

Research Article

Pilot Study of a Screen-Free Week: Exploration of Changes in Parent and Child Screen Time, Parent Well-Being and Attitudes, and Parent-Child Relationship Quality

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Received 23 December 2022; Accepted 29 June 2023; Published 16 August 2023

Academic Editor: Zheng Yan

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Screen use is associated with a variety of potential impacts on child development, which has led to recommendations to regulate screen use. The current pilot study was conducted to explore the potential effects of implementing screen-free times (Screen-Free Week) on parent and child screen use, parent feelings and well-being, and parent-child interactions and relationships. Specifically, we evaluated the outcomes utilizing pre and postintervention self-report surveys with 24 parents (of a child age 5 years or younger). Overall, the screen-free week program decreased parent depressive symptoms, increased the parenting of child screen time and establishments of screen time limits, and decreased both parent and child screen time. Though the decrease in overall parent and child screen time was not maintained by 4 weeks after, effects on parent depression, child TV watching, and parent phone use specifically during child time were maintained. These findings support previous research emphasizing screen-free times as a viable method to increase intentionality around screen use. Interestingly, the program appears to have had the strongest effects on parent phone use around their child, suggesting the program may build awareness in parents and may cause them to change or desire to change their screen habits during family time. Although we saw initial shifts in parent-child play, effects were not maintained by week 4. Yet, the small changes parents made across one week were not sufficient to shift the overall parent-child relationship. While effects cannot be viewed as definitive, it is promising that shifts were seen in parent well-being and screen use for a relatively small amount of effort across one week.

1. Introduction

Technology has altered many of the ways humans interact [1, 2] and has become particularly integrated within family life [3, 4]. As of 2021, 81% of U.S. children 11 years old or younger use tablets, 71% use smartphones, and 51% use game consoles or portable game devices [5]. Additionally, since the start of the COVID-19 pandemic, the average screen time for children and adolescents increased [5–7]. Child screen time has been associated with a variety of aspects of child development (e.g., [8–10]), which has led to recommendations to carefully regulate child screen use (e.g., [11]). Screen-free times have been suggested as one

method for helping to limit screen use and to increase family cohesion and opportunities for interaction while potentially decreasing the potential detrimental effects [11]. Thus, the current study evaluates the engagement of families with a young child (age 5 or younger) in a Screen-Free Week (SFW) program and the potential outcomes for parents and children.

1.1. Child Media Use. A concern regarding increased screen time among children is the overall impact it may have on a child's development [8, 12–14]. Various studies have found associations between excessive screen time and negative outcomes in children, such as worse sleep, language

development, behavior issues, depressive symptoms, and emotion regulation concerns [9, 13, 15–18]. For instance, in their review of the research literature, Moorman et al. [19] found that greater screen use and access among 0- to 5-year-olds was associated with poorer sleep quality, less sleep, and later bedtimes. There have also been links found between greater screen use at ages 4 to 6 years and later school readiness and cognitive development [10]. Although we only provide a few examples here, the extant literature suggests that effects on child development and well-being are possible.

Yet, the amount of screen time is not the only factor to consider when illustrating the possible effects of screen use on child development and outcomes. Indeed, when the screen use is developmentally appropriate and managed mindfully by parents, it is possible to see screen use benefits. For example, *coviewing*—which is described as watching or engaging in media by parents with their children [20]—has the potential to aid in children’s development, such as through parent modeling of engagement with educational media supporting toddlers in word learning [21]. A systematic review of tablet use and its effects on learning and development in children ages 2 to 5 years found that many studies reported positive effects on math, science, problem-solving, and self-efficacy through tablet educational app use [22]. Generally, digital technology has the potential to aid in children’s learning when the technology allows children to engage directly with the learning material [22] and is meaningfully integrated into the child’s environment [23]. Although screen use is not inherently harmful, due to various risks associated with screen use, the American Academy of Pediatrics [AAP] [11] recommends screen use be approached mindfully.

1.2. Parent Media Use and Family Outcomes. Clearly, it is not only children who utilize screens and technology in families. In fact, how and when parents engage with screen time has been associated with various outcomes related to child behavioral outcomes, the parent-child relationship, and children’s attitudes toward screen use [24–27]. Indeed, parent screen use can lead to distraction or *technoference*—defined as interruptions or intrusions in time parents and children spend together due to technology [27, 28], and higher levels of parental screen time and *technoference* have shown impacts on parenting and children. For instance, greater *technoference* has been associated with higher levels of depressive symptoms in children and adolescents, more externalizing symptoms in young children, decreased parental sensitivity to infant needs, and overall less parental attention and warmth in parent-child interactions [2, 24, 25, 27, 29–33]. Thus, it is possible that parents’ screen use can impact the quality of parent-child relationships and children’s feelings about themselves.

