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Exploring the Nexus Between Child Unintentional Injuries and Parental Smartphone Distraction: A Narrative Review of Studies, News Reports, and Rising Cases

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ABSTRACT *This review explores the impact of smartphone use on parenting practices and parental supervision. With the pervasive presence of smartphones in daily life, there is growing concern about their potential to distract parents and interrupt effective parenting. The purpose of this review is to synthesise the existing literature on how smartphone usage affects parental attention and supervision. Collected research papers and news reports have highlighted that parents' excessive smartphone use has contributed to distracted parental supervision, uninvolved parenting, unintentional injuries, and fatalities among children. This review examines studies from various databases, focusing on information related to smartphone distraction among parents. Key findings indicate that high smartphone use is associated with reduced quality of parental interactions and inadequate supervision, leading to increased risks for children. The review concludes that while smartphones provide significant benefits, their overuse poses substantial risks to child safety and development. Future research should aim to develop strategies to mitigate these negative impacts and promote balanced smartphone use in family contexts.*

Keywords:Distraction, Mobile phone distraction, Smartphone distraction, Parental supervision, Unintentional injuries, Technoference, Phubbing

Introduction

The Growth of Smartphones:

It is essential to examine the several phases of technological advancement to understand how the latest inventions and versions of digital devices have entered human society. Knowing whether such technologies have positive or negative effects is crucial. Smartphones and mobile phones both belong to the 'cellphone' category of mobile devices. Both smartphones and mobile phones serve the purpose of making and receiving voice calls and sending text messages. Smartphones are high-functioning devices compared to mobile phones, which have a faster operating system and additional features such as internet access, apps, reminders, and a superior camera, which offers more functionality. Smartphones have achieved more acceptance because of their resemblance to minicomputers (Petrovcic et al., 2017).

The ubiquity of smartphones and other internet-enabled mobile devices is a global phenomenon, evident in households, workplaces, and social interactions. The widespread availability of smartphones and the size of online social networking

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communities are key contributors to their global prevalence. As per Statista, in 2022, there were 8.6 billion mobile phone subscribers worldwide, with 6.4 billion, or 80% of the population, owning smartphones. This number is projected to reach 7.7 billion by 2028, underscoring the increasing reliance on smartphone technology (Taylor, 2023).

Smartphones have become indispensable tools, offering many features that benefit business, communication, information search, entertainment, education, and healthcare (Gowthami & Kumar, 2016; Sarwar & Soomro, 2013; Silver et al., 2019). Their potential to bring about significant changes in numerous spheres, including environment, social interactions, culture, and technological progress, is immense (Sarwar & Soomro, 2013; Silver et al., 2019). Knowing the socio-cultural impact of smartphone use and its influence on people's quality of life is important.

Impact of Smartphones:

Since the mid-1990s, mobile phone growth in both developed economies and emerging markets has surged and reached billions globally because of its high-tech facilities (Sarwar & Soomro, 2013; Turner, 2023). The Pew Research (2019) survey among eleven countries has shown an increase in the popularity of smartphones because of their ability to enhance several aspects of everyday life. Interest in digital devices like smartphones is growing because of their capabilities, such as communication, entertainment, information, and business (Johnson, 2017; Shaw & Black, 2012).

Alongside the advantages, there are well-documented drawbacks related to the excessive and untimely use of smartphones. Some studies have highlighted that excessive screen time can lead to inadequate sleep, anxiety, exposure to inappropriate online content, decreased performance, online harassment, cyber crimes, engagement in unsafe behaviours like distracted driving, road safety issues, reduced physical activity, and smartphone distractions causing harm to family relationships and social well being (Bianchi & Phillips, 2005; Billieux, 2012; Hanoch &Wood, 2021; Kim et al., 2017; McDaniel & Coyne, 2016; Miller, 2014; McDaniel, 2021; Oviedo-Trespalacios et al., 2019; Niu et al., 2020; 2013; Rahmillah, 2023; Salehan & Negahban; Silver et al., 2019). Among technology users it is reasonable to assume that some smartphone users are parents too. And we have to understand the impact of excessive smartphone use on individuals among adults who play a crucial role in parental supervision (Bae & Nam, 2023; Sarwar & Soomro, 2013; Stockdale, 2018; Shaw& Black, 2012; Yuan et al., 2019).

Negative Impact of Smartphones on Parenting:

Since the early 2000s, researchers have highlighted the potential negative impacts of cell phones and the internet on social interaction. Excessive smartphone usage can lead to behavioural addiction like dependence, temptation, and interference, causing significant time loss and becoming a source of distraction. This has shown that the growing trend of problematic smartphone use has negative consequences for individuals' performance and productivity (Alavi et al., 2012; Duke & Montag, 2017; Grant et al., 2010; Jeong et al., 2022; Kim et al., 2017; Oraison et al., 2020; Oviedo-Trespalacios et al., 2019; Panova & Carbonell, 2018; Rahmillah et al., 2023; Shaw & Black, 2012; Sohn et al., 2021).

Understanding the impact of problematic smartphone use in our daily lives is

crucial. By recognizing the negative effects of excessive phone use on our work, study, social interactions, and family responsibilities, we can take steps to avoid these distractions (Liao, 2019; Oviedo-Trespalacios et al., 2019; Schmuck, 2020; Yuan et al., 2019). Terms like "problematic mobile phone use," "technoference," and "phubbing" are used to describe mobile phone distracted behaviour and its consequences (Bianchi & Phillips, 2005; Billieux, 2012; Duke & Montag, 2017; McDaniel & Coyne, 2016; Oviedo-Trespalacios et al., 2019; Sohn et al., 2021). The widespread overuse of smartphones has led to technoference, which not only affects emotional health but also strains spousal and parental relations, and can even lead to family breakdowns (Collins, 2022; McDaniel & Coyne, 2016; Wu, 2015; Hughes & Burke, 2018; Greenwood, 2022; Poushter, 2016; Smith, 2015). "Phubbing" refers to the act of snubbing someone in a social setting by looking at their phone instead of paying attention (Chotpitayasunondh & Douglas, 2016; Macquarie Dictionary, 2012). Additionally, the concept of "phubbing," is more troubling when it occurs between parents and children like creating strained parent-child relationships (Niu et al., 2020).

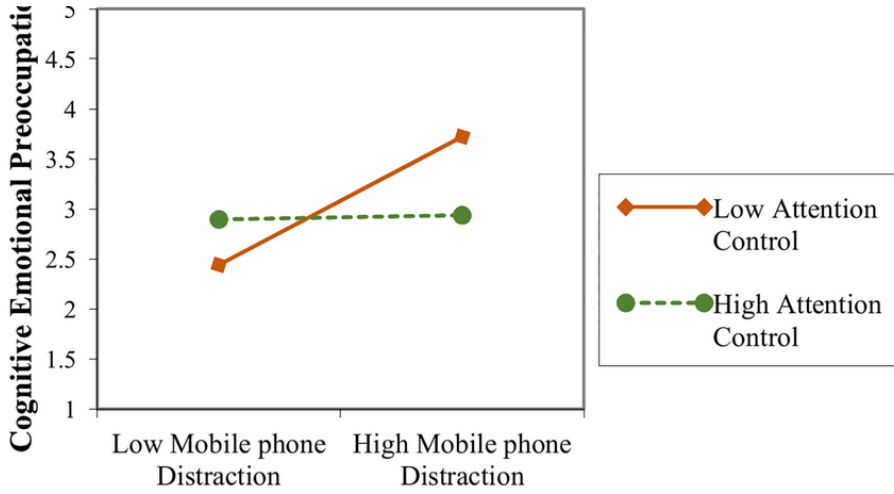
"Distraction" in psychology, a stimulus or task that diverts attention from the main task, is a process of interrupted attention (American Psychological Association, 2023). In our increasingly digital lives, we are becoming more distracted, distant, and drained (Greenfield, 2021). The term "mobile phone distraction" (MD) refers to the inability to provide one's complete attention to the situations immediately surrounding them (David et al., 2015). The cognitive demand associated with phone calls, email, texting, playing games, browsing, and social networking sites on mobile phones either grabs the user's attention or moves their attention away from other things, causing an inability to focus on their primary responsibilities. Digital activities that create this cognitive demand include browsing the internet, playing games, and browsing social networking sites. The user's attention and their ability to make proper judgments at the appropriate moment are both hindered by the mobile phone, which eventually has an effect on the user's psychological well-being (Salehan & Negahban, 2013). It was highlighted by Small et al., in Dialogues in Clinical Neuroscience (2020) that the use of digital technology may influence human brain and behaviour in both negative and positive ways. This was investigated through neuro-imaging techniques, showing intense use of digital technology has been linked to real physical changes in the brain, which can alter cognitive processes such as our ability to see, talk, and think.

