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Analyzing the Caregivers' behavioral patterns in managing their young Children's smartphone use in South Korea

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ABSTRACT

Purpose: As the age of exposure to screen media has decreased, problematic smartphone usage is becoming more prevalent among younger children. As children's smartphone use is often determined by their caregivers, understanding their motivations for allowing young children to use smartphones is crucial. This study aimed to explore the behavioral patterns of main caregivers in South Korea related to their young children's smartphone usage and the underlying motivations.

Design and methods: Semi-structured phone interviews were conducted, audio-recorded, transcribed, and analyzed using grounded theory methodology.

Results: Fifteen participants from South Korea, identifying as main caregivers of young children under six years of age and expressing concerns about their children's smartphone usage patterns, were recruited. A core category describing caregiver behaviors of managing children to use smartphones was identified as "Maintaining a vicious cycle to seek comfort in parenting." Their behavioral patterns appeared to be cyclical, alternating between permitting and restricting their children's smartphone use. They permitted their children to use smartphones to decrease their parenting burdens. However, this led to discomfort as they perceived the negative impacts of smartphones on their children and felt guilty. Consequently, they limited smartphone use, which increased their parental burden again.

Conclusion: Parental education and policy efforts are essential to prevent risks associated with children's problematic smartphone usage.

Practice implications: During regular health checkups for young children, nurses should assess potential smartphone overuse and related problems, considering caregiver motivations.

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Introduction

As the prevalence of smartphone usage has increased over the past decade (Park & Park, 2014), it can be considered an essential tool in our daily lives. Despite its several advantages, smartphones have raised various social and health concerns that are particularly related to excessive and maladaptive usage patterns (Yang et al., 2020). As these behavioral problems are challenging to define, there is no conclusive terminology to conceptualize them (Ting & Chen, 2020). Various terms, including smartphone addiction (Park & Park, 2014), smartphone use disorder (Gao et al., 2020), and problematic smartphone usage (Meng et al., 2020), have been utilized interchangeably in previous studies to refer to these behavioral patterns based on the

researcher's understanding. However, none of these terms are included in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) or the International Classification of Diseases 11th (ICD-11), and evidence of understanding this problem is still lacking (Fischer-Grote et al., 2019). In this study, we used the term "problematic smartphone usage" (PSU) to refer to excessive and uncontrollable usage patterns related to smartphones.

The phenomenon of PSU has been explored by mainly targeting young adults and adolescents, as the population aged between 17 and 19 years is known to be more vulnerable to it (Sohn et al., 2021). Consequently, there have been relatively few studies that identified PSU among infants, toddlers, and preschool-aged children. According to the existing literature (Hwang & Jeong, 2015; Park et al., 2018), the PSU is observed in much younger children due to the decreasing age of screen media exposure. Children can easily access their parents' smartphones and often use them as toys (Park & Park, 2014). A recent study (Park et al., 2018) reported that current preschoolers are the first generation to be exposed to media devices immediately after birth.

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According to the recommendation of the American Academy of Pediatrics (AAP), the screen times for children aged between five and nine, and those aged between two and five, should be limited to two hours and one hour per day, respectively (Hill et al., 2016). No screen time at all (except video chatting) is recommended for children younger than 18 to 24 months (Hill et al., 2016). For such young children, high-quality programs are recommended, while media use alone or before bedtime is not (Hill et al., 2016). However, according to recent studies, these guidelines are not followed well: in the United States of America, for instance, children aged between three and five spent 115.3 min per day on smartphones and tablet personal computers, and their favorite applications included YouTube and YouTube Kids (Radesky et al., 2020). In the case of South Korea, 38% of infants aged 11 months and younger were exposed to screen media for an average of 2.4 h per day (Park et al., 2018), and 7.3% of young children aged between five and nine had internet addiction (Park & Park, 2014). Given that parents' perception of children's media usage is mostly underestimated or overestimated (Radesky et al., 2020), children's vulnerability to PSU can be concerning. Earlier and excessive use of screen media can lead to various health and social problems among children concerning their developmental trajectories, such as obesity (Ma et al., 2021), functional impairment, depression (Yen et al., 2009), anxiety, sleep problems (Yang et al., 2020), decreased social engagement (Lim, 2018), interpersonal problems, and aggressive behaviors (Lim et al., 2019).

The Uses and Gratification Theory (Katz et al., 1973) is often used to understand people's usage of media. This theory assumes that media usage involves goal-oriented behaviors for people to satisfy their specific needs, such as affective and cognitive needs, by selecting and consuming particular media (Katz et al., 1973). Meng et al. (2020) tried to understand the mechanisms of PSU through examining the motivation and needs of people regarding the usage of media. They presented two general motivating factors of media usage depending on whether people employed it habitually or for habitual and instrumental motivations, respectively. Notably, they reported that the risks of PSU could differ according to the motivation. Hedonic motivation (e.g., gaining pleasure) was associated with PSU, whereas motivation to seek information and knowledge was not associated with PSU (Meng et al., 2020). They also acknowledged that motivation could be subdivided according to the population's characteristics. For example, teens could have more specific motivations such as self-expression, acceptance, recognition by others, hedonism, and social relationships (Meng et al., 2020).