Parent screen use and parent feelings and well-being are intricately and bidirectionally tied together. Parents report utilizing their devices for many reasons, such as for support, to seek information, and to regulate their emotions [34–37]. Thus, in many ways, screen use can be beneficial to parents and parenting, and we do not wish to overlook these poten-

tial benefits. However, parents also express difficulties managing their use [37], often desire to change their use [38], and experience guilt regarding their use [39]. Indeed, parents reporting greater stress and depression are more likely to show greater problematic phone use during the time around their child [27, 28, 40, 41]. There is also evidence amongst adults and parents that reflect the other side of this bidirectionality. For example, after greater bedtime phone use, mothers show lower next-day happiness [42]. Anecdotally, many express positive benefits from taking breaks or disconnecting from their technology (e.g., [43]). Moreover, some studies have found that reducing phone use or social media use can lead to reductions in depressive symptoms [44, 45], and it has also been theorized that experiencing autonomy and control over device use has a positive impact on well-being [46, 47]. Thus, we believed that parents engaging in a screen-free week with their child would be more intentional with their personal screen use (likely reducing their total personal use to be more engaged with their child), which could potentially impact their mental health and well-being (as they would be more likely to feel good about their use instead of experiencing guilt and lack of intentionality; [39, 47]).

1.3. Parent Screen Use, Parent Attitudes, and Child Screen Use. Parent screen use and their feelings concerning screen use are also tied to how children may view and utilize screens. In general, studies find that parents who endorse more positive beliefs about child media use (such as feeling it is good for the child’s development and necessary for learning to be a part of the digital world) have children who engage in more screen use [8, 48–50]. Additionally, heavier parent screen users often have children who are heavier users (e.g., [8]). These associations likely exist as parents may set up different rules and family media environments based on their attitudes and feelings about technology [8]. Thus, changes in the way parents use their technology as well as in rules surrounding screen use (such as setting up screen-free times) could have ripple effects throughout the family, even influencing the way children use screens.

1.4. Promotion of Screen-Free Time. Although benefits from screen use are possible for both parents and children, the American Academy of Pediatrics has called for the careful management of screen time—even suggesting setting up screen-free times [11]. There is also consensus among researchers and clinicians that screen-free zones or times could be beneficial within families—particularly around mealtimes and bedtimes—to promote time together as a family and richer, more frequent parent-child interactions (e.g., [11, 12, 51–53]). Overall, various reviews and meta-analyses have revealed that interventions developed to reduce children’s screen time have shown at least small, positive impacts on child screen time (e.g., [54–56]).

Limited research currently exists specifically examining the potential of screen-free initiatives with parents and children. Kara [57] conducted a case study implementing a screen-free week for preschool-aged children, finding that

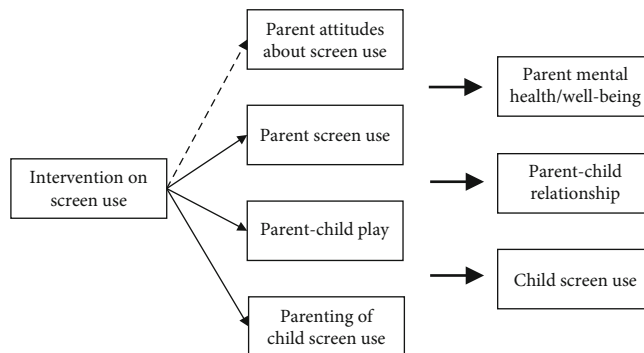


FIGURE 1: Conceptual framework of how intervening in screen use could directly impact parent screen use, parent attitudes, parent-child play, and the parenting of child screen use, which could then influence change in child screen use, parent mental health, and the parent-child relationship. *Note: all interrelated paths are not illustrated here as these processes are intricately connected from moment-to-moment within families and individuals. Instead, the figure is simplified to show our broad conceptualization of how changing screen use habits could have effects on many parent, child, and family processes.

parents were not only more willing to set limits on their children's amount of screen time after engaging in the study but also preferred child screen time limits after learning more about the potential effects of excessive child screen time. Peláez et al. [58] had 13 families with children aged 7-17 do a 24-hour screen-free challenge, and they found through a focus group and interviews that parents felt it needed to be a whole-family effort to be successful, screen use awareness increased, and some parents experienced a sense of accomplishment. Additionally, most studies trying to identify effective screen time reduction strategies are conducted within the context of increasing physical activity in children or reducing high body mass index (BMI) in children, and they do not necessarily focus on examining the effect of reduced screen time on the family unit (e.g., [54]).

