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Study on relationship between smartphone addiction and behavior problems among upper primary school children

¹H Akhila, ²Dr. G Swarupa Rani, ³Dr. P Sreedevi, ⁴Dr. M Prasuna and ⁵B Gayatri

¹M.Sc. Research Scholar, Department of Human Development and Family Studies, College of Community Science, PJTSAU, Hyderabad, Telangana, India

²Assistant Professor, Department of Human Development and Family Studies, College of Community Science, PJTSAU, Hyderabad, Telangana, India

³Assistant Professor, Department of Human Development and Family Studies, College of Community Science, PJTSAU, Hyderabad, Telangana, India

⁴Professor, Department of Extension Education and Communication Management, College of Community Science, PJTSAU, Hyderabad, Telangana, India

⁵Assistant Professor, Department of Human Development and Family Studies, College of Community Science, PJTSAU, Hyderabad, Telangana, India

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Corresponding Author: H Akhila

Abstract

The study aimed to assess the relationship between smartphone addiction and behavior problems among upper primary school children. A total of 352 upper primary school children (176 boys and 176 girls) in the age group of 11-14 years from 8 private schools located under six zones in Hyderabad city of Telangana state were selected as sample through random sampling method. Out of 352 sample, 240 (120 boys and 120 girls) were selected for the study who had scored average to high on smartphone addiction scale. The data was collected by using smartphone addiction scale developed by Dr. Vijayshri and Dr. Masaud Ansari (2020) and revised behavioral problem scale by Quay and Peterson (1986). An exploratory research design was adopted for the study. The Smartphone addiction scale assesses the children's level of compulsion, forgetfulness, lack of attention, depression and anxiety, disturbed hunger and sleep, social withdrawal. Revised Behavioral problem scale assesses conduct disorder, socialized aggression, attention problem, anxiety withdrawal and psychotic behavior. The SPSS 16.0 package program was used to analyze the data. After conducting correlational analysis using Karl Pearson's product-moment correlation between smartphone addiction and behavior problems, a significant and strong positive correlation ($r=0.615^{**}$) was observed, which was found to be significant at 0.01 level of probability. It means that as smartphone addiction increased, the behavior problems among upper primary school children also increased. This implies that children who were overly reliant on their phones, missed their hobbies, sports, and social connections, and felt pressured to reply to messages, were more likely to exhibit aggressive, bullying, and distracted behaviors. Surprisingly, our findings support previous studies in the same area. The assumption that smartphone addiction plays a critical role in establishing behavior problems among upper primary school children is supported by the consistency of our findings across research.

Keywords: Smartphone addiction, positive relationship, behavior problems, upper primary school children

Introduction

Smartphone use has grown dramatically, particularly in the time of the worldwide pandemic induced by SARS-CoV2 coronavirus (COVID-19). During this time, a growing social issue among children and teenagers is smartphone addiction. Prevalence rates of smartphone addiction in children and adolescents is reported from 5% to 50% pre-pandemic. Anecdotally, smartphone dependency has increased within the short time frame of the pandemic when compared to pre-COVID (Mokhtarinia *et al.* 2022) ^[1] because majority of the children used smartphones for academic purpose (Vyas *et al.* 2021) ^[3].

Smartphone addiction can be defined as the excessive usage of a mobile that interferes with day-to-day activities and

interpersonal relationships (Sharon Levy, 2021) ^[2]. Globally, among teenagers and school-going children, the prevalence of mobile phone addiction ranges from 2.4% to as high as 60.3% (Gangadharan *et al.* 2022) ^[7]. Upper primary school children, in particular, are vulnerable to smartphone addiction due to their increasing access to digital devices and growing reliance on technology for various activities, including education and entertainment.

Behavior problems are defined as abnormal conduct that goes against the social standards of a certain culture and creates issues for the person as well as other members of the community. The prolonged occurrence of these issues consider them as abnormal. However, when it comes to behavior problems in children, they can be defined as

responses or behavioral patterns that fall short of what parents, relatives, or the community anticipate of their children might be considered behavior issues. This behavior is often referred to as deviant and disturbed. An increasing body of evidence suggests that excessive smartphone use may contribute to behavior problems among children such as depression, bullying, sleep quality (Saied *et al.* 2022) [8], anxiety (Aflahudin *et al.* 2022) [4] etc.