According to the concept of "Distraction Attentional Conflict," attentional conflict occurs when an individual tries to focus on two tasks simultaneously. A task unrelated to the person's main goal is considered a distraction, making it hard to pay attention as it hinders the desired information related to the primary goal (Groff et al., 1983). Similarly, it has been found that engaging in media multitasking and splitting attention can lead to "deliberate mind wandering," a term used to describe the intentional shift of attention away from the primary task (Ralph et al., 2014). This deliberate mind-wandering can result in attentional lapses in daily activities. Furthermore, the use of mobile phones, particularly smartphones with their array of features, presents both advantages and temptations, often disrupting and diverting users' attention, interfering with their lives, and pushing them towards a multitasking lifestyle (David et al., 2015).

According to Chu et al. (2021), there is a strong link between mobile phone

use, attention control, and distraction. As shown in Figure 1,the research graph shows that distraction levels are high when the brain is preoccupied cognitively and emotionally with a mobile phone. This can lead to poor attention control and weaken output and performance.

Figure 1. Moderating effect of attention control (Chu et al., 2021).



Upon reviewing the literature, several questions arise about problematic smartphone usage among parents. These include whether smartphones cause distraction in parents, how they interfere with parental supervision, and what consequences children face due to distracted parenting

This review paper aims to address three separate questions."

Q1. Do Smartphones distract parents?

Q2. What are the unintentional incidents associated with smartphone distractions?

Q3. Which countries have reported incidents of injuries and deaths caused by smartphone-distracted parenting, and which age groups among children are most affected?

Q1. Smartphones distract parents.

Smartphones have become a powerful distraction for parents, often leading them to neglect their families and children (McDaniel & Radesky, 2018; Stockdale et al., 2018). Research consistently indicates that the untimely use of smartphones disrupts family life and negatively impacts emotional well-being, marital relationships, parental bonds, and supervision (Custer, 2015; Daneback & Plantin, 2008; McDaniel & Coyne, 2016; McDaniel & Radesky, 2018; Mackay et al., 2022; Radesky et al., 2014). Problematic smartphone use and technoference have not only strained parent-child interactions but have also disrupted meals, leisure activities, and overall relationships, significantly undermining parental supervision (Corlis, 2019; Cosottile & Damashek, 2022; McDaniel, 2019; McDaniel, 2021; Radesky et al., 2014).

Various instruments have been developed to address the challenges of problematic smartphone usage, like the MPPUS: Mobile Phone Problem Use Scale (Bianchi & Phillips, 2005) and DISRUPT: Distraction in Social Relations and the Use of Parent Technology for Technoference (McDaniel, 2021). These instruments measure the problematic use of mobile phones, smartphone distractions, and their impact on social relationships.

An incident reported in the media clearly highlighted that parents addicted to their smartphones often overlook the dangers this poses, especially when they are supposed to be supervising their children (Guo & Ives, 2016). This is supported by various studies indicating that smartphone distractions significantly impair parental supervision and lead to increased risks and accidents involving children. For instance, research conducted by Scott et al. (2012) has revealed that supervisory negligence is a significant risk factor for child injuries. This emphasizes the crucial need for parents to be attentive and watchful when they are supervising their child. This aligns with Palsson's (2017) findings, which noted a 10% rise in playground injuries among children under five years old from 2005 to 2012, potentially linked to the technology distractions caused by the introduction of 3G services. It was also discovered that the appealing features of smartphones may distract parents from their supervisory duties, potentially causing preventable child injuries (Johnson, 2017; Palsson, 2017).

A study by McDaniel and Radesky (2018) in the US involving 170 families showed that parental problematic digital technology led to greater 'technoference' in mother-child and father-child interactions. Latter Corlis (2019) investigated how interruptions and distractions, particularly from cellphones, impacted parents' ability to supervise their children, leading to increased risky activities. This study was repeated by Cosottile & Damashek (2022), who also found that cellphone use diminished parental supervision. Both studies involved 51 caregivers and their young children (ages 1–5).

Kushlev & Dunn (2018) conducted research analysing phone use of 300 parents' in daily life and found that smartphones could distract parents. They discovered that some parents who are more distracted by smartphones have a lower level of attention and social connection with their children, leading to children feeling that their parents spend less time with them and are more attached and distracted towards their mobile phones.

Other researchers have also found that distracted parents absorbed with their tech devices, treat their children harshly. A child may feel abandoned and neglected due to distracted parenting and inadequate parental supervision. This can also harm child's social and emotional development (Ante-Contreras,2016 ; Radesky et al.2014; Robb, 2019). It is alarming to see how easily parents can become distracted by their devices, potentially putting their children at risk of harm. The statistics from Pew Research (2019) indicates that a sizeable portion of parents (around 36%) feel they spend too much time on their smartphones, with social media and video games being major distractors (Silver et al., 2019).

Furthermore, Guyon et al. (2020) highlighted a significant increase in cell phone-related injuries and preventable accidents among children from 2002 to 2015, particularly noting a surge in injuries involving children under two years old, with the peak injury rate occurring in 2014. These findings collectively highlight the negative impact of smartphone use on parental supervision and child safety.

According to two similar studies (Konrad et al., 2021; Myruski et al., 2018), daily interruptions to parent-child interactions are likely to diminish the quality of parental supervision and parenting. For example, when parents use mobile devices in the presence of infants, they are physically present but mostly unresponsive and distracted. In one of these studies, 50 mother-infant pairs found that during unrestricted playtime with their mothers, infants were responsive, mothers were engaged, and the infants displayed increased engagement with happy emotions. Babies exhibit more negative and less positive emotions when their mothers' screen time interrupts them. Additionally, toddlers are likely to detect such interruptions and attempt to compensate by becoming more demanding of attention. Research suggests that parental withdrawal and indifference adversely affect children's social and emotional development.

In 2021, McDaniel conducted two surveys, Study 1 and Study 2, which included 473 and 294 parents, respectively. Instrument DISRUPT was used, which measured and confirmed that technology distracts parents and creates tecnoference between parent and child relationship. Research from Corkin et al., (2021) and Morris et al., (2022) have also found technoference from parents have contributed to delay in language development in toddlers and young children aged 0 - 5 years old.

Another study has shown that when parents ignore their children because of smartphones, even infants feel ignored when they look at their parents' faces and eyes for social cues but do not receive any attention (Pancani et al., 2020). The fear is that this type of inattentive behavior by parents, leading to uninvolved parenting, can cause child neglect, which is a form of maltreatment where caregivers fail to provide adequate care and attention to their child (Bovarnick, 2007; Polonko, 2006; Johnson et al., 2013).

Previous investigations have highlighted the necessity of preserving uninterrupted parent-child quality time, which significantly influences parenting quality and parental involvement (Corkin et al., 2021; Crisp, 2014; McDaniel, 2021). Insufficient supervision, a characteristic of child neglect (Mikeka et al., 1996), underscores the need for both parents and society to acknowledge the significance of undistracted parent-child interactions in nurturing healthy development, parent-child relationships, and child safety. The objective of this review study is to raise awareness of the potential repercussions of parental smartphone distraction on the protection of children from potentially preventable injuries. Policymakers and technology developers must create policies and resources that help parents manage smartphone distractions. Equally important is the need for a comprehensive understanding of the latest causes of child injuries, which is pivotal in devising effective preventative strategies for child safety.

Q2. Unintentional incidents associated with smartphone distractions.