In their meta-analysis on effective strategies for reducing children's screen time, Jones et al. [54] concluded that behavioral interventions tailored to individual needs appear to be particularly effective [54]. This coincides with others who have suggested that other family activities, the context and purpose of use within the family system, and barriers to screen time reduction must be considered [59, 60]. Peláez et al. [58] also found in their exploration of a 24-hour screen-free challenge that parents directly expressed a need for alternative activities to engage in instead of screen use for them to be successful. Thus, it is fair to conclude that interventions regarding screen-free time within the family unit should also focus on providing alternative content, activities, and ideas that are relevant to the family and must consider the context and limitations of screen-free time implementation by busy and often stressed parents. Schmidt et al. [61] also found that screen time reduction interventions appeared the most effective when they had high levels of parental involvement and set explicit goals for reduced screen time—though the specific interventions they examined were aimed at reducing a high body mass index (BMI) in children. While there appears to be an understanding of the importance regarding parental involvement in a family-based screen time intervention and that interventions can reduce child screen time, research specifically examining

screen-free week programs and the potential effects on parent and family well-being are lacking.

1.5. Conceptual Framework for the Potential Effects of Implementing Screen-Free Time. As explained earlier, although links between screen use and well-being are often bidirectional, it is possible for screen use to impact the well-being and behaviors of parents and children. Here, we present a broad conceptual framework (see Figure 1) of how an intervention designed to create screen-free times and assist parents with alternative activity ideas within families could lead to changes in parent attitudes about screen use, parent screen use, parent-child play, and the parenting of child screen use. Additionally, these effects have the potential to reverberate into changes in parent mental health and well-being (such as depression and stress), parent feelings about the quality of their parent-child relationship, and child screen use. To be clear, not all the possible paths, bidirectionality, interrelations, and complexities are illustrated and discussed in the conceptual framework—as all these processes are intricately connected from moment-to-moment (i.e., most of the variables in this conceptual figure could be connected via bidirectional paths). However, this basic model is helpful for broadly considering how intervening in parent and family screen use (via a screen-free week program) may also influence parent and child well-being and behavior. Although the links in this model were explained earlier in the paper, we briefly highlight the pathways here.

Specifically, as parents seek to reduce, set limits on, and use their own devices more intentionally, their total screen use and phone use may be reduced. For example, interventions where individuals are prompted to be more intentional with their phone use or disconnect from regular phone use often show reductions on total phone use (e.g., [43]). It is also possible that parent attitudes and feelings about their screen use (such as views regarding screen use around children and feelings concerning their problematic use) might shift. For example, as parents engage in more intentional screen use, they may feel their problematic thoughts and

behaviors had decreased; they might also feel more negatively about personal screen use around their child as they become more self-aware of their use through creating intentional times of disconnection. Our program had no specific components which addressed these attitudes and feelings. Therefore, it is also possible that attitudes and feelings would be rather stable. We approached this as a general research inquiry due to the ambiguity, and we illustrated this as a dashed path in the conceptual framework figure.

The program asked parents to engage in screen-free times and suggested specific alternative activities each day. Assuming parents would follow the protocol, these screen-free times should create more opportunities for and a greater frequency of parent-child play interactions. Conceptually, if parents also reduced their own screen use, this might create more opportunities for play and interaction between parents and children. Research has indeed shown that screen use can sometimes replace activities and family connection [14, 16, 62, 63]; thus, creating intentional screen-free times could remove some of this displacement. Along with removing any potential displacement of activities and family connection, engaging in and creating screen-free times would require parents to engage in greater parenting of and limit setting around child screen use. At least one case study has found parents are more willing to set child screen limits after engaging in a screen-free week [57].