In the case of young children, it is challenging to determine if they initiate media usage with specific motivations since caregivers typically introduce them to smartphones. To understand children's PSU, it is essential to examine caregivers' motivations and reasons for providing smartphones to their children. Previous research has emphasized the importance of parental and familial factors in predicting children's PSU, including parents' demographics, parent-child relationships, parenting stress, parents' attitudes and smartphone usage, parenting styles, and child maltreatment (Gao et al., 2020; Jackson et al., 2021; Park & Park, 2014). However, existing literature has not explicitly explored the motivations and needs of children's primary caregivers when giving smartphones to children.

To address this gap, this study explored the caregivers' behavioral patterns in terms of providing their child who was younger than six years of age with a smartphone. This study was conducted in the South Korean context. The PSU in children is expected to be more concerning in South Korea, as it is a country where the penetration rate of smartphones, in tandem with their dependence upon them, is relatively high (newzoo, 2021); the relationship between parents and children also tends to be culturally co-dependent (Park & Schepp, 2015).

Method

Study design

This study utilized a grounded theory methodology (Corbin & Strauss, 2015; Strauss & Corbin, 1994) to explore the caregivers' behavioral patterns in terms of providing their child who was younger than six years of age with a smartphone. This study followed the consolidated criteria for reporting qualitative research (COREQ; Tong et al., 2007).

Participant recruitment and eligibility

The target population of this study was 1) Koreans with at least one child who was younger than six years of age, 2) individuals identifying themselves as the main caregivers of their children, and 3) individuals who were concerned about their children's behaviors related to smartphone usage. To recruit eligible participants, e-flyers encouraging study participation were uploaded to the researchers' social network services and boards of regional community networks. Potential participants were asked to contact the researchers via phone or email if they were interested in the study. Upon receiving the contacts, the researchers explained this study's purpose, along with the procedure of data collection, and checked for the participants' eligibility. When potential participants met the criteria and voluntarily agreed to participate in the study, an appointment for a phone-based in-depth interview was scheduled. Electronic informed consent was obtained via email prior to the interview. Participant recruitment and interviewing continued until the researchers reached data saturation.

Data collection and procedures

Data were collected from July 9th to November 30th in 2021 through semi-structured in-depth phone interviews administered by the first author of this study, a psychiatric nurse specialist in South Korea. The main interview questions involved the following aspects: 1) Let us talk about your permission regarding your children's smartphone use. 1-a) What makes you allow your children to use smartphones and why? 1-b) What makes you mediate the use of smartphones for your children? and how? 2) Please explain your concerns regarding your child's smartphone use. 3) How do you behave if you have any concerns regarding your child's smartphone use? Additional questions were prepared before meeting the next interviewee to address the theoretical gaps. Each interview took about one-and-a-half hours, and all interviews were audio-recorded and transcribed verbatim immediately after completion. Memos were employed throughout the data collection procedure to note the participants' emotions and brainstorm the theoretical concepts, ideas, and patterns generated from the data. A compensation of 25.33 in the United States dollar (30,000 in Korean Won) was offered to the participants for their participation.

Data analysis

The interview data were analyzed using three procedures: open coding, axial coding, and selective coding (Corbin & Strauss, 2015; Strauss & Corbin, 1994). Before starting the open coding, all interview transcripts were read multiple times alongside the memos written during data collection. We then divided the data into different units of analysis. Each unit had a single coherent meaning and was labeled as an open code. Open codes with similar meanings were merged into sub-categories, and these sub-categories were labeled to encompass all included open codes. Similar subcategories were then merged into categories with a broader meaning, and each category was then defined by considering its properties and dimensions.

Subsequently, an axial coding procedure was performed. Therefore, we developed our "own repertoires of strategies" (Corbin & Strauss, 2015, p. 89) for analysis wherein we built a model with the categories

emerging from the data. Through several discussions, we reached an agreement on the behavioral patterns of participants being cyclic in terms of repeated permitting and limiting behaviors. Thereafter, we developed categories to describe participants' cyclic patterns of behavior by considering phenomena, conditions, actions, and consequences. During this process, various strategies suggested by Corbin and Strauss (2015) were utilized, such as looking at the emotions that participants expressed, looking for phenomena in accordance with time and process, examining extreme cases, and making comparisons.

Finally, for the selective coding process, we determined a core category representing the overall behavioral patterns of participants to manage their children to use smartphones. The model was subsequently refined through comparisons with the raw interview data.