Unintentional injury refers to harm or damage that occurs without any deliberate intent to cause injury or harm. These injuries are typically accidental and can occur in various contexts, such as at home, in traffic, during recreational activities, or at work. Unintentional injury is unexpected and unplanned and are often preventable through appropriate safety measures and precautions (de Ramirez et al., 2012; Florida Department of Health, 2015). As cited in Perrow (1999), the analysis presented in the the book 'Normal Accidents' has analyzed the social side

of technological risk and has emphasized that if we can understand the nature of high-risk technologies, we may be able to remove or avoid associated dangers and accidents. Unintentional injuries are a common cause of death among the top 10 leading causes of death in the United States, also among children (CDC, 2022). Cases of child accidents, car accidents, drowning, playground injuries, pedestrian negligence, and unnatural deaths have been documented in academic literature, news reports, the media, CCTV footage, hospital records, and social service organizations. Parents' smartphone distractions have caused various forms of harm and unintentional injuries to children (Morrongiello et al., 2006). Lack of parental supervision and attentiveness due to smartphone distraction often causes incidents, leaving children vulnerable to accidents (Bury et al.,2020; Corlis, 2019; Cosottile & Damashek, 2022; De Ramirez et al., 2012; Gibson, 2006; Glatter, 2015; Guyon et al., 2020; Kim et al., 2017; Palsson, 2017; Vanden et al.,2020).

The following are some examples of harm and injuries that have occurred in children due to parents smartphone distraction :

1. Falls and Accidents:

- Children have fallen from furniture, stairs, or playground equipment because parents were preoccupied with their phones and overlooked the danger in time to intervene.
- **Playground Injuries.** Recent NHS UK data reveals a concerning rise in playground-related hospitalizations among children. Shockingly, over 5000 playground injury incidents were reported during the COVID lockdowns, with most cases involving falls from playground equipment (Sandercock, 2022). The Royal Society for the Prevention of Accidents (2004) emphasizes that accidents are entirely preventable. Therefore, it is crucial for parents to actively supervise and protect their children from preventable injuries and potential hospitalization. The surge in playground injuries appears to be linked to parents being engrossed in their cell phones, which leads to distractions and a lack of vigilance in monitoring their children (Glatter, 2015). Research indicates that investigations into playground injury cases should focus on the absence of parental supervision and attentiveness (Karlan, 2014). It is evident that mobile devices not only distract parents but also diminish parental supervision, resulting in an increased risk of playground injuries (Bury et al., 2020; Glatter, 2015). This issue has been highlighted by prominent news outlets such as The New York Times and The Guardian, who have reported on how mobile phones distract parents and contribute to an elevated risk of injury for children. According to the National Electronic Injury Surveillance System, children's playground injuries surged by 10% between 2005 and 2012 (Karlan, 2014).

2. Drowning Incidents.

- It is essential to remember that children have tragically drowned in pools, bathtubs, and other bodies of water while their caregivers were distracted by their smartphones. The UAE, Germany, New Zealand, and the US have all experienced an increase in cases of child drowning, with most incidents occurring in private pools (Guardian, 2018; Hafner, 2018; Haza, 2018;

Long, 2018).

- According to the German Lifeguard Association (Guardian, 2018), parents should avoid using their smartphones while supervising their children in a swimming pool, on the beach, or in the water. Seven children aged 8 to 9 drowned in the UAE because their parents were preoccupied with their phones (Haza, 2018). Drowning is the second leading cause of mortality in children aged 1 to 14, according to the Centers for Disease Control and Prevention (2022). It is important to note that drowning can occur within seconds if parents are distracted (Rady Children's Hospital, 2021).
- The Safe Kids San Diego Drowning Prevention Task Force (Long, 2018) advises parents to stay alert and avoid distractions such as social media and texting while supervising children near water. "Lifeguard your child" is the initiative of the New Zealand Recreation Association (NZRA) to encourage parents to put down their phones at the pool so they can closely watch their kids (Water Safety New Zealand).
- It's crucial to be cautious and minimize smartphone distractions when adults or children are around pools, the sea, or any body of water, as almost 360,000 people die from drowning each year, according to the World Health Organization (2023).

3. Distracted Driving.

- Parents should avoid smartphone distractions when driving. Smartphones and hands-free gadgets create visual, physical, and cognitive distractions (NSC, 2020). The use of mobile phones while driving is known to cause the most accidents as it leads to loss of control by the drivers (American Psychological Association, 2008; Ortega et al., 2021). According to NHTSA data, distraction-related collisions resulted in the deaths of 3,142 people in 2020. Texting while driving caused 1.6 million accidents, accounting for 25% of all car accidents (Carsurance, 2022). In 2019, 42% of millennial parents admitted to texting and driving, a figure that decreased to 16% in 2021. As evidenced in literature, texting and driving result in the deaths of 400 individuals every year, with a shocking 650,000 drivers confessing to texting while driving (U.S. Department of Transportation, 2022). Between 2004 and 2011, car accidents involving cell phones increased by 1000-fold (NHTSA, 2013). In 2020, distracted driving resulted in the deaths of 3,142 individuals and the injury of 324,652 passengers, with 12% of them using mobile phones (NHTSA, 2020). In 2011, the WHO cautioned that distracted driving, including cell phone use, poses a serious and growing road safety risk. Texting while driving is particularly dangerous. The WHO suggests that further research, rules, and policies be implemented to warn drivers against mobile phone use (WHO, 2011).
- Literature review shows that parents who drive while using their phones are putting their children at risk of car accidents. Half of parents with children aged 4–10 admitted to talking on their phones while driving, and some were distracted by texts and social media (Silver et al., 2019). The study revealed that 33% of the participants read messages, 26% sent texts, and 13% accessed social media (McDonald et al., 2018). Also a nationwide cross-sectional study of parents or carers driving with children ages 4 to

10 linked mobile phone use to distracted driving (Children's Hospital of Philadelphia, 2018).
- According to the traffic administration (National Centre for Statistics and Analysis, 2022), using smartphones, audio players, and other distractions while driving should be avoided.
- The National Safety Council (NSC, 2020) is concerned that car hands-free systems encourage multitasking, which is dangerous and distracting. They recommend the implementation of driver cell phone bans in all states.
- Talking, texting, and listening to music while driving endangers pedestrians (Schwebel et al., 2012). Inattentive driver cum caregiver has failed to notice his child wandering into driveway, or parking street, which has caused accident and child death (Times of India, 2019).

4. Pedestrian Negligence.
- The US traffic safety administration recorded 6516 pedestrian deaths in 2020. Caregivers' and parents' smartphone use is causing inattentiveness, which might lead to injuries for children and pedestrians. Walking while using a cell phone is dangerous, and chatting or texting on highways reduces pedestrian awareness by distracting people from visual and aural signals (Chen & Pai, 2018). Between 2000 and 2011, distracted walking with cell phones injured over 11,100 Americans as per US National Safety Council (Cornerstonestaffing, 2022).
- Some researchers have warned that smartphone distractions increase automotive crashes and pedestrian irresponsibility, endangering pedestrian safety for adults and children (Nasar & Troyer, 2013; Rahmillah et al., 2023; Schwebel et al., 2012).
- It is important to note that in China, three infants were tragically killed in car collisions due to pedestrian recklessness. One incident occurred when a mother, distracted by her mobile phone, allowed her 2-year-old daughter to wander onto the road unattended, resulting in a collision with a car .Similar incidents occurred in 2014 in Henan (August 2014) and Anhui (April 2014), where toddlers were also hit by vehicles while their mothers were using their phones. Following these tragedies, the government urged parents to learn how to prevent smartphone distractions (Guo & Ives, 2016).
- From 2019 to 2020, NBC recorded an increase of 21% in pedestrian deaths (Carsurance, 2022). Distracted walking is dangerous, and in many countries, bans on phone use when crossing roads have been implemented (Mwakalonge et al., 2015). Honolulu is the first major US city to ban pedestrians from using phones, texting, or digital devices while crossing the road, Stamford bans and fines texting and walking (BBC, 2017; Greenfield, 2021).Yamato is the first Japanese city to ban smartphone use while walking. Government says this will help residents understand that they have become "smartphone zombies" which can be dangerous and can cause accidents to pedestrians (Dayman, 2020).

Q3. Reports and cases of injuries and deaths caused by smartphone-distracted parenting.

