The Impact of Smartphone Addiction on Social Skills and Play Behaviour Among Children

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Abstract

Smartphone addiction is a growing concern in today's world. In recent years, the increase in the smartphone use has changed the way children interact with their environment and peers. Past studies have revealed that more than half of the children aged 3-10 are using smartphones for many hours on daily basis. Physical play is replaced by the screen time contributing to alarming concerns in context to their developmental outcomes. A mixed-methods approach, including quantitative surveys and qualitative interviews with parents is used to assess how excessive smartphone use influences children's social interactions and engagement in play activities. The study has divided the population in three groups; early childhood (3-5 years), middle childhood (6-7 years), and later childhood (8-10 years). Findings indicate that there is a shift from traditional outdoor and group play to screen-based activities, making children with younger children (3-5 years) showing more evident isolation during play while older children (8-10 years) displaying decline in communication, empathy, and cooperation, particularly with excessive screen time. The role of parent's attitudes and behaviours in shaping children's smartphone usage patterns is also significantly underlined. Recommendations include limited screen time, promoting outdoor play, and integrating digital literacy into educational programs. This paper intends to contribute to the growing body of literature on the effects of technology on child development and advocates for a balanced approach to smartphone use in early childhood.

Keyword: smartphone addiction, social skills, play behavior, child development, parental mediation, screen time, early childhood

INTRODUCTION

Smartphones have impacted many aspects of life and have become an indispensable part of our existence. Today's children are frequently exposed to cell phones, whether on purpose or accidentally, and soon it becomes a part of their everyday lives. Although there are educational and entertaining advantages to these devices, excessive use of them has become an increasing issue, particularly among youngsters between the ages of 3 and 10, whose developmental processes are still in their early stages. According to research, over 50% of children in this age range use cell phones for several hours every day, frequently at the price of more conventional physical play and in-person interactions (Ali & Edina, 2018; Ihm, 2018). This shift is worrisome because of the potential implications of excessive screen time on child development.

Play is important to the development process and acts as a medium for creativity, problem-solving, and social bonding. Developmental theories by Piaget and Vygotsky highlight the role of play in facilitating learning in children. Vygotsky's sociocultural theory stresses that social interactions and collaborative play are essential for cognitive development, particularly for language skills and emotional regulation. Traditional play, such as outdoor games, group activities, and imaginative play, fosters creativity, communication, empathy, and cooperation—skills that are essential for healthy social and emotional development (Zheng, 2022).

Smartphone addiction refers to compulsive and excessive use of smartphones, characterized by withdrawal symptoms, tolerance, and dependency, the same can be seen in addictions like gambling or substance use (Griffiths, 1995). This addiction is becoming a challenge and children too are exposed to the said problem. Research suggests that children who spend significant time on smartphones may experience difficulties in social interactions, including challenges in communication, empathy, and cooperation (Ihm, 2018). Furthermore, the displacement of traditional play by screen-based activities may contribute to cognitive delays and hinder the development of critical thinking and creativity (Zheng, 2022). The role of parental attitudes and behaviors further complicates the issue. Parents who rely heavily on smartphones themselves or fail to regulate their children's screen time inadvertently contribute to these developmental challenges. This underscores the need for research that not only explores the direct effects of smartphone addiction but also examines the mediating role of parenting practices.

OBJECTIVES

This research aims to study impact smartphone addiction on children's social skills and play behavior by examining the following objectives:

- The study will investigate how excessive smartphone use interferes with children's ability to engage in social interactions and traditional forms of play, such as cooperative games and outdoor activities.
- The study will explore the varying effects of smartphone addiction across three developmental stages: early childhood (3–5 years), middle childhood (6–7 years), and later childhood (8–10 years). Developmental theories suggest that the impact of smartphone addiction may vary depending on a child's cognitive and emotional stage (Piaget, 1951; Vygotsky, 1978).
- The study will assess how parental attitudes toward smartphones and screen time can mediate or exacerbate the effects of smartphone addiction on children's social skills and play behavior.