Several strategies were used to ensure the trustworthiness of our analysis. First, we gained familiarity with contemporary Korean parenting culture through our prior research (Ko & Park, 2023) on evaluating parental stress, anxiety, and depression in Korean mothers before collecting data for this study. Second, we wrote reflective commentary notes to record our thoughts and impressions regarding children's smartphone use, regularly discussing those issues to increase our theoretical sensitivity and objective stance. Finally, peer debriefing was performed. A nursing colleague, who had multiple experiences analyzing qualitative data, crosschecked the coding scheme with the interview transcripts. She agreed with the cyclic and repetitive behavioral patterns of the participants, and the names of several categories were revised based on this feedback.

Ethical consideration

Before recruiting participants, this study was reviewed and approved by the Institutional Review Board of G University (IRB#:202105-HR-009-02). While collecting interview data during the coronavirus disease 2019 (COVID-19) pandemic, we rigidly followed the ethical standards for research during public health emergencies developed by the World Health Organization (World Health Organization, 2020). Audio recordings and interview transcripts were stored on a password-protected computer, with public access restricted. Personal information, such as names, affiliations, and social security numbers, was neither collected nor saved to ensure study confidentiality. The first author, a psychiatric nurse specialist, provided emotional support after conducting the interview and shared information on community resources for those who needed help and support. Participants were informed that interviews could be postponed or terminated if they became distressed during the process; however, no one chose to do so.

Results

Participants

In total, 15 participants were recruited, all of whom were female, as culturally, mothers are typically considered the main caregivers of children in South Korea. Their ages ranged from 30 to 48 years old. Furthermore, eight of them were homemakers and seven had full-time jobs. The number of children ranged from one to five; the majority of the participants ($n = 13$) had one or two children. Specific characteristics of the participants and their children are presented in Table 1.

A model of caregiver behavioral patterns in managing children's smartphone use

Overall, five themes, 12 categories, and 29 sub-categories emerged from the data (refer to Table 2). The core category describing the pattern of participants' behaviors in managing their children's smartphone use was "Maintaining a vicious cycle to seek comfort in parenting." Despite various behaviors and reactions of participants, cyclic and repeating patterns of behaviors for permitting and limiting their children's

smartphone usage were commonly observed throughout the interviews. Participants permitted their children to use smartphones to relieve the parenting burden. However, when they noticed negative effects from smartphone use, participants felt threatened, guilty, and uncomfortable, and thus became uncomfortable. This led them to restrict their children's smartphone access, which in turn, increased their parenting burden once again. A model illustrating this pattern is shown in Fig. 1.

Perceiving the threat

The first theme describes participants' feelings of being threatened by their children's smartphone use. This perceived threat made participants emotionally uncomfortable, leading to a shift from permissive to restrictive behaviors concerning their children's smartphone use in order to alleviate their discomfort. This theme encompassed three categories: surprised by the child's growing demands and skills in using smartphone, unable to control child's use of smartphone, and observing negative effects of smartphones on child.

Surprised by the child's growing demands and skills in using a smartphone

Participants commonly stated that they were shocked when they noticed that their child's ability to use a smartphone developed daily. One of the participants said, "She bookmarks what she wants to see on YouTube and subscribes to YouTubers. She was just four years old. I never showed her how to do it... I was so surprised when I saw her skipping ads on YouTube" (P12). Participants worried that their children would be more difficult to control as they gradually learned the specific functions of their smartphones. Moreover, as children's demands for using smartphones increased, participants felt more intimidated. One participant was worried about the growing demands of her child who was asking for a smartphone: "Previously, he did not ask for it (smartphone) as soon as he woke up, unlike what he does now" (P2).

Unable to control the child's use of a smartphone

Participants realized that it was getting difficult to parent their children without a smartphone. One participant mentioned, "At first, I was happy because she was finally eating at the table... but now I'm feeling down. Whenever we sit down to eat, my daughter wants me to turn on my smartphone. I realized that my habit was wrong, and it made me feel really guilty" (P1). Some participants became increasingly intimidated by their children's smartphone use as it became difficult to control. One reported, "When he wants to watch YouTube, he says he's hungry and asks for food. He figured out that he can watch videos while eating... It's making me so anxious" (P13).

Observing negative effects of smartphones on the child

Participants became extremely anxious and intimidated when their children showed an obsession with smartphones and aggressive attitudes when they stopped using them. They were concerned that there would be negative consequences for their children's development, such as addiction or aggression. One participant said, "The child hit his head behind the chair and whined for me to show him the smartphone. The behavior seemed aggressive... I am worried that his delay in linguistic ability may be because I exposed him to digital media too early" (P13).

Limiting the use of smartphones

The second theme outlines participants' attempts to limit and moderate their children's smartphone use. This theme encompasses two categories: controlling the child's phone use due to concerns and contemplating appropriate smartphone usage guidelines for the child.

Controlling the child's phone use due to concerns

Some participants said that they had set rules for screen time and usage for their children, while others said that they did not

Table 1
Characteristics of the participants.