Some catastrophic cases related to distracted parenting have been collected from

newsreports highlighting a scarcity of academic studies in this area. Specifically, there is a notable gap in research regarding the potential dangers associated with problematic smartphone use and the impacts of smartphone distractions on parents. These findings highlight the importance of encouraging safe smartphone usage among carers and parents to prevent unintentional child injuries (see Table 1)

Table 1 presents media reports from different countries, such as China, the US, Germany, and Australia, showcasing instances where children were harmed or killed due to preventable incidents. These incidents, including drowning, playground accidents, road accidents, and other injuries, were all linked to parents being distracted by their smartphones (Bury, 2020; Gibson, 2006; Graziosi, 2023; Guo & Ives, 2016; Hiniker et al., 2015; McDonald, 2018; Palsson, 2017).

Table 1

Cases of child unintentional injuries associated with parental smartphone distraction.

Cases of Drowning				
Country	**Incidence**	**Age**	**News report**	**Website**
USA	Drowning Home pool (age 1-4)	1-4 years	USA-Today, 15 Aug. 2018 (Josh Hafner)	https://www.usatoday.com/story/news/nation-now/2018/08/15/child-drownings-linked-phone-distraction-among-parents-pools/998836002/ https://www.safekids.org
UAE	Drowning	8 - 9 years	The National, 1 July 2018 (Haza)	https://www.thenationalnews.com/uae/negligent-parents-distracted-by-mobile-phones-put-children-at-risk-of-drowning-say-police-1.745891
Germany	Drowning	Under 18 years	The Guardian, 2018, August 15	https://www.theguardian.com/lifeandstyle/2018/aug/15/parents-fixated-by-phones-linked-to-child-drownings-in-germany
New Zealand	Drowning	1- 5 years	Stuff, 17 January 2018 Stuff Ewan Sargent, 2017, November 13	https://www.stuff.co.nz/national/100643703/child-drownings-blamed-on-parents-being-distracted-by-mobile-phones https://www.stuff.co.nz/lifestyle/parenting/little-kids/preschool/98818394/distraction-from-cell-phones-a-factor-in-child-drownings--expert
China	Drowning	1 year	Khaleej Times,2018	https://www.khaleejtimes.com/world/mother-glued-to-phone-leaves-drowning-daughter-struggling

Australia	Drowning	5 months old	The Sydney Morning Herald,2006, December 15 (Gibson)	https://www.smh.com.au/national/baby-dies-after-pram-plunges-in-river-20061216-gdp274.html
Cases of Pedestrian Negligence				
Country	**Incidence**	**Age**	**News report**	**Website**
UK	Pedestrian Negligence	1 – 10 years	The Guardian,2013, June 18	https://www.theguardian.com/technology/shortcuts/2013/jun/18/smartphones-and-rise-of-child-accidents
China	Pedestrian Negligence	2 – 3 years	The New York Times , 2016, November 1	https://www.nytimes.com/2016/11/02/world/asia/china-mobile-phone-mother-daughter.html
Cases of Distracted Driving				
Country	**Incidence**	**Age**	**News report**	**Website**
India	Distracted Driving	3 years	Times of India,2019, April 24	https://timesofindia.indiatimes.com/city/delhi/using-mobile-while-driving-uncle-runs-over-3-year-old-boy/articleshow/69017544.cms
USA	Distracted Driving	4 – 10 years	CARSURANCE,, 2022 February 18; nsc-National Safety Council, 2024; ScienceDaily, 2018 July 12; ScienceDirect, 2018 October	https://www.nsc.org/road/safety-topics/distracted-driving/cell-phone-distracted-driving https://carsurance.net/insights/texting-and-driving-statistics https://www.sciencedaily.com/releases/2018/07/180712100538.htm https://www.sciencedirect.com/science/article/pii/s0022347618307728)
Cases of Playground Injuries				
Country	**Incidence**	**Age**	**News report**	**Website**
USA	Playground injuries	1-6 years	The New York Times Karlan (2014, November 11	www.nytimes.com/2014/11/12/upshot/how-an-iphone-can-lead-to-broken-bones-for-young-children.html
Australia	Playground injuries	children of different ages	The Daily Mail (2012, November 23	https://www.dailymail.co.uk/health/article-2237034/Unsupervised-children-having-accidents-parents-busy-playing-smartphones.html

Case of Starvation				
Korea	Starvation	3 Months old baby	The Guardian Tran (2010, March 5).	https://www.theguardian.com/world/2010/mar/05/korean-girl-starved-online-game

Australia: In Australia the infant died unexpectedly after his stroller fell into the river. An accident occurred while the mother was answering a phone call. She was so distracted with her cell phone that, for several minutes, she was unaware that her five-month-old baby and stroller were missing and had fallen into a river (Gibson, 2006).

China: Three identical road accidents involving toddlers whose mothers were not paying attention to them on the road have occurred in three different cities in China, resulting in the deaths of all three children. These mothers, distracted by their phones, let their children wander off the pavement, where they strayed from the path and met their demise at the hands of a passing car. These three incidents highlight the dangers posed by parents' inability to give their children full attention because of their smartphone distractions (Guo & Ives, 2016).

The number of drowning cases in Germany has increased because of parents not paying attention to their children and being preoccupied with their phones when such accidents occur (The Guardian, 2018).

India: An uncle in Delhi accidentally killed a 3-year-old boy when he started driving while distracted by his mobile phone. The uncle was unaware that his nephew was standing in front of his parked car. His eyes were glued to his phone when he ran over his nephew (Times of India, 2019).

New Zealand: The New Zealand Recreation Association says that most child drownings happen owing to inadequate adult supervision. According to NZRA, parents usually do not pay attention to their children near the pool because they are on their phones (Long, 2018).

The UAE has reported drowning cases among children aged 8 and 9 due to parental negligence. Smartphone-induced distracted parenting, according to UAE police, has made such accidents more common (Haza, 2018).

Hospitals in the United Kingdom report 40,000 playground injuries per year. Due to pedestrian negligence, drowning cases are increasing in the United Kingdom. According to Rady Children's Hospital (2021), one of the causes is a lack of adequate parental supervision, with parents frequently distracted by their smartphones during such accidents.

In the United States, drowning, playground injuries, and distracted driving are all on the rise. Negligent parents, whose supervision was weak due to smartphone distractions, have caused most of the deaths among children between the ages of 1 and 10 (Haza, 2018; CDC, 2022).

Korea: A couple in South Korea left their three-month-old daughter unattended for several hours as they were busy and distracted with online gaming, and because of this inattention and negligent parenting, their daughter died of starvation (Tran, 2010).

Discussion

The rise in smartphone usage has become an undeniable part of modern life,

substantially impacting various facets of daily activities. This review paper has highlighted a critical issue: the increasing incidence of child injuries due to inadequate parental supervision caused by smartphone distractions. This discussion section aims to synthesise the key findings and their implications, outline the gaps in the current research, and propose directions for future studies and interventions.

In this review study, we examined cases of unintentional injuries and deaths among children caused by parental negligence due to smartphone distraction. Our findings underscore the critical need to prevent such catastrophes worldwide by addressing the root cause: parents' distracted attention. The evidence from various sources illustrates a troubling pattern of incidents, including car accidents, drownings, playground injuries, and pedestrian negligence, all linked to parents' untimely smartphone use (Bury et al.,2020; Corlis, 2019; Cosottile & Damashek, 2022; De Ramirez et al., 2012; Gibson, 2006; Glatter, 2015; Guyon et al., 2020; Kim et al., 2017; Palsson, 2017; Vanden et al.,2020). These findings align with other research (Anderst & Moffatt, 2014; Corlis, 2019; Cosottile & Damashek, 2021; McDaniel, 2019; Shrier, 2017; Tran, 2010), confirming that smartphone distraction among parents can severely compromise child safety.

Interpretation of Results

The findings underscores a critical public health concern: smartphone distractions pose physical risks and contribute to emotional neglect, potentially leaving children feeling ignored or undervalued. This can impact their emotional development and strain parent-child bonding. Additionally, the review highlights not only the physical dangers but also the emotional and developmental consequences of distracted parenting. The phenomenon of "technoference" where technology interferes with parent-child interactions has been shown to adversely affect children's emotional well-being and behavior (McDaniel & Radesky, 2018) and instances of "phubbing," where parents ignore their children in favor of their smartphones, contribute to uninvolved parenting and can lead to emotional neglect and developmental delays (Niu et al., 2020; Shrier, 2017).