KEY VARIABLES

Smartphone Addiction:

Smartphone addiction is defined as excessive, compulsive use of smartphones, where children spend prolonged hours on these devices to the detriment of their social, emotional, and physical development. Though excessive use of smartphones is not currently recognized as

a formal clinical disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) or International Classification of Diseases (ICD-10), but behavioral aspects share similarities with other recognized behavioral addictions like gambling disorder as behavioral addiction, while other addictive behaviors such as "Internet gaming," "sex addiction," "exercise addiction," or "shopping addiction" are classified as impulse disorders (American Psychiatric Association (APA), 2013, p. 481) The term "problematic smartphone use" is commonly applied, which implies that there is constant failure to control the addictive smartphone usage behavior that results in functional impairment, which meets the criteria for behavioral addiction as proposed by Kardefelt-Winther et al. (2017)

Social Skills:

Social skills are the abilities required to communicate, empathize, cooperate, and manage emotions effectively. These skills are vital for forming healthy interpersonal relationships, engaging in teamwork, and navigating social structures.

Significance of Social Skills in Development

- **Interpersonal Communication:** Skills like active listening and verbal/non-verbal communication are developed through direct interactions with peers and caregivers.
- **Emotional Regulation:** Social interactions help children learn to identify, express, and manage their emotions. Play and peer interaction often serve as safe spaces for children to experience and regulate emotions like frustration, joy, and empathy.
- **Building Empathy:** Empathy, a cornerstone of social competence, is cultivated through real-world interactions.

Play Behavior:

Play behavior refers to the activities children engage in for enjoyment, learning, and socialization. Traditional play, such as outdoor games and group activities, supports cognitive development, emotional regulation, and social competence.

Importance of Play Behavior in Child Development

- **Cognitive Development:** Activities such as imaginative play and role-playing contribute to symbolic thinking, language development, and executive functioning.

- **Physical Development:** Outdoor and physical play help in developing motor skills, coordination, and overall physical health.
- **Social Development:** Play fosters cooperation, teamwork, and conflict resolution skills. Group activities like sports or board games encourage children to navigate social dynamics, which are difficult to replicate in digital environments.

Parental Attitudes and Behaviors (Mediating Variable):

Parental attitudes and behaviors include how parents perceive and manage their children's use of smartphones. Parental mediation whether restrictive, instructive, or laissez-faire can significantly affect children's screen time habits and the associated developmental outcomes (Ihm, 2018).

SIGNIFICANCE OF THE STUDY

This study will contribute to the growing body of literature on the effects of smartphone addiction on child development, particularly regarding social skills and play behavior. Social skills and play behavior are critical to a child's cognitive, emotional, and social development. The increasing prevalence of smartphone addiction threatens these developmental foundations. Research back the fact that if social skills and play behavior are hindered during childhood, the repercussions may extend into adolescence and adulthood. Smartphone addiction has raised global concerns because of its association with negative outcomes, such as reduced attention spans, emotional dysregulation, and impaired social competence. This can further impact academic performance, mental health, and relationship-building abilities, making it imperative to understand and address this issue.

As the digital age continues to evolve, the issue of balancing technology use with healthy developmental practices is becoming a significant societal concern. This study becomes socially relevant as it provides insights for parents, educators, and policymakers to balance technology use with healthy developmental practices, ensuring children grow into socially and emotionally resilient individuals. Studying the impact of smartphone addiction on social skills and play behavior contributes to a deeper understanding of the challenges and opportunities posed by technology.

The findings of this research provide practical implications for parents, educators, and policymakers. Parents can gain insight into the effects of excessive smartphone use on their children's development and learn

strategies to regulate screen time in a way that promotes healthy growth. Educators can incorporate the findings into their teaching strategies, fostering social interactions and play-based learning in the classroom. Policymakers can use the research to guide recommendations on screen time limits and technology use in educational settings, promoting a balanced approach to digital engagement.

THEORETICAL FRAMEWORK

1. Behavioural Addiction Theory

Behavioural Addiction Theory explains the mechanisms underlying compulsive behaviours, emphasizing reinforcement, withdrawal symptoms, and dependency. Speaking of smartphone use, addiction develops through **positive reinforcement**, such as receiving instant gratification from notifications or videos or rewards in games, and **negative reinforcement**, like escaping boredom or discomfort. Over time, this leads to dependency, as children exhibit withdrawal symptoms when access to smartphones is controlled, which are similar addiction patterns observed in substance use (Griffiths, 1995; Ali & Molnár, 2021).

Relation to Smartphone Usage:

Smartphone addiction shows signs of behavioural addiction, such as salience (preoccupation with smartphone use), tolerance (increasing usage over time), and withdrawal symptoms (irritability or distress when restricted). This theory highlights why children develop compulsive screen habits that interfere with critical developmental activities like social interaction and play (Fischer-Grote, Kothgassner, & Felnhofer, 2021).