ID	Age (yrs)	Occupation	Daily hours spent on smartphones (hrs/day)	Number of children (Gender/Age)	Daily hours spent with children (Weekday/Weekend) (hrs/day)	Daily hours children spend on smartphones (Weekday/Weekend) (hrs/day)	The age when a child first used a smartphone (yrs)
P1	38	Homemaker	4	2 (female/6, male/2)	15/15	4/6–7	3/2
P2	39	Homemaker	5	1 (female/2)	18/18	2/2	14mon
P3	34	Homemaker	12	1 (female/5)	7/24	Minimum 3/All day	18mon
P4	37	Nurse	4–5	2 (female/6, male/3)	10/20	1/1	3/2
P5	30	Student	6	1 (female/23mon)	18/24	Not count	20mon
P6	38	Service work	5–6	2 (male/5, male/3)	16/24	Minimum 2/ Minimum 2	3/2
P7	35	Homemaker	2–3	3 (male/9, female/7, female/3)	24/24	2–3/2–3	2/2/2
P8	37	Homemaker	14	2 (male/5, female/2)	6–7/6–7	3–4/3–4	15mon/13mon
P9	38	Company employee	16	2 (female/5, male/16mon)	11/24	1/1–3	4/11mon
P10	37	Teacher	3–4	1 (female/3)	8/8	0.5–3/0.5–3	12mon
P11	48	Homemaker	2–3	5 (male/14, female/12, female/9, male/7, male/5)	16/24	2–3/2–3	*/*/7mon
P12	30	Homemaker	4–5	1 (female/3)	5–6/24	1/1	12mon
P13	34	Teacher	4–5	1 (male/3)	8/24	2/2	12mon
P14	37	Homemaker	1	2 (male/7, female/5)	16/16	1–2/1–2	2/2
P15	46	Student	1–2	1 (female/3)	6/6	1–3/1–3	6mon

* Cannot remember.

Nonetheless, all participants were worried that their children's excessive smartphone use would lead to addiction problems, or that they would be exposed to adult content. One participant did not have set rules for her children's smartphone use but had her own way to determine the stop time: "If the child's eyes were blurred and they seemed out of consciousness, I stopped the smartphone use immediately. If they have clearer eyes, I let them play more" (P7). Many participants noted that they experienced strong emotions, such as anxiety and anger, when they saw their children being too immersed in their phones or when their children refused to cease using the phone and were out of control. This tendency led to restraint behaviors with strong emotional responses, such as yelling or anger.

Contemplating appropriate smartphone usage guidelines for the child

Most of the participants in this study agreed that it is impossible to prevent children from becoming interested in smartphones and enjoying content in modern society. For this reason, they wanted to teach their children how to use smartphones properly. One of the participants said that watching smartphone content was somehow needed for children to get along with their friends: "One day, my two-year-old daughter said, 'mama, my friends watch Secret Jujū. I am curious about it. Can you show me?'" (P8). Two of the participants mentioned that they exclusively provided English content to their children in order to enhance their English proficiency.

"I applied one restriction. I always played videos in English for my kid. It made me feel better about letting them watch it" (P10).

"If I have to expose my kids to a smartphone, I think it should be in a way that is more beneficial for them" (P9).

Parenting burden relief via smartphone usage

The third theme describes the experiences of parenting burden among participants. They felt at ease when allowing their children to use smartphones. All the participants utilized smartphones as a tool for parenting and managing their children's behavior. This theme comprises two categories: being able to control the child as desired and having personal time due to a reduction in parenting burden.

Being able to control the child as desired

Participants said that parenting became much easier with smartphones as their children became obedient and quiet when using them. One said, "...they become really quiet right away... There is no accident, nothing to break, nobody to disturb..." (P4). For this reason, most participants allowed the utilization of smartphones in public places such as restaurants or cars. When the children immersed themselves in smartphones, the participants were able to eat comfortably at a restaurant, chat with people, and focus on driving the car without any disturbance. One participant said, "In a restaurant, she runs barefoot and laughs out loud... but when I turn on the smartphone, she is sitting still and concentrating on it..." (P5). Moreover, it was a common act of participants, who experienced difficulties in feeding their children, to allow children to use smartphones to make them sit at the table and eat their meals. One participant said, "...he was driving me crazy. He did not chew... but he ate a little bit more when watching the smartphone... Thank God!" (P14). Smartphones were also employed to prevent children from crying and to comfort them. Most participants rewarded their children with smartphones for their good behavior: "I allow it (her to use the smartphone) when she completes her homework. The children follow well if I reward them with a smartphone" (P4).

Table 2
Analyzing the caregivers' behavioral patterns in managing their young children's smartphone use.