Additionally, our review found that distracted parenting, characterised by frequent smartphone use, correlates with a decline in parental involvement in children's activities and delays in language development among toddlers (Corkin et al., 2021; Shrier, 2017).

Practical Implications

These findings have far-reaching practical implications. To mitigate the risks of child injuries, parents must employ comprehensive supervision strategies, including visual, audio, and physical oversight. Organisations like Safe Kids Worldwide and UNICEF emphasise the necessity of parents' undivided attention for child safety (Crisp, 2014). Moreover, reducing smartphone usage during key family interactions such as meals, bedtime, and playtime can significantly improve the quality of parental supervision (Pancani et al., 2020; Radesky et al., 2014). It is essential to balance the benefits of digital technology with the potential harm it may cause to child development and safety. Promoting responsible and moderate use of technology (BBC, 2016) can help ensure that digital devices serve as tools for enhancing, rather than undermining, family well-being.

Limitations

Despite the compelling evidence, there remains a notable gap in systematic documentation and research on this issue. A significant limitation is the lack of comprehensive studies that quantify the exact prevalence and impact of smartphone-induced distracted parenting on child safety. Most existing studies rely on anecdotal evidence, media reports, and isolated academic articles, which, while valuable, need to provide a deep investigation.

Our study has certain limitations. The reliance on media reports and news stories may introduce bias, as these sources might selectively highlight more sensational cases. While these reports provide valuable insights, they must comprehensively view the prevalence and nuances of child injuries related to smartphone distraction. Consequently, there is a lack of academic research on the impact of parental smartphone distraction on child safety, particularly those who require adequate parental supervision. Furthermore, the study predominantly relies on reported incidents of physical injuries, such as drowning, pedestrian negligence and playground accidents, without comprehensive data on other potential risks like vehicular heat stroke or accidental poisoning in unattended children.

Ethical considerations pose another significant limitation. Conducting surveys and experiments among young children to assess their feelings of neglect due to parental smartphone use is challenging and ethically complex (Myruski et al., 2018; Konrad et al., 2021). Most documented cases originate from high-income countries, particularly the United States. This geographic limitation underscores the need for more extensive research in diverse cultural and socioeconomic contexts to understand the global impact of parental smartphone distraction. Additionally, the limited diversity of tasks and environments studied in smartphone distraction may affect the generalisability. Future research should incorporate more systematic data collection and analysis where we can get data on different age groups of children to understand this issue comprehensively.

Future Work

Future research should address these limitations using a more systematic and scientific approach. There is a pressing need for more scientific research to systematically collect, interpret, and evaluate data on the impacts of technology use on parenting.

There is an urgent need for longitudinal and observational studies to assess the long-term effects of parental smartphone distraction on child development and safety. It's important to include a broader range of geographic locations and socioeconomic backgrounds in the research to gain a more comprehensive understanding of the issue. Additionally, documenting cases of child injuries related to smartphone distraction in low- and middle-income countries will help in developing relevant interventions and policies.

Policymakers should prioritise creating awareness programmes and interventions that emphasise the importance of attentive parenting. Future research should focus on risks associated with excessive smartphone use during parenting hours and should also focus on developing strategies to educate parents about safe technology practices. This includes investigating the uptake and effectiveness of preventative approaches to minimise smartphone distraction, such as using apps and devices to

block smartphone signals during critical times like driving or supervising children. It is also critical to assess the efficacy of various digital wellbeing tools in reducing parental distraction, such as 'Do Not Disturb' mode, aeroplane mode, and digital wellbeing applications..

Exploring the complex relationship between technological progress and social change is another important avenue for future research. Understanding how parental smartphone use influences child behaviour and development can assist in crafting targeted interventions. Research should also investigate the potential health risks associated with emerging technologies, such as 5G networks, and their impact on parental behaviour and child safety.

Finally, it is of utmost importance to develop ethical guidelines for conducting research in this sensitive area. Innovative methodologies, such as unobtrusive observational studies in public places like parks and swimming pools, can provide valuable data while minimising ethical concerns. This emphasis on ethical guidelines underscores the responsibility we have as researchers in this field.

Conclusion

In conclusion, this review claims that although smartphones provide substantial advantages, their untimely use poses substantial dangers to the safety and development of children. The convenience and easy connectivity of smartphones can help parents manage various aspects of modern life, including work-life balance, social expectations, and even some aspects of childcare (Ball & Keegan, 2022). However, parents' overuse of smartphones can lead to severe consequences.

Excessive smartphone use can lead to parental distraction and inadequate supervision of children. This inattention heightens the risk of unintentional injuries, such as car accidents, drownings, playground mishaps, and other avoidable incidents (Cosottile & Damashek, 2022; McDaniel, 2019). Beyond physical harm, smartphone distraction can also result in emotional neglect. Children may feel neglected or undervalued, which can detrimentally affect their emotional growth and weaken the parent-child relationship (McDaniel & Radesky, 2018; Niu et al., 2020).

Moreover, the study highlights the broader societal implications of parental smartphone use. The rapid technological advancements and growing reliance on smartphones necessitate reevaluating parenting practices and developing strategies to mitigate the associated risks. This review highlights the urgent need for parents to recognise the dangers of smartphone distraction and to adopt more mindful and attentive parenting practices. By doing so, they can significantly reduce the risk of unintentional injuries and emotional neglect among their children.

As digital technology continues to permeate our daily lives, its impact on parenting requires ongoing scrutiny and proactive measures to ensure a safe and nurturing environment for children. Future research should persist in investigating the effects of parental smartphone use and devising effective strategies to foster mindful and attentive parenting. This way, we can leverage the advantages of technology while mitigating its potential harm. Public awareness campaigns, educational programmes, and policy interventions are crucial in addressing this issue and to promote responsible technology use.

In conclusion, while this study highlights significant concerns about the

impact of parental smartphone distraction on child safety and development, it also identifies substantial gaps in current research. Addressing these gaps through comprehensive, ethically sound, and globally inclusive research is crucial for developing effective strategies to mitigate the risks of digital parenting. By fostering a better understanding of the implications of excessive smartphone use and promoting responsible digital habits among parents, we can enhance the well-being and safety of children worldwide.

References

Alavi, S. S., Ferdosi, M., Jannatifard, F., Eslami, M., Alaghemandan, H., & Setare, M. (2012). Behavioral addiction versus substance addiction: Correspondence of psychiatric and psychological views. *Inter*natio*nal Journal of Preventive Medicine, 3*(4), 290-294.

American Psychological Association (2008). *Drivers make more errors when talking on cell phone than to a passenger.* Apa.org. https://www.apa.org/news/press/releases/2008/12/phone-driving

American Psychological Association. (n.d.). *APA Dictionary of Psychology*. American Psychological Association. Retrieved April 26, 2023, from https://dictionary.apa.org/distraction

Ante-Contreras, D. (2016). *Distracted parenting: How social media affects parent-child attachment* [Master's project, California State University, San Bernardino]. Electronic Theses, Projects, and Dissertations, 292. https://scholarworks.lib.csusb.edu/etd/292

Ball, H. L., & Keegan, A. A. (2022). Digital health tools to support parents with parent-infant sleep and mental well-being. *NPJ Digit Med, 5*(1), 185. https://doi.org/10.1038/s41746-022-00732-4

Bae, E. J., & Nam, S. H. (2023). How mothers' problematic smartphone use affects adolescents' problematic smartphone use: Mediating roles of time mothers spend with adolescents and adolescents' self-esteem. *Psychology Research and Behaviour Management, 16,* 885-892. https://doi.org/10.2147/PRBM.S401515

BBC. (2016, December 31). *French workers get 'right to disconnect' from emails out of hours.* BBC News. Retrieved April 28, 2023, from https://www.bbc.com/news/world-europe-38479439

BBC. (2017, October 25). *Honolulu first US city to ban texting while Crossing Road. BBC News. Retrieved April 28*, 2023, from https://www.bbc.com/news/world-us-canada-41746544

Bianchi, A., & Phillips, J. G. (2005). Psychological predictors of problem mobile phone use. *Cyberpsychology & behavior, 8*(1), 39-51. https://doi.org/10.1089/cpb.2005.8.39