Behavior problems are quite common among school children be identified and solved. The school-age children demonstrate a variety of behavioral issues, including being late or absent, lying, complaining about other students, chatting during class, displaying excessive compliance, pinching, beating, fighting, squabbling over seats, shyness, fear, and anxiety related to exams. The socioeconomic background, television, movies, poor parenting techniques, smartphone addiction, and television are the influencing variables for these behavioral issues in school-age children. The behaviors associated with the behavior problems can range from abrupt withdrawal to severe violent conduct. These children will struggle with social interactions and their issues may get worse as they get older if they are not recognized and helped while they are in school. Children require a variety of things in order to grow and develop, including physical, psychological, and intellectual requirements. (Babu *et al.* 2007) [5]. However, the specific mechanisms and underlying factors linking smartphone addiction to behavior problems in upper primary school children remain inadequately explored. Research has shown that smartphone addiction can lead to a range of behavior problems in this age group.

Materials and Methods

Location of the study

The present study was aimed to study the relationship between smartphone addiction and behavior problems among upper primary school children. The study was carried out in Hyderabad city of Telangana state because the city culture boasts up a diverse demographic population including children, students, professionals extensively use smartphone. Hyderabad city was divided into six zones, and eight private schools were randomly selected from these zones.

Sample Size

The sample size comprised of 352 members with 176 boys and 176 girls. Out of 352 sample, 240 upper primary school children with 120 boys and 120 girls were selected for the study who had scored average to high on smartphone addiction scale.

Tools used for the study

Smartphone addiction scale was used. The scale has six dimensions and 23 items, the dimensions were compulsion, forgetfulness, lack of attention, depression and anxiety, disturbed hunger and sleep, social withdrawal. Revised behavior problem scale under 5 components such as conduct disorder, socialized aggression, attention problem, anxiety withdrawal and psychotic behavior was used.

Statistical Analysis

The SPSS 16.0 package program was used to analyze the

data. Karl pearson's product-moment correlation was used to measure the relationship.

Results and Discussion

Table 1: Relationship between smartphone addiction and behavior problems.

S. No	Dimensions of Smartphone addiction	Overall behavior problems levels
1	Compulsion	0.431**
2	Forgetfulness	0.407**
3	Lack of attention	0.363**
4	Depression and anxiety	0.232**
5	Disturbed hunger and sleep	0.374**
6	Social withdrawal	0.356**
7	Overall smartphone addiction	0.615**

Note: **p=0.01 level of significance, *p=0.05 level of significance

Table-1 illustrated the relationship between smartphone addiction and behavior problems among upper primary school children. It was interesting to note from the table that, both overall smartphone addiction and its six components such as compulsion, forgetfulness, lack of attention, depression and anxiety, disturbed hunger and sleep, and social withdrawal exhibited a strong, positive and statistically significant relationship with overall behavior problems. This suggests that different elements of smartphone addiction contribute significantly to the development of behavior problems in upper primary school children.

The component "compulsion" of smartphone addiction exhibited a highly significant positive relationship ($r = .431^{**}$) with the overall behavior problems of upper primary school children at a 0.01 level of probability. This significant positive correlation suggested that a higher level of compulsion was associated with increased behavior problems among upper primary school children. This association could have been attributed to the fact that excessive gaming, frequent phone checks, and prolonged phone use were linked to increased behavioral problems such as disobedience, hostility, and in-attention.

These findings were consistent with a study by Ambiha *et al.* (2023) [9] found that children who had an obsession with cell phones also had an unfavorable behavioral change as a result of using their phones excessively.

The analysis of the smartphone addiction component "forgetfulness" revealed a significant and positive relationship ($r = .407^{**}$) with the overall behavior problems of upper primary school children at a 0.01 level of probability. This indicates that as forgetfulness increased, behavioral problems among children also increased. This includes frequently forgetting chores or responsibilities like homework. This might be because upper primary school children struggled to remember important tasks and responsibilities because of distractions from their smartphones, which lead to frustration and acting out, which may then result in behavior issues.

The above findings align with a study conducted by Hamvai *et al.* (2023) [10] described that excessive smartphone use, academic procrastination, and bedtime procrastination all had an impact on the relationship between poor sleep outcomes and the inability to maintain focus and effectively

plan tasks (both directly and indirectly).