Themes	Categories	Sub-categories	Representative Quotations
<p><i>Perceiving the threat</i> Definition: Feeling threatened about the child's smartphone dependence</p>	<p>Surprised by the child's growing demands and skills in using a smartphone</p>	<p>Shocked with the child's increasing ability to use the phone</p>	<p><i>My kid can search on their smartphone all by themselves. If there's a picture they want to see, they just Google it. They even teach me stuff I don't know (P3).</i></p>
		<p>Surprised to see the child showing an obsession with a phone</p>	<p><i>She's totally obsessed with watching YouTube and doesn't want to do anything else. Like, the moment she wakes up in the morning, she's already asking for my phone (P2).</i></p>
		<p>Child's smartphone use becomes a daily routine</p>	<p><i>She just looks at my phone every day like it's no big deal, so I don't really feel how serious it is. It's just become, like, a routine or something... (P3).</i></p>
	<p>Unable to control child's use of smartphone</p>	<p>Gradually unable to parent children without smartphones</p>	<p><i>I kinda freak out if I don't have my phone with me when I go out. Like, 'How am I supposed to take care of my kid?' It really stresses me out (P12).</i></p>
		<p>Difficulty in restraining the child's smartphone use</p>	<p><i>I told her to stop watching, but now she gets what that means. Like, what stopping really means. She starts to cry... (P5).</i></p>
	<p>Observing negative effects of smartphones on the child</p>	<p>Concerned about the negative consequences of smartphone use on a child's development</p>	<p><i>I'm worried about her getting addicted, picking up bad words, and seeing bad stuff... (P14).</i></p>
		<p>Worrying about the child becoming aggressive</p>	<p><i>He just copies what he sees, even hits his brother sometimes. I worry... Maybe it's the influence of the smartphone (P6).</i></p>
<p><i>Limiting the use of smartphones</i> Definition: Putting efforts to limit and moderate the child's smartphone use</p>	<p>Controlling the child's phone use due to concerns</p>	<p>Banning child's phone use when feeling fear</p>	<p><i>"Didn't you hear me?" and she's like, "Did you say something?"... (then I said), "You gotta stop watching it." (P14).</i></p>
		<p>Monitoring the use of smartphones in case of exposure to harmful content</p>	<p><i>If the content's too adult, I warn them. If I find out they're watching it again after I told them not to, I take the smartphone away right away (P1).</i></p>
		<p>Contemplating appropriate smartphone usage guidelines for the child</p>	<p><i>I set a time limit... if I think she's watching too much, I turn it off. Around 3 h maybe? (P15).</i></p>
			<p>Trying to teach my child the right way to use a smartphone</p>
<p><i>Parenting burden relief via smartphone usage</i> Definition: Experiencing the relief of parenting burden when permitting the child to use a smartphone</p>	<p>Being able to control the child as desired</p>	<p>Parenting a child feels powerless and exhausting</p>	<p><i>Parenting is super tough. I think it's really hard physically (P5).</i></p>
		<p>Able to make my child quiet and docile with a smartphone</p>	<p><i>The kid gets super quiet. Without a smartphone, it's like a storm's raging. With one, it's all calm, like the storm has passed (P6).</i></p>
		<p>Controlling the child with a smartphone by using it as a reward</p>	<p><i>If they do their homework well or keep their promises, then they get a reward. They love watching stuff on smartphones, so I use it as a reward (P6).</i></p>
		<p>Having personal time due to a reduction in parenting burden</p>	<p>Able to safely leave the child alone</p>
		<p>Letting a smartphone fill the child's time instead of myself</p>	<p><i>I let them use the smartphone when I have to step out for a bit and leave the kids alone. But not too much, though (P4).</i></p>
		<p>Enjoying my free time comfortably</p>	<p><i>Smart devices can do what I'm supposed to do (as a parent), like reading books. The tablet reads the book out loud for them (P9).</i></p>
			<p><i>I get some free time. I can have a little me-time, do housework, or go grocery shopping while the kids are on their phones (P14).</i></p>
<p><i>Permitting smartphone use</i> Definition: Rationalizing and sustaining the behavior of permitting smartphone usage to a child</p>	<p>Compromising between comfort, worry and rationalization</p>	<p>Rationalizing for allowing children to use smartphones</p>	<p><i>Moms these days let their kids watch smartphones. Maybe, I'm making excuses for it a bit (P13).</i></p>
		<p>Being confused between comfort and worry</p>	<p><i>Honestly, I feel kinda bad like, 'I shouldn't do this'... but then I give in and think, 'let's just take a break.' It's like a mix of two feelings (P6).</i></p>
		<p>A way to make everyone happy</p>	<p><i>He stops crying, ... I can focus on talking to others, and the baby's happy too (P1).</i></p>
		<p>Wishing to be a good parent</p>	<p>Getting positive feedback from a child</p>
		<p>Wishing to allow what the child wants</p>	<p><i>I didn't get why we gotta ban the smartphone so much that it makes the kid cry (P8).</i></p>
	<p>Being unable to resist giving the phone to the child when feeling tired</p>	<p>Unable to stop relying on smartphone parenting</p>	<p><i>When my kid starts throwing a ton of tantrums, there are times when I just give in to what they want. It's kinda frustrating. I have a set time, but I end up letting them use it again (P13).</i></p>
		<p>Allowing and restricting smartphone use based on my situation</p>	<p><i>It depends on how I'm feeling... When I'm even just a bit better physically and have a little spare time, I can be firm... My condition really matters (P7).</i></p>
<p><i>Feeling guilty and sorry</i> Definition: Feeling guilty and sorry for allowing the child to use a smartphone for parent's comfort</p>	<p>Experiencing guilt for permitting smartphone usage as a convenient parenting tool</p>	<p>A smartphone is not beneficial for children</p>	<p><i>I'm worried that my kid's eyes might get worse, cause they're always looking at the phone up close (P14).</i></p>
		<p>Feeling guilty about allowing the child to use a smartphone</p>	<p><i>I feel like I messed up by letting my kid use a smartphone too early. Now she doesn't study and just play on the phone all the time (P3).</i></p>
		<p>Comparing my parenting with that of other parents and feeling shame</p>	<p><i>I feel a bit guilty... Letting kids watch digital content is just easier for parents anyway (P9).</i></p>
		<p>Feeling remorse for leaving the child unattended with a smartphone</p>	<p>Sorry for not being able to play with the child</p>
		<p>Sorry for letting my child use a smartphone for my comfort</p>	<p><i>I know that smartphones are not good for children. I also feel sorry for my child because I think I'm neglecting them and not taking care of them directly (P7).</i></p>
			<p><i>It's so convenient when my child is using the phone while I'm doing the dishes or laundry. It's so comfortable at that moment, but I feel so sorry for my child before they go to sleep (P3).</i></p>