Billieux, J. (2012). Problematic use of the mobile phone: A literature review and a pathways model. *Current Psychiatry Reviews, 8*(4), 299-307. https://doi.org/10.2174/157340012803520522

Bovarnick, S. (2007). Child neglect: NSPCC child protection research briefing. *London: NSPCC.*

Bury, K., Jancey, J., & Leavy, J. E. (2020). Parent mobile phone use in playgrounds: A paradox of convenience. *Children 7*(12). https://doi.org/10.3390/children7120284

CARURANCE. (2022, February 18). *24 texting and driving statistics.* Carsurance. https://carsurance.net/insights/texting-and-driving-statistics

CDC. (2022). *Wisqars leading causes of Death Visualization Tool.* Centers for Disease Control and Prevention. https://wisqars.cdc.gov/lcd

CDC. (2022, October 7). *Drowning facts.* Centers for Disease Control and Prevention. Retrieved April 28, 2023, from https://www.cdc.gov/drowning/facts/index.html

Chen, P. L., & Pai, C. W. (2018). Pedestrian smartphone overuse and inattentional blindness: an observational study in Taipei, Taiwan. *BMC Public Health, 18*(1), 1342. https://doi.org/10.1186/s12889-018-6163-5

Children's Hospital of Philadelphia. (2018, July 12). *About half of parents use cell phones while driving with young children in the car. ScienceDaily.* Retrieved April 28, 2023, from https://www.sciencedaily.com/releases/2018/07/180712100538.

Chotpitayasunondh, V., & Douglas, K. M. (2016). How "phubbing" becomes the norm: The antecedents and consequences of snubbing via smartphone. *Computers in Human Behavior, 63,* 9-18. https://doi.org/10.1016/j.chb.2016.05.018

Chu, J., Qaisar, S., Shah, Z., & Jalil, A. (2021). Attention or distraction? The impact of mobile phone on users' psychological well-being. *Frontiers in Psychology, 11*, Article 612127. https://doi.org/10.3389/fpsyg.2021.612127

Corkin, M. T., Henderson, A. M. E., Peterson, E. R., Kennedy-Costantini, S., Sharplin, H. S., & Morrison, S. (2021). Associations between technoference, quality of parent-infant interactions, and infants' vocabulary development. *Infant Behavior & Development, 64,* 101611. https://doi.org/10.1016/j.infbeh.2021.101611

Corlis, M. K. (2019). *Examining the effects of cell phone use on caregiver supervision and child injury risk* [Doctoral dissertation, Western Michigan University]. https://scholarworks.wmich.edu/dissertations/3488

Cosottile, M., &Damashek, A. (2022). Effects of cell phone use on caregiver supervision and child injury risk. *Journal of Pediatric Psychology, 47*(1), 86-93. https://doi.org/10.1093/jpepsy/jsab080

Crisp, K. (2014, May 21). *Head of Strategy & Innovation at UNICEF UK on the new app that encourages working parents to play with their children.* Womanthology. https://www.womanthology.co.uk/katherine-crisp-head-strategy-innovation-unicef-uk-new-app-encourages-working-parents-play-children/

Cornerstonestaffing. (2022). *Distracted walking.* CornerStone Staffing. https://www.cornerstonestaffing.com/safety-resources/distracted-walking/

Custer, C. (2015, May 6). *Smartphones are ruining Chinese marriages, apparently.* TECHINASIA. https://www.techinasia.com/smartphones-ruining-chinese-marriages

Daneback, K., & Plantin, L. (2008). Research on parenthood and the internet: Themes and trends. Cyberpsychology: *Journal of Psychosocial Research on Cyberspace, 2*(2),Article 2. https://cyberpsychology.eu/article/view/4213

David, P., Kim, J.-H., Brickman, J. S., Ran, W., & Curtis, C. M. (2014). Mobile phone distraction while studying. *New Media & Society, 17*(10), 1661-1679. https://doi.org/10.1177/1461444814531692

Dayman, L. (2020, August 19). *The Japanese city that banned 'smartphone-walking'*. BBC Worklife. Retrieved April 28, 2023, from https://www.bbc.com/worklife/article/20200810-yamato-japan-smartphone-ban-while-walking

de Ramirez, S. S., Hyder, A. A., Herbert, H. K., & Stevens, K. (2012). Unintentional injuries: Magnitude, prevention, and control. *Annual Review of Public Health, 33*(1), 175-191. https://doi.org/10.1146/annurev-publhealth-031811-124558

Duke, E., & Montag, C. (2017). Smartphone addiction, daily interruptions and self-reported productivity. *Addictive Behaviors Reports, 6,* 90-95. https://doi.org/10.1016/j.abrep.2017.07.002

Florida Department of Health. (2015). *Unintentional injuries.* Florida Health. https://www.floridahealth.gov/programs-and-services/womens-health/pregnancy/9__2015-title-v-brief-injury-prevention-final-11-06-2014.pdf

Gibson, J. (2006, December 15). *Baby dies after pram plunges in river.* The Sydney Morning Herald. https://www.smh.com.au/national/baby-dies-after-pram-plunges-in-river-20061216-gdp274.html

Glatter, R. MD. (2015, April 27). *Parents using smartphones at playgrounds can place children at risk for injury.* Forbes. https://www.forbes.com/sites/robertglatter/2015/04/25/parents-using-smartphones-at-playgrounds-can-place-children-at-risk-for-injury/?sh=1ec12e0b2d9b

Gowthami, S., & Kumar, S. V. K. (2016). Impact of smartphone: A pilot study on positive and negative effects. *International Journal of Scientific Engineering and Applied Science, 2*(3), 473-478.

Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. (2010). Introduction to behavioural addictions. *American Journal of Drug and Alcohol Abuse, 36*(5), 233-241. https://doi.org/10.3109/00952990.2010.491884

Guyon, P. W., Jr., Corroon, J., Ferran, K., Hollenbach, K., & Nguyen, M. (2020). Hold the phone! Cell phone-related injuries in children, teens, and young adults are on the rise. *Global Paediatric Health, 7.* https://doi.org/10.1177/2333794X20968459

Graziosi, G. (2023, September 28). *Mother accused of ignoring 3-year-old son as he drowned at Texas waterpark.* The Independent. https://www.the-independent.com/news/world/americas/crime/mother-accused-son-drowned-texas-waterpark-b2420588.html

Greenfield, D. N. (2021). Digital distraction: What makes the internet and smartphone so addictive? *Human Capacity in the Attention Economy*., 27–47. https://doi.org/10.1037/0000208-003

Groff, B. D., Baron, R. S., & Moore, D. L. (1983). Distraction, attentional conflict,

and drivelike behavior. *Journal of Experimental Social Psychology, 19*(4), 359–380. https://doi.org/10.1016/0022-1031(83)90028-8

The Guardian. (2018, August 15). *Child drownings in Germany linked to parents' phone 'fixation'*. The Guardian. https://www.theguardian.com/lifeandstyle/2018/aug/15/parents-fixated-by-phones-linked-to-child-drownings-in-germany

Guo, O., & Ives, M. (2016, November 1). *A toddler dies as her mother checks her phone, and China wrings its hands.* The New York Times. https://www.nytimes.com/2016/11/02/world/asia/china-mobile-phone-mother-daughter.html

Guyon, P.W., Jr., Corroon, J., Ferran, K., Hollenbach, K., & Nguyen, M. (2020). Hold the phone! Cell phone-related injuries in children, teens, and young adults are on the rise. *Global Pediatric Health, 7*. https://doi.org/10.1177/2333794X20968459

Hafner, J. (2018, August 15). *Child drownings linked to phone-distracted parents who fail to look up. USA Today.* https://www.usatoday.com/story/news/nation-now/2018/08/15/child-drownings-linked-phone-distraction-among-parents-pools/998836002/

Hanoch, Y., & Wood, S. (2021). The scams among us: Who falls prey and why. *Current Directions in Psychological Science, 30*(3), 260-266. https://doi.org/10.1177/0963721421995489

Haza, R. (2018, July 1). *"Negligent" parents distracted by mobile phones put children at risk of drowning, say police*. The National. https://www.thenationalnews.com/uae/negligent-parents-distracted-by-mobile-phones-put-children-at-risk-of-drowning-say-police-1.745891

Hiniker, A., Sobel, K., Suh, H., Sung, Y. C., Lee, C. P., & Kientz, J. A. (2015, April). *Texting while parenting: How adults use mobile phones while caring for children at the playground.* In Proceedings of the 33rd annual ACM conference on human factors in computing systems (pp. 727-736).https://doi.org/10.1145/2702123.2702199

Hoehe, M. R., & Thibaut, F. (2020). Going digital: how technology use may influence human brains and behavior. In (Vol. 22, pp. 93-97): Taylor & Francis.

