantially impairs academic performance. Furthermore, Junco (2012) emphasized that multitasking with mobile phones during academic activities reduces learning ability and academic performance.

Testing of hypotheses

Hypothesis # 1:

H₁: There is a relationship between gender and the negative effect of mobile phones on students' academic performance

H₀: There is no relationship between gender and the negative impact of mobile phones on students' academic performance

Table 6: Relationship between gender and the negative effect of mobile phones on students' academic performance

Gender	Adverse effects of mobile Phones on students' academic performance			Total
	Low	Medium	High	
Male	20	25	45	90
	22.2%	27.8%	50.0%	100.0%
Female	8	7	15	30
	26.7%	23.3%	50.0%	100.0%
Total	28	32	60	120
	23.3%	26.7%	50.0%	100.0%
Chi-square = 2.18, P-value = >.05 ^{NS}				
Gamma (λ) = -0.026, P-value = >.05 ^{NS}				

Table 6 depicts the correlation between gender and the adverse effect of mobile phones on students' academic performance. The statistical analysis, specifically the chi-square test (χ^2), indicates a non-significant association ($\chi^2 = 2.18$, $p = .721$) between gender and the negative effect of mobile phones on students' academic performance. This shows that both male and female students experienced nearly the same adverse effects of mobile phones on their academic performance. So, the null hypothesis is accepted, and the hypothesis is rejected.

Hypothesis # 2:

Main hypothesis: Parental educational level influences the effect of mobile phones on children's academic performance.

H₁: Fathers' educational level influences the effect of mobile phones on children's academic performance.

H₀: Fathers' educational level does not influence the effect of mobile phones on children's academic performance.

Table 7: Relationship between fathers' educational level and the negative effect of mobile phones on children's academic performance.

Fathers' education	Adverse effects of mobile phones on students' academic performance			Total
	Low	Medium	High	
Illiterate	5 27.8%	5 27.8%	8 44.4%	18 100.0%
Primary-Middle	6 26.1%	8 34.8%	9 39.1%	23 100.0%
Matric	5 9.1%	12 21.8%	38 69.1%	55 100.0%
Above Matric	12 50.0%	7 29.2%	5 20.8%	24 100.0%
Total	28 23.3%	32 26.7%	60 50.0%	120 100.0%

Chi-square = 22.19d.f. = 6P-value = <0.01**
Gamma (λ) = -0.105, P-value = >0.05^{NS}

NS = non-significant, * = significant

Table 7 shows the correlation between fathers' educational level and the negative effect of mobile phones on children's academic performance. The chi-square test ($\chi^2 = 22.19$, $p < .001$) indicates a significant association between these variables. The Gamma statistic ($\lambda = 0.256$, $p = .033$) reveal a non-significant and negative relationship. These results suggest a weak and inconsistent ordinal relationship between the variables. However, the Chi-square test shows a significant overall association. These results suggest that fathers' educational attainment significantly affects the degree to which mobile phone use negatively impacts their children's academic performance. However, the pattern is not consistently linear or strong across all educational levels. So, the hypothesis is partially accepted.

Sub hypothesis 2.2:

H₁: Mothers' educational level influences the effect of mobile phones on children's academic performance.

H₀: Mothers' educational level does not influence the effect of mobile phones on children's academic performance.

Table 8 shows the correlation between mothers' educational level and the negative effect of mobile phones on children's academic performance. The chi-square test ($\chi^2 = 13.01$, $p < 0.05$) indicates a significant association between these variables. Additionally, the Gamma statistic ($\lambda = 0.251$, $p < 0.05$) reveals a significant and negative relationship. This means that as mothers' education levels increase, the likelihood of children experiencing adverse effects from mobile phone use decreases. So, the hypothesis is accepted and the null hypothesis is rejected.

Table 8: Relationship between mothers' educational level and the negative effect of mobile phones on children's academic performance

Mothers' education	Adverse effects of mobile phones on students' academic performance			Total
	Low	Medium	High	
Illiterate	5 20.8%	5 20.8%	14 58.3%	24 100.0%
Primary-Middle	5 17.2%	8 27.6%	16 55.2%	29 100.0%
Matric	8 17.0%	14 29.8%	25 53.2%	47 100.0%
Above Matric	10 50.0%	5 25.0%	5 25.0%	20 100.0%
Total	28 23.3%	32 26.7%	60 50.0%	120 100.0%

Chi-square = 13.01, d.f. = 6, P-value = <0.05*

Gamma (λ) = -0.251, P-value = <0.05*

* = significant

Hypothesis # 3:

H₁: Spending more time on cell phones has a negative impact on students' academic performance.

H₀: Spending more time on cell phones has no impact on students' academic performance.

Table 9: Association between time spent on cell phones by the students and the negative impact of cell phones on academic performance

Time spent on cell phones	Adverse effects of mobile phones on students' academic performance			Total
	Low	Medium	High	
Yes	5 15.2%	5 15.2%	23 69.7%	33 100.0%
No	23 26.4%	27 31.0%	37 42.5%	87 100.0%
Total	28 23.3%	32 26.7%	60 50.0%	120 100.0%

Chi-square = 7.35, d.f. = 2, P-value = <0.05*

Gamma (λ) = 0.317, P-value = <0.05*

* = significant

Table 9 shows the correlation between time spent on cell phones by the students and the negative impact of cell phones on academic performance. The chi-square test ($\chi^2 = 7.35$, $p < 0.05$) indicates a significant association between these variables. Additionally, the Gamma statistic ($\lambda = 0.317$, < 0.05) reveals a significant and positive relationship. The results provide statistically

significant evidence that spending more time on mobile phones negatively affects students' academic performance, supporting the alternative hypothesis (H_1).

Conclusions

It was concluded that excessive use of cell phones among primary school students had a significant negative impact on several developmental domains. Students reported worse study habits, less focus, and lower test and exam results due to excessive cell phone use. The majority of the students declared that they used cell phones for non-academic purposes, which had a detrimental effect on classroom behavior and academic results, while others acknowledged the educational advantages of mobile phones when used responsibly. Excessive usage of cell phones has been linked to social isolation, decreased involvement in group activities, and hampered face-to-face contact regarding interpersonal skills. Social behavior also suffered. Students' physical and sports activities were severely affected, and their level of fatigue increased, all signs of a more sedentary lifestyle. Overall, the data points to the adverse effects of unrestricted mobile phone usage on students' academic motivation, social relationships, physical health, and performance. Therefore, organized rules and ethical use practices are crucial to reduce these adverse impacts and maximize the educational potential of mobile technology.

Recommendations

- Establish stringent restrictions regarding the use of mobile phones inside the school and classrooms in order to reduce the prevalence of distractions.
- Promote students' use of educational applications and technologies under the teachers' supervision.
- Encourage students to engage in regular physical activity and restrict their time spent in front of screens during school hours.
- Workshops should be organized in order to promote awareness about the social and health implications of excessive usage of mobile devices.
- Encourage parents to participate in monitoring and directing their children's usage of mobile phones at home.
- Schools and communities should launch awareness campaigns to inform parents, particularly those from lower-income and illiterate families, about the dangers of their children's excessive mobile phone use since research showed that this behavior has a less negative impact on students' academic performance when their parents have a stronger educational background. These programs may provide ways for properly monitoring and directing children's phone use.

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