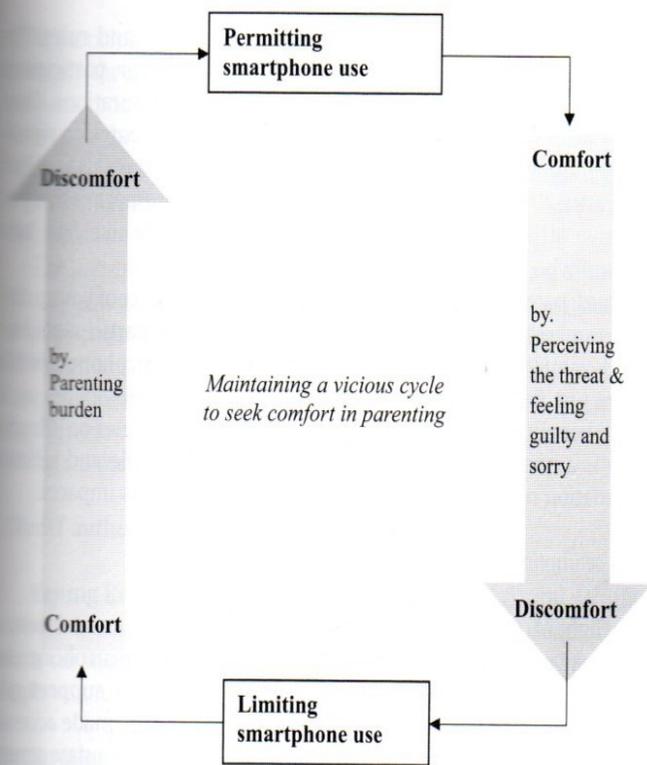


Fig. 1. The Caregivers' Behavioral Patterns in Managing Their Young Children's Smartphone Use.

Having personal time due to a reduction in parenting burden

Smartphones seemed to save participants from the effort of looking after their children. When immersed in their smartphones, children were less likely to make demands and did not move away from their seats. One participant said, "She is sitting still, not playing with dangerous tools, or doing anything drastic. It is nice that I do not have to give special attention to her..." (P5). Some participants said that they could leave their children alone and go out for a while or do kitchen work during this time. They were able to enjoy their time comfortably and did what they had to do. One said, "Other activities are short and get over quickly, but watching smartphone media takes time... I think I earned that time" (P8).

Permitting smartphone use

The fourth theme depicts the permissive behaviors of participants regarding their children's smartphone use. This theme involves participants' ongoing practice of allowing their children access to smartphones, despite their concerns and worries about smartphone use. The theme comprises three categories: compromising between comfort, worry and rationalization, wishing to be a good parent, and being unable to resist giving the phone to the child when feeling tired.

Compromising between comfort, worry, and rationalization

Despite concerns and worries regarding their children's excessive use of smartphones, all participants in this study maintained their behavior of giving their smartphones to their children. They expressed their ambiguous and complicated emotions when describing the behavior of allowing their children to use smartphones again. One participant reported that due to her complicated emotions, she often rationalized her behaviors, "It's just me making excuses for myself. At first, I was against giving my kids smartphones, but then I caved in and lowered my standards without even realizing it... it makes me feel better and keeps my kids entertained. I do feel bad about it, but it's a way for everyone to be happy" (P7).