Hughes, N., & Burke, J. (2018). Sleeping with the frenemy: How restricting 'bedroom use' of smartphones impacts happiness and wellbeing. *Computers in Human Behavior,* 85, 236–244. https://doi.org/10.1016/j.chb.2018.03.047

Jeong, K. H., Kim, S., Ryu, J. H., & Lee, S. (2022). A longitudinal relationship between mother's smartphone addiction to child's smartphone addiction. *International Journal of Mental Health and Addiction* 1-12. https://doi.org/10.1007/s11469-022-00957-0

Johnson, D. (2017). *Parents' perceptions of smartphone use and parenting practices*(Publishing No. 10690230). [Doctoral dissertation, University of Nevada]. ProQuest Dissertations.

Johnson, H., Welch, G., & Wilhelm, L. (2013). *The neglected child: How to recognize, respond, and prevent.* Gryphon House, Inc.

Karlan, D. (2014, November 11). *How an iPhone can lead to Broken Bones for young children.* The New York Times. http://www.nytimes.com/2014/11/12/upshot/

how-an-iphone-can-lead-to-broken-bones-for-young-children.html

Kim, H. J., Min, J. Y., Kim, H. J., & Min, K. B. (2017). Accident risk associated with smartphone addiction: A study on university students in Korea. *Journal of Behavioral Addictions 6*(4), 699-707. https://doi.org/10.1556/2006.6.2017.070

Konrad, C., Berger-Hanke, M., Hassel, G., & Barr, R. (2021). Does texting interrupt imitation learning in 19-month-old infants? *Infant Behav Dev, 62,* 101513. https://doi.org/10.1016/j.infbeh.2020.101513

Kushlev, K., & Dunn, E. W. (2018). Smartphones distract parents from cultivating feelings of connection when spending time with their children. *Journal of Social and Personal Relationships, 36*(6), 1619-1639. https://doi.org/10.1177/0265407518769387

Liao, W. (2019). *Put your smartphone down: Preliminary evidence that reducing smartphone use improves psychological well-being in people with poor mental health.* [Doctoral dissertation, University of Otago].

Long, J. (2018, January 17). *Child drownings blamed on parents being distracted by mobile phones.* Stuff. http://www.stuff.co.nz/national/100643703/child-drownings-blamed-on-parents-being-distracted-by-mobile-phones

Macquarie Dictionary. (2012, May). *How phone snubbing became phubbing. Merriam-Webster.* https://www.merriam-webster.com/words-at-play/phubbing-words-we%27re-watching

Mackay, L. J., Komanchuk, J., Hayden, K. A., & Letourneau, N. (2022). Impacts of parental technoference on parent-child relationships and child health and developmental outcomes: a scoping review protocol. *Systematic Reviews, 1*1(1), 45. https://doi.org/10.1186/s13643-022-01918-3

McDaniel, B. T. (2019). Parent distraction with phones, reasons for use, and impacts on parenting and child outcomes: A review of the emerging research. *Human Behavior and Emerging Technologies, 1*(2), 72-80. https://doi.org/10.1002/hbe2.139

McDaniel, B. T., & Radesky, J. S. (2018). Technoference: longitudinal associations between parent technology use, parenting stress, and child behavior problems. *Pediatric Research, 84*(2), 210-218. https://doi.org/10.1038/s41390-018-0052-6

McDaniel, B. T., & Coyne, S. M. (2016). "Technoference": The interference of technology in couple relationships and implications for women's personal and relational well-being. *Psychology of Popular Media Culture, 5*(1), 85-98. https://doi.org/10.1037/ppm0000065

McDaniel, B. T. (2021). The DISRUPT: A measure of parent distraction with phones and mobile devices and associations with depression, stress, and parenting quality. *Human Behavior and Emerging Technologies, 3*(5), 922-932. https://doi.org/10.1002/hbe2.267

McDonald, C. C., Kennedy, E., Fleisher, L., &Zonfrillo, M. R. (2018). Factors associated with cell phone use while driving: A survey of parents and caregivers of children ages 4-10 years. *Journal of Pediatrics, 201,* 208-214. https://doi.org/10.1016/j.jpeds.2018.06.003

Mikeka, S., Carson, R., Butcher, J., & Mineka, S. (1996). Abnormal psychology and modern life.

Morris, A. J., Filippetti, M. L., & Rigato, S. (2022). The impact of parents' smartphone use on language development in young children. *Child Development Perspectives, 16(*2), 103-109. https://doi.org/10.1111/cdep.12449

Morrongiello, B. A., Corbett, M., McCourt, M., & Johnston, N. (2006). Understanding unintentional injury risk in young children II. The contribution of caregiver supervision, child attributes, and parent attributes. *Journal of Pediatric Psychology, 31*(6), 540-551.

Mwakalonge, J., Siuhi, S., & White, J. (2015). Distracted walking: Examining the extent to pedestrian safety problems. *Journal of Traffic and Transportation Engineering (English Edition), 2*(5), 327–337. https://doi.org/10.1016/j.jtte.2015.08.004

Myruski, S., Gulyayeva, O., Birk, S., Perez-Edgar, K., Buss, K. A., & Dennis-Tiwary, T. A. (2018). Digital disruption? Maternal mobile device use is related to infant social-emotional functioning. *Development Science, 2*1(4), e12610. https://doi.org/10.1111/desc.12610

Nasar, J. L., & Troyer, D. (2013). Pedestrian injuries due to mobile phone use in public places. *Accident Analysis & Prevention, 57*, 91–95. https://doi.org/10.1016/j.aap.2013.03.021

National Center for Statistics and Analysis (NHTSA). (May,2022). *Pedestrians. Traffic Safety Facts.* https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813310

Niu, G., Yao, L., Wu, L., Tian, Y., Xu, L., & Sun, X. (2020). Parental phubbing and adolescent problematic mobile phone use: The role of parent-child relationship and self-control. *Children and Youth Services Review, 11*6. https://doi.org/10.1016/j.childyouth.2020.105247

NHTSA. (2013, April). *Distracted driving 2011*. https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/811737

NHTSA. (2022, May). *Distracted driving.* https://www.nhtsa.gov/risky-driving/distracted-driving

NSC. (2020). *Distracted driving home*. National Safety Council. https://www.nsc.org/road-safety/safety-topics/distracted-driving

Oraison, H., Nash-dolby, O., Wilson, B., & Malhotra, R. (2020). Smartphone distraction-addiction: *Examining the relationship between psychosocial variables and patterns of use*. *Australian Journal of Psychology, 72*(2), 188-198. https://doi.org/10.1111/ajpy.12281

Ortega, C. A., Mariscal, M. A., Boulagouas, W., Herrera, S., Espinosa, J. M., & García-Herrero, S. (2021). Effects of mobile phone use on driving performance: An experimental study of workload and traffic violations. *International Journal of Environmental Research and Public Health, 1*8(13), 7101. https://doi.org/10.3390/ijerph18137101

Oviedo-Trespalacios, O., Nandavar, S., Newton, J. D. A., Demant, D., & Phillips, J.

G. (2019). Problematic use of mobile phones in australia...Is it getting worse? *Frontiers in Psychiatry, 10,* 105. https://doi.org/10.3389/fpsyt.2019.00105

Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? *Journal of Behavioral Addictions, 7*(2), 252-259. https://doi.org/10.1556/2006.7.2018.49

Palsson, C. (2017). Smartphones and child injuries. *Journal of Public Economics, 156,* 200-213. https://doi.org/10.1016/j.jpubeco.2017.10.008

Pancani, L., Gerosa, T., Gui, M., & Riva, P. (2020). "Mom, dad, look at me": The development of the parental phubbing scale. *Journal of Social and Personal Relationships, 38*(2), 435-458. https://doi.org/10.1177/0265407520964866

Perrow, C. (1999). *Normal accidents: Living with high risk technologies*. Princeton University Press.