Assuming the screen-free week program influences parent screen use (and potentially attitudes and feelings about their use), parent-child play, and the parenting of child screen use, it is then possible that parent mental health and well-being, the quality of the relationship they have with their child, and child screen use overall could be influenced. First, the extent of parent screen use is bidirectionally tied to and can influence their own mental health and well-being. Thus, it can then be assumed that creating intentional screen-free times and reducing one's own screen use could potentially lead to feeling better about oneself and less depressed [43–45], and if parents experience more balance between connecting with their child and engaging in their personal screen use, this may also lead to positive impacts on their well-being [47]. It is important to note that if a parent reduced screen use that typically assisted them with their mood regulation or parenting, it is possible that worse mental health or stress might result; however, as the program was designed to have parents create intentional screen-free times—not cut out their use entirely—we believed parents would likely become more intentional rather than removing positive device use. Due to the possibility of competing influences on parent mental health and well-being, we explored this question in our study.

The extent of parent and child screen use can also influence the quality of the relationship the parent has with their child if the use displaces time that could be spent on more developmentally appropriate activities and interactions. This is termed the displacement hypothesis and has been applied in prior work to suggest that screen use can sometimes replace developmentally important activities and family connection, such as parent-child interaction and play, sleep, and learning [14, 16, 28, 62]. It has been suggested that the more

individuals within the family use technology devices alone, the less time they may spend in face-to-face interaction and play [12]. This displaced time engaging in positive family interactions could negatively affect the parent-child relationship. For example, Wong et al. [32] found that children in high-screen time families have reported increased feelings of isolation. Additionally, children may react negatively to parent device use that distracts from parent-child interaction (such as technofence; [27, 64]). It is reasonable to assume that, as parents and families are more intentional with their screen use and incorporate developmentally appropriate activities during those screen-free times, displacement would be reduced, and more positive interactions could occur to build the parent-child relationship.

The engagement of parents in actively considering their own and their child's screen use also has the potential to change the frequency and extent of parent limit setting of child media use. If parent limit setting of child screen use increased, it is possible that child screen use would decrease—as some work has shown parental restriction of media use to be correlated with having children who use screens less (e.g., [20]). Yet, changing engrained habits within a family can be difficult and stressful (e.g., [65]), so the increased monitoring and limit setting around media use also have the potential to lead to increased parenting stress. This again suggests parent mental health and well-being could both be positively and negatively influenced by changing family screen habits.

1.6. The Current Study. The current study was conducted to examine the potential effects of implementing intentional screen-free times on parent and child media use, parent feelings and well-being, parent-child interactions, and overall relationship satisfaction. Specifically, we evaluated the outcomes utilizing pre and postintervention self-report surveys with parents. The idea behind the current screen-free week (SFW) program was, in essence, to have parents determine limits on their own and their child's exposure to screens and engage in alternative activities with their child during the time that they otherwise would have spent on electronic devices (similar to [57]).

RQ1: first, we assessed parent engagement and how parents felt about the SFW program.

Based on our conceptual framework, we hypothesized that the implementation of screen-free times would:

H1: decrease the amount of time parents spent on screens around their child,

H2: increase the time spent in parent-child play and improve parent-child relationship satisfaction,

H3: increase parent management of child media use, and
H4: decrease child media use.

RQ2: it was not clear whether or how parent feelings about their device use would shift, so we explored beliefs and parent feelings of difficulties with phone use.

RQ3: It was also not clear whether parent mental health would improve, stay the same, or deteriorate, as it was possible that implementing changes in family media habits might lead to better mental health through more intentional and balanced screen use but also could add stress to parents;

thus, we simply explored parent depression and feelings of stress.

RQ4: Finally, although not a main aim of the intervention (and, therefore, not displayed in our conceptual framework), the education included handouts that instructed parents regarding alternative activities to engage in with their children; therefore, we explored whether feelings of parenting competence shifted due to the education; a hypothesis was withheld for this, as it was not clear whether a simple handout and parent-child engagement in the activity would be sufficient to shift parent feelings.

2. Methods

2.1. Participants and Procedures. Recruitment occurred from two local childcare centers in a Midwestern state via postings in their newsletters or other electronic communications, flyers posted in their centers, and flyers distributed by the centers to parents and caregivers. From this, 36 parents reached out to us via email, phone, or online with potential interest in the study, and of these, 25 consented to participate in the study. Participants consented via an online consent form. Participants then completed an online survey at baseline ($n = 24$ participants, 96%; before the SFW program began) and then again at approximately one week after ($n = 23$, 92%) and four weeks after ($n = 21$, 84%) the SFW program. Participants who completed all three surveys were compensated with a \$15 gift card and were entered into a drawing for one of three gift cards (two \$25 cards and one \$50 card). This program evaluation study was approved by the Parkview Health Institutional Review Board.