2. Social Learning Theory

Social Learning Theory suggests that behaviours are learned through observation, imitation, and reinforcement from role models, especially parents and peers. (Bandura, 1977). In the context of smartphone use, children often imitate the habits and attitudes of parents or peers. For example, if caregivers frequently use smartphones or show permissive attitudes toward screen time, children are more likely to adopt similar behaviours (Park & Park, 2014).

Implications for Social Skills Development:

Excessive smartphone use diminishes opportunities for face-to-face interactions, which are critical for developing social skills like communication, empathy, and cooperation. Children exposed to socially disengaged role models may struggle with interpersonal relationships, perpetuating their

reliance on screens for entertainment and connection (Ihm, 2018; Zheng, 2022).

3. Cognitive Development Theory

Cognitive Development Theory, emphasizes the importance of play, exploration, and interaction in building cognitive functions such as symbolic thinking, emotional regulation, and problem-solving (Piaget, 1951). Excessive smartphone use disrupts these processes.

Impact on Emotional Regulation:
Continuous exposure to smartphones negatively affects children's attention spans, impulse control, and emotional regulation. These deficits arise because screen-based activities often lack the complexity and open-ended nature of traditional play, which are essential for cognitive and emotional growth (Hussain, Ikram, & Aafreen, 2023; Hsb et al., 2023).

4. Attachment Theory

Attachment Theory by John Bowlby highlights the importance of early bonds between children and caregivers in shaping emotional security and relational dynamics. Smartphones can interfere with these bonds when caregivers are distracted or when children turn to devices for comfort instead of seeking emotional connections with caregivers (Dishkova & Papancheva, 2019).

Relationship with Attachment Styles:
Research suggests that children with insecure attachment styles may be more prone to smartphone dependency, using devices as a substitute for emotional fulfilment. Similarly, when parents rely excessively on smartphones, meaningful interactions with their children are reduced, weakening the parent-child bond and increasing the likelihood of attachment insecurities (Loleska & Pop-Jordanova, 2021).

EXISTING RESEARCH ON SMARTPHONE ADDICTION AND ITS EFFECTS

Effects on Social Skills: Research indicates that smartphone addiction significantly impairs children's social skills. Children who excessively use smartphones often exhibit reduced face-to-face interactions, leading to difficulties in developing essential social competencies such as empathy and emotional regulation. Ihm (2018) highlights that smartphone addiction can lead to a decline in social engagement, as children may prefer online interactions over real-life socialization, which is crucial for their emotional and social development. Furthermore, Zheng (2022) notes that excessive smartphone use can create a "polarization effect," where introverted children further reduce their real communication activities, enhancing feelings of loneliness and stagnating their social-emotional development.

Effects on Play Behaviour: The impact of smartphone addiction on children's play behaviour is profound. Excessive smartphone use often replaces traditional play activities, which are vital for cognitive and social development. Ali and Molnár (2021) found that children engaged in smartphone gaming or passive media consumption may miss out on the benefits of physical play, which fosters creativity, problem-solving, and social interaction. This trend is concerning, as it can lead to a preference for solitary play, diminishing collaborative play experiences essential for learning social norms and behaviours.

Emotional and Cognitive Implications: The emotional and cognitive implications of smartphone addiction are significant. Hussain, Ikram, and Aafreen (2023) report that children with high levels of smartphone addiction often struggle with emotional regulation, exhibiting maladaptive coping strategies such as rumination and self-blame. This can lead to increased anxiety and depression, as children may find it challenging to manage their emotions effectively in the face of stressors. Additionally, Patel (2023) emphasizes that smartphone addiction can lower children's cognitive skills, as it limits their development of social behaviour and empathy, leading to issues such as emotional withdrawal and diminished creativity.

The implications of smartphone addiction extend beyond individual children, affecting families, educators, and policymakers. The stakeholders must consider regulations to protect children from the adverse effects of excessive screen time, emphasizing the need for comprehensive strategies to address this issue. Considering these concerns, this study aims to explore the impact of smartphone addiction on children's social skills and play behaviour, focusing on the role of parental attitudes and behaviours in mediating these effects by employing the theoretical frameworks.

METHODOLOGY

Participants
The study included a total of 300 participants, comprising children aged 3–10 years from diverse socio-economic backgrounds. The participants were divided into three developmental groups:

1. **Early Childhood (3–5 years):** 100 children.
2. **Middle Childhood (6–7 years):** 100 children.

3. **Later Childhood (8–10 years):** 100 children.