Pew Research Center (2015). U.S. Smartphone use in 2015. Available at: http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015Perrow, C. (1984). *Normal Accidents.* BasicBooks.

Pew Research Center (2016). Smartphone ownership and internet usage continues to climb in emerging economies. Available at:http://www.pewglobal.org/2016/02/22/smartphone-ownership-and-internet-usage-continues-to-climb-in-emerging-economies

Pew Research Center.(2021). Demographics of mobile device ownership and adoption in the United States. Pew Research Center. Internet, Science & Tech. m https://www.pewresearch.org/internet/fact-sheet/mobile/

Petrovcic, A., Taipale, S., Rogelj, A., &Dolnicar, V. (2017). Design of mobile phones for older adults: An empirical analysis of design guidelines and checklists for feature phones and smartphones. *International Journal of Human–Computer Interaction, 34*(3), 251-264. https://doi.org/10.1080/10447318.2017.1345142

Polonko, K. A. (2006). Exploring assumptions about child neglect in relation to the broader field of child maltreatment. *Journal of Health and Human Services Administration, 29*(3), 260-284.

Radesky, J. S., Kistin, C. J., Zuckerman, B., Nitzberg, K., Gross, J., Kaplan-Sanoff, M., Augustyn, M., & Silverstein, M. (2014). *Patterns of mobile device use by caregivers and children during meals in fast food restaurants. Pediatrics, 133*(4), e843-849. https://doi.org/10.1542/peds.2013-3703

Rady Children's Hospital. (2021). *Drowning prevention.* Rady Children's Hospital-San Diego. https://www.rchsd.org/programs-services/center-for-healthier-communities/injury-prevention/safe-kids-san-diego/drowning-prevention.

Rahmillah, F. I., Tariq, A., King, M., & Oviedo-Trespalacios, O. (2023). Is distraction on the road associated with maladaptive mobile phone use? A systematic review. *Accident Analysis and Prevention, 181*, 106900. https://doi.org/10.1016/j.aap.2022.106900

Ralph, B. C., Thomson, D. R., Cheyne, J. A., &Smilek, D. (2014). Media multitasking and failures of attention in everyday life. *Psychological research, 78*(5), 661–669. https://doi.org/10.1007/s00426-013-0523-7.

Robb, M. B. (2019). *The new normal: Parents, teens, screens, and sleep in the United States.* Common Sense Media. https://www.commonsensemedia.org/research/the-new-normal-parents-teens-screens-and-sleep

The Royal Society for the Prevention of Accidents. (2004, September 30). *Information sheet number 1 accidents on children's playgrounds.* The Royal Society for the Prevention of Accidents Play Safety Information Sheet. Retrieved April 28, 2023, from https://www.rospa.com/rospaweb/docs/advice-services/play-safety/accidents-childrens-playgrounds.pdf

Salehan, M., & Negahban, A. (2013). Social networking on smartphones: When mobile phones become addictive. *Computers in Human Behavior, 29*(6), 2632-2639. https://doi.org/10.1016/j.chb.2013.07.003

Sandercock, H. (2022, January 3). Thousands injured 'playing in playgrounds' during Covid lockdowns. NHS Data Reveals Bizarre Covid Lockdown Injuries | NationalWorld. https://www.nationalworld.com/health/nhs-data-reveals-thousands-injured-from-diy-lawn-mowing-and-playground-activities-during-covid-lockdown-3513342

Sarwar, M., & Soomro, T. R. (2013). Impact of smartphone's on society. *European Journal of Scientific Research, 98*(2), 216-226. https://www.europeanjournalofscientificresearch.com

Schmuck, D. (2020). Does digital detox work? Exploring the role of digital detox applications for problematic smartphone use and well-being of young adults using multigroup analysis. *Cyberpsychology Behavior Social Networking, 23*(8), 526-532. https://doi.org/10.1089/cyber.2019.0578

Schwebel, D. C., Stavrinos, D., Byington, K. W., Davis, T., O'Neal, E. E., & de Jong, D. (2012). Distraction and pedestrian safety: How talking on the phone, texting, and listening to music impact crossing the street. *Accident Analysis & Prevention, 45,* 266–271. https://doi.org/10.1016/j.aap.2011.07.011

Scott, D., Higgins, D., & Franklin, R. (2012). The role of supervisory neglect in childhood injury. *Child Family Community Australia, 8,* 1-10. https://researchonline.jcu.edu.au/25961/1/cfca08.pdf

Shaw, M., & Black, D. W. (2012). Internet addiction: definition, assessment, epidemiology and clinical management. *CNS Drugs, 22*(5), 353-365. https://doi.org/10.2165/00023210-200822050-00001

Shrier, C. (2017, November 17). *The dangers of distracted parenting.* Michigan State University Extension . Retrieved April 26, 2023, from http://www.canr.msu.edu/news/the_dangers_of_distracted_parenting#:~:text=Distracted%20parenting%20has%20been%20found,is%20not%20receiving%20those%20cue

Silver, L., Smith, A., Johnson, C., Taylor, K., Jiang, J., Anderson, M., & Rainie, L. (2019). Mobile connectivity in emerging economies. *Pew Research Center, 7.* https://www.pewresearch.org

Small, G. W., Lee, J., Kaufman, A., Jalil, J., Siddarth, P., Gaddipati, H., Moody, T. D., & Bookheimer, S. Y. (2020). *Brain health consequences of digital technology use Dialogues in Clinical Neuroscience, 22*(2), 179-187. https://doi.org/10.31887/

DCNS.2020.22.2/gsmall

Sohn, S. Y., Krasnoff, L., Rees, P., Kalk, N. J., & Carter, B. (2021). The association between smartphone addiction and sleep: A UK cross-sectional study of young adults. *Frontiers in Psychiatry, 12*, 629407. https://doi.org/10.3389/fpsyt.2021.629407

Stockdale, L. A., Coyne, S. M., & Padilla-Walker, L. M. (2018). Parent and child technoference and socioemotional behavioral outcomes: A nationally representative study of 10 to 20 year old adolescents. *Computers in Human Behavior, 88*, 219-226. https://doi.org/10.1016/j.chb.2018.06.034

Taylor, P. (2023, January 18). *Forecast number of mobile users worldwide 2020-2025.* Statista. https://www.statista.com/statistics/218984/number-of-global-mobile-users-since-2010/

Times Of India. (2019, April 24). *Using mobile while driving, Uncle runs over 3-year-old boy: Delhi News* - Times of India. The Times of India. https://timesofindia.indiatimes.com/city/delhi/using-mobile-while-driving-uncle-runs-over-3-year-old-boy/articleshow/69017544.cms

Tran, M. (2010, March 5). *Girl starved to death while parents raised virtual child in online game*. The Guardian. https://www.theguardian.com/world/2010/mar/05/korean-girl-starved-online-game

Turner, A. (2023, July 2). *3.86 billion more phones than people in the world!* BankMyCell. https://www.bankmycell.com/blog/how-many-phones-are-in-the-world

Vanden Abeele, M. M., Abels, M., & Hendrickson, A. T. (2020). Are parents less responsive to young children when they are on their phones? A systematic naturalistic observation study. *Cyberpsychology, Behavior, and Social Networking, 23*(6), 363-370. https://doi.org/10.1089/cyber.2019.0472

WHO. (2011, February 14). *Mobile phone use: A growing problem of driver distraction.* World Health Organization. https://www.who.int/publications/i/item/mobile-phone-use-a-growing-problem-of-driver-distraction

World Health Organization. (2023, July 25). *Drowning.* World Health Organization. https://www.who.int/news-room/fact-sheets/detail/drowning

Yuan, N., Weeks, H. M., Ball, R., Newman, M. W., Chang, Y. J., & Radesky, J. S. (2019). How much do parents actually use their smartphones? Pilot study comparing self-report to passive sensing. *Pediatric Research, 86*(4), 416-418. https://doi.org/10.1038/s41390-019-0452-2