The component "lack of attention" displayed a significant and positive relationship ($r = .363^{**}$) with the overall behavior problems of upper primary school children at a 0.01 level of probability. This indicated that as lack of attention increased, there was a corresponding increase in behavior problems. It means the children who had more difficulty in paying attention were more likely to exhibit behavior problems. This finding suggests that upper primary school children who struggled to focus on academic-related tasks because of phone notifications or appealing content can become more likely to develop behavioral issues.

These findings were consistent with a study conducted by Dontre (2020) ^[12] found that using laptops, cellphones, and social media, especially Facebook decreased grades. Multimedia tasking was also linked to decreased levels of self-efficacy, which in turn caused behavioral issues.

The analysis from the table above revealed that, depression and anxiety were positively correlated ($r = .232^{**}$) with overall behavior problems of upper primary school children at a 0.01 level of probability. This indicated that as depression and anxiety increased, behavior problems also increased. It means, children who exhibit higher levels of depression and anxiety were more likely to experience behavior problems. This positive relationship suggested that depression and anxiety could play a key role in the development of these problems, with feelings of worry, loneliness, and depression in the absence of a phone enhances behavior issues.

Present findings were on par with a study conducted by Baek *et al.* (2014) ^[11] who found statistically significant variations in behavior issues linked to ownership, gender, and the amount of time spent on smartphones, as well as internalization symptoms such as somatization, withdrawal, anxiety, and depression. Additionally, it showed that phone addiction was positively related to internalizing symptoms such as anxiety and depression among school-age children.

The study found that the smartphone addiction component "disturbed hunger and sleep" exhibited a strong positive association ($r=0.374^{**}$) with the overall behavior problems of upper primary school children at a 0.01 level of probability. This suggests that, as irregular eating habits and disrupted sleep patterns due to smartphone addiction increased, there was a consistent increase in behavior problems.

These findings were supported by a study conducted by Sahu *et al.* (2019) ^[13] who revealed that excessive or overuse of mobile phones was linked to behavioral issues like staying up late, feeling insecure and poor parent-child and school interactions.

The table indicated that the aspect of "social withdrawal," a component of smartphone addiction, was found to be significantly and positively related to the overall behavior problems of upper primary school children at a 0.01 level of probability ($r=.356^{**}$). This finding suggested that a gradual increase in social withdrawal was associated with an increase in behavior problems among upper primary school children. This positive correlation implied that spending more time on social media than with family, opting for virtual friends over in-person contacts and using phones excessively could contribute to behavioral issues among these children.

These findings align closely with a study conducted by Christensen (2018) ^[14] who revealed that the more time spent on social media, the more the individual suffered from a decline in the quality of their relationships and an adverse effect on their general emotional well-being.

From the above table, it was noticed that the overall smartphone addiction was found to be highly, positive and significantly related with the behavior problems of upper primary school children, with a correlation coefficient of ($r=.615^{**}$) at a 0.01 level of probability. This strong positive correlation indicated that higher levels of smartphone addiction were associated with increased behavior problems in children. Smartphone addiction encompassed various aspects such as compulsive phone checking, forgetting things easily, difficulty focusing on schoolwork and other activities, anxiety, depression, irregular eating and sleeping patterns, and a preference for the virtual world over the real one. These behaviors were often associated with increased behavioral issues in upper primary school children.

These findings were consistent with a study conducted by Sharma and Singh (2023) ^[15], which revealed a substantial positive correlation between mobile phone dependence and disruptive conduct among children.

Conclusion

The study can be concluded that smartphone addiction had a significant positive relationship with behavior problems among upper primary school children. This suggests that children who were more dependent on their phones were more prone to engage in a variety of harmful behaviors such as increased hostility, difficulty focusing, social disengagement, anxiousness, and even disobedience. Addiction to smartphones may interfere with social, emotional and cognitive developmental processes, resulting in unfavorable effects inside and outside of the classroom.

Future scope

This study highlights how critical it is for parents, educators, and policy makers to be aware of the possible risks associated with unrestrained smartphone usage and the need to take measures including limiting screen time, supporting substitutes that foster social engagement and physical exercise, and teaching children about ethical technology usage.

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Conflict of Interest

None.

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