Demographic information was collected from the parents, including education levels, household income, and urban or rural residence. The sample was selected through stratified random sampling to ensure representation across developmental stages and socio-economic categories.

Procedure

Data collection involved both quantitative and qualitative methods to gain a holistic understanding of the impact of smartphone addiction on children's social skills and play behaviour.

1. *Recruitment:* Participants were recruited through schools, community centres, and paediatric clinics. Parental consent and child assent were obtained before participation.
2. *Data Collection Process:*
   - Questionnaires were administered to parents to gather information on their child's screen time, social interactions, and play habits.
   - Observational Assessments of children were conducted in controlled environments, such as school playgrounds and activity centres, to assess their play behaviour and social interactions with peers.
3. *Ethical Considerations:*
   - The study adhered to ethical research standards, including anonymity and confidentiality of participants' data.
   - Parents were informed about the study's purpose and procedures, and participation was voluntary.
4. *Tools*
a. **Smartphone Addiction Questionnaire (SAQ):**
   - Adapted from standardized measures of smartphone addiction, this questionnaire assessed compulsive use, dependency, and withdrawal symptoms.
   - **Sample Items:** "Does your child get upset when their smartphone is taken away?"
   - **Psychometric Properties:** Reliability (Cronbach's α = 0.89); validity confirmed through exploratory factor analysis (EFA).
b. **Social Skills Inventory (SSI):**
   - Assessed communication, empathy, cooperation, and emotional regulation.
   - Sample Items: "Does your child initiate conversations with peers?"

- **Psychometric Properties:** Reliability (Cronbach's α = 0.87); construct validity established with peer-reviewed benchmarks.
c. **Play Behaviour Checklist (PBC):**
   - Evaluated frequency and quality of traditional play activities, such as outdoor games and group play.
   - Sample Items: "How often does your child engage in imaginative play?"
   - Psychometric Properties: Reliability (Cronbach's α = 0.85); concurrent validity with teacher and parent reported observations.
d. **Parental Mediation Scale (PMS):**
   - Measured parental attitudes and strategies for managing children's screen time.
   - Sample Items: "Do you set time limits for your child's smartphone use?"
   - Psychometric Properties: Reliability (Cronbach's α = 0.88).

RESULTS

Quantitative Analysis

1. *Smartphone Addiction and Social Skills:*
   - A significant negative correlation was observed between smartphone addiction scores and social skills (r = -0.45, p < 0.05).
   - Children with higher screen time showed deficits in communication and empathy across all age groups, with the most pronounced effects in the 3–5 years group.

2. *Smartphone Addiction and Play Behaviour:*
   - Screen time negatively impacted traditional play activities, especially outdoor and group play (r = -0.50, p < 0.01).
   - The 3–5 years group displayed reduced imaginative play, while the 8–10 years group showed a decline in cooperative play.

3. *Parental Mediation:*
   - Restrictive mediation significantly reduced the negative effects of smartphone addiction on social skills (F (2, 297) = 5.67, p < 0.01).
   - Permissive parenting correlated with higher smartphone addiction scores and reduced play behaviour (r = 0.43, p < 0.01).

Qualitative Analysis

1. *Parental Interviews:*

- Parents reported using smartphones as a "pacifier" during stressful situations or when needing to focus on work.
- Many parents expressed concern about the difficulty in regulating screen time, citing work pressures and the ubiquity of smartphones as challenges.

2. *Observational Insights:*

- Children with higher smartphone addiction scores showed reduced engagement in group activities and a preference for solitary screen-based play.
- Social interactions were minimal among children who used smartphones frequently, with fewer instances of shared imaginative play or conflict resolution.

Comparative Findings Across Age Groups

Age Group	Social Skills Deficit (Mean)	Play Behaviour Deficit (Mean)	Key Observations
3–5 years	7.8	8.5	Increased isolation; reduced imaginative and cooperative play.
6–7 years	6.5	7.0	Moderate decline in social initiation; preference for screen-based play.
8–10 years	5.2	6.8	Decline in empathy and teamwork; minimal outdoor activity.

LIMITATIONS & SCOPE

This study has several limitations.

- It does not consider other variables such as socioeconomic status, geographic location, or access to technology, which may also influence smartphone usage patterns and developmental outcomes.
- The study focuses on the role of parental attitudes and behaviors but does not explore other environmental or school-related factors that may contribute to smartphone addiction and its impact.

While this study focuses on the three developmental stages mentioned above, future research could explore how smartphone addiction affects other stages, such as adolescence, and how it interacts with other aspects of development, such as academic performance and mental health.

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