Wishing to be a good parent

Some participants found it difficult to avoid satisfying their child's strong demands for using a smartphone: "I just gave it to my child

when she cried or begged for the smartphone. I gave it and told her to watch as much as she wanted" (P3). When allowed, the children provided positive feedback to their caregivers, such as smiling, laughing, and gratitude. One said, "She looks very happy (when I allow the use of a smartphone). She smiles right away and shows a huge smile from her heart" (P15).

Being unable to resist giving the phone to the child when feeling tired

With regard to the child, some participants confessed that it was difficult to stop giving them a smartphone. Although they tried to limit their children's smartphone use, they could not help themselves but allowed them to use the phone again, especially when they were exhausted and wanted to rest or when they had some work. One of the participants said, "My child wanted to stop watching it (smartphone) and play with me. However, I said, 'I have to work, so would you like to watch a little more?'" (P3). Some participants agreed that permitting smartphone use was not according to rules but according to their situations. One participant said that she always allowed her child to use the smartphone when she returned home from work: "When I am tired, I allow it more. There were a lot of times when I thought, 'What the heck!'" (P5).

Feeling guilty and sorry

The fifth theme highlights participants' feelings of guilt for allowing their children to use smartphones. This emotional discomfort prompted participants to impose limitations on their children's smartphone usage. The theme consists of two categories: experiencing guilt for permitting smartphone usage as a convenient parenting tool and feeling remorse for leaving the child unattended with a smartphone.

Experiencing guilt for permitting smartphone usage as a convenient parenting tool

All participants agreed that smartphones were not beneficial to their children's development. Hence, they felt guilty about letting their children use smartphones for comfort. One participant expressed guilt by comparing herself to other parents: "It is all my fault. I made her adopt bad habits from the beginning. At the restaurant, I can see many parents who take out their phones and feed the children like me, but some parents do not do the same" (P3).

Feeling remorse for leaving the child unattended with a smartphone

The participants felt sorry for having their children play with their smartphones instead of themselves. One of the participants exhibited strong emotions of being sorry for her child: "I did that to my child for my own convenience, even though I predicted her obsession for the smartphone when I first gave it to her... It would be better if I parented my child differently from the beginning" (P5).

Discussion

Understanding the motivation behind using media is one of the key ways to understand PSU (Meng et al., 2020). Since children's media usage is primarily influenced by their main caregivers' motivation and decision-making, this study aimed to investigate the behavioral patterns of main caregivers in managing their children's smartphone use. The core category describing participants' behavioral patterns in this study was "Maintaining a vicious cycle to seek comfort in parenting." Participants demonstrated cyclic and repetitive patterns of permitting and restricting behaviors, and this behavioral pattern appeared to be associated with seeking comfort in parenting their children.

Our findings suggest that parenting burdens and stress were significant factors motivating participants to allow their children to use smartphones. Many participants in our study admitted feeling overwhelmed in their parenting roles and recognized that smartphones made managing these challenges easier. Children using smartphones

were less distracted and more cooperative. Consequently, participants often used smartphones as rewards for good behavior and as a means to keep their children quiet. Most participants frequently utilized smartphones during mealtimes and in public places to encourage their children to sit calmly. This phenomenon is not limited to South Korea, as a study in Turkey found that 18% of parents used a mobile phone during mealtimes or when their child was crying (Dinleyici et al., 2016). The motivation to reduce parenting burdens and stress became more apparent when participants' health conditions were poor. They were more inclined to allow their children to use smartphones when they needed rest. This finding aligns with previous literature indicating that maternal depression is associated with children's excessive television use and screen time (Park et al., 2018).

These caregiver-centered motivations, however, may heighten the risk of children's PSU. Smartphone mediation might be inconsistent when driven by caregivers' motivations and needs, and such irregular mediation and regulation could impact children's PSU (Yang et al., 2022). Furthermore, children allowed to use smartphones due to caregiver-centered motivations are more prone to engage with media alone or for extended periods (Hill et al., 2016). Such patterns involving increased frequency, longer duration, and a focus on entertainment in smartphone use may also contribute to children's PSU (Fischer-Grote et al., 2019). Our findings support previous studies emphasizing the role of parental and familial factors in children's PSU (Fischer-Grote et al., 2019; Jackson et al., 2021). For example, Jackson et al. (2021) found that maltreated children had a threefold increase in heavy media use, with family resilience, connection, and parenting stress mediating this relationship. Fischer-Grote et al. (2019) highlighted the importance of parent-child relationships, attachment, and parenting styles, rather than just restrictive strategies, in preventing children's PSU.

The temporary relief that participants experienced from allowing their children to use smartphones was short-lived. They soon encountered negative emotions, growing increasingly concerned about the detrimental effects of smartphones on their children, such as escalating demands, obsession, and aggressive behaviors. Participants found that the more their children used smartphones, the harder it became to control their usage. They began to intervene in their children's smartphone use when they perceived the associated risks, exhibiting various protective behaviors like giving warnings, setting rules, or taking the smartphone away. This intervention aligns with the Protection Motivation Theory, which suggests that triggers like fear can encourage protective behaviors aimed at preventing potential harm (Tanner et al., 1989). Supporting this, Hwang and Jeong (2015) reported that when parents perceived higher severity and susceptibility, they were more likely to engage in restrictive and active mediation of their children's smartphone usage.

However, as parents attempted to limit their children's smartphone use, they faced an increased parenting burden. They struggled to control their children without the aid of smartphones and found their children's demands for smartphone access growing more insistent and forceful (Kliesener et al., 2022), intensifying their parents' burden. Caught between worry and the desire for relief, participants rationalized their children's smartphone use and ultimately permitted it once again. This cycle led the participants in this study to experience feelings of guilt and regret for their actions.

Our findings highlight several critical issues that need to be addressed. First, the use of smartphones as a means to alleviate parenting burdens and stress ultimately exacerbates the burden. This approach often leads to conflicts between caregivers and children, as caregivers want to limit smartphone use while children resist these restrictions. The increased parenting burden then prompts caregivers to rely on smartphones again as a convenient parenting tool.

Second, we observed a general lack of accurate knowledge among participants regarding appropriate smartphone use for young children. Most participants did not base their mediation strategies on credible

guidelines; instead, they followed vague standards and rules. The most common rule was limiting screen time; however, participants had varying perceptions of appropriate screen time durations. Caregivers' attitudes and thoughts about smartphones appeared to significantly influence the guidelines set to regulate children's usage. Park and Park (2014) also found that parents with more permissive and adaptive attitudes towards smartphones were more likely to have children who used them.

Third, participants were not fully aware of the impact of young children's smartphone use on their development. Some participants harbored vague concerns about the influence of smartphones, while others justified exposing their children to smartphones, believing it would benefit their social and cognitive competencies later on. Clearly, there is a need for public education that offers credible and reliable information regarding children's smartphone use and its impacts.

Practice implications

In light of our findings, couple practical implications can be drawn to enhance caregivers' management of young children's smartphone use. Above all, to address the challenges faced by caregivers, support systems and educational resources should be developed and made accessible. These resources should offer clear guidelines for appropriate screen time limits and emphasize balancing screen time with other developmental activities. As parents' addiction to smartphones is also related to their children's PSU (Hwang & Jeong, 2015), education aimed at preventing excessive smartphone use by parents should be incorporated into these resources.

Moreover, early intervention through a regular screening system is vital for preventing PSU among young children. Nurses play a critical role in this regard, as they closely assess young children and their parents, providing evidence-based interventions promptly. We recommend that during regular health checkups, nurses should evaluate children's smartphone use, and for those overusing smartphones, assess caregiver motivations, potential stress, and potential child maltreatment. This nursing intervention may involve incorporating discussions about screen time management and providing resources for caregivers to educate themselves on the topic.

Limitations

This study has several limitations that should be acknowledged. First, the study focused solely on the Korean population, and due to cultural norms in South Korea, where women are typically seen as the primary caregivers of children, all participants were female. However, Korean mothers' experiences might differ from those of Korean fathers or other parents of different ethnicities. Future studies should examine fathers or other target populations residing in different geographical areas. Second, we did not consider the severity of PSU among children in this study, as this was not asked. Third, the time of data collection was during the COVID-19 pandemic; therefore, participants' experiences might have been influenced by the distressing situations of the pandemic. Lastly, the interviews were conducted via phone due to the pandemic, which may have limited the ability of the interviewer to interpret important nonverbal cues such as body language and facial expressions. Future studies could explore alternative methods of data collection to overcome this limitation.

Conclusion

The current study aimed to understand children's PSU through caregivers' motivations for providing smartphones to children. We explored the behavioral patterns of caregivers in managing their children's smartphone use and uncovered a vicious cycle of permitting and limiting behaviors driven by the desire for comfort in parenting. Specifically, to relieve the discomfort triggered by perceived threat and feelings of

quit, participants limited their children's use of smartphones, while to decrease the parenting burden, participants permitted the children to use smartphones. This pattern eventually exacerbates the burden and stress and can lead to conflicts between caregivers and children. The study also highlighted a lack of proper knowledge among caregivers regarding appropriate smartphone use in young children and the potential impact on their development.

The present study contributes to a better understanding of the complex dynamics involved in caregivers' management of their children's smartphone use, emphasizing the importance of addressing both parental and child factors in preventing PSU. We hope the findings can better support caregivers in fostering healthy smartphone habits and mitigating the negative consequences associated with excessive screen time for young children.

CRediT authorship contribution statement

Yejung Ko: Conceptualization, Investigation, Validation, Writing – review & editing, Funding acquisition. **Sihyun Park:** Methodology, Data curation, Writing – original draft, Writing – review & editing, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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