In between the baseline survey and the one-week survey, parents from the two childcare centers participated in an SFW program. In this program, the centers emailed suggested tech-free activities to the participants (across 5 days, Monday through Friday, May 3 to May 7, 2021) that were paired with educational handouts so parents and children could spend quality time without devices. To participate in the program, parents and children were not required in any way to do any of the suggested activities.

Suggested SFW activities and handouts were created by the educators at the Early Childhood Alliance specifically for infants, toddlers, or preschoolers, so that parents received age-appropriate suggestions. In these handouts, the materials (if any), the beginning, middle, and end of the activity were explained. Hints were also included that assisted parents with understanding their child's development and the best ways to interact with their child during the activity. For example, one activity with infants was to create homemade shakers, and in general, parents were instructed to shake the shakers near their infant so they can see and hear them, and if they are able to hold objects, the parent could allow the child to shake the shakers. In this, parents were also instructed to comment on their infant's reactions and allow them to explore the shaker through mouthing, shaking it, passing it back and forth (if they can hold it), and repeating these actions over and over to produce noises. Other activities for infants included exploring objects together, talking and listening together, kicking

(nonmobile and mobile infant versions), and practicing reaching for objects. Activities for toddlers included tasting and exploring foods, writing/scribbling, mixing colors/painting in the bathtub, playing with play dough, and thinking backwards (such as remembering where they placed objects in the past). Activities for preschoolers included playing "I Spy," creating bookmarks, walking and being a word detective in your neighborhood, reading a book about germs and teaching the child about healthy practices, and drawing and creating a schedule for their day.

Along with copies of the activity handouts, the daily emails included messages such as "As advocates of early learning, healthy brain development, and family engagement, we at the Early Childhood Alliance urge all parents and caregivers to limit the time children spend in front of screens. We know that it's nearly impossible to step away from screens all day, but even an hour a day can make a difference. Go for a walk.... Read a book... Build a fort... Tell each other jokes! The opportunities of spending quality time together are endless."

Of the 24 who completed their baseline survey, participants were 32.96 years old ($SD = 8.69$, Range = 18 to 58) and had a child (54.2% female) who was on average 2.89 years old ($SD = 1.53$, Range = 0.50 to 5.50); 50% had only one child; 22 (91.7%) were the biological or adoptive mother, and 2 (8.3%) were the grandmother (who was the primary caregiver of the child); 41.7% were married, 25.0% were dating, 20.8% were not in a relationship, 8.3% were engaged, and 4.2% were in the process of divorce. In terms of race and ethnicity, 83.3% were Caucasian only, while 16.7% were ethnic minority or indicated multiple races; 66.7% had at least an Associate's degree or higher, and median family income was \$37,500 ($M = \$63,636$; $SD = \$55,788$; Range = \$ 5,000 to \$225,000; two did not report). Additionally, 91.7% indicated they currently worked for pay, with 85.7% of these workers engaging in 20 or more hours of work weekly (one did not report work hours).

We also examined whether there were any significant differences across all demographics (e.g., age, education, income, and race) and baseline variables (e.g., depression, child media use, and parent media use) between those who completed all waves of the study and those who dropped out. The only significant difference was that those who dropped out were more likely to have a child who was male, $\chi^2 = 4.05$, $p = .04$.

2.2. Measures

2.2.1. Child Screen Use. Parents were asked to respond to "Thinking back over the past two weeks, about how much time does THIS CHILD spend doing the following things ON A TYPICAL WEEKDAY?" across 5 items, including (1) watch TV, videos, movies (e.g., TV, YouTube, and Netflix), (2) play games on a device, (3) read on a device, (4) look at photos on a device, and (5) video chat with family/friends. Parents responded on a 9-point scale from 0 (none) to 8 (5 or more hours). To aid in interpretability, we converted the responses to minutes in the following way: None = 0 minutes, 1 to 15 minutes = 8 minutes, 16 to 30 minutes

= 23 minutes, 31 minutes to 1 hour = 45 minutes, 1 to 2 hours = 90 minutes, 2 to 3 hours = 150 minutes, 3 to 4 hours = 210 minutes, 4 to 5 hours = 270 minutes, and 5 or more hours = 300 minutes. Then, these converted items were averaged and divided by 60 to produce an overall child screen use hours score (Baseline Cronbach's alpha = .89, week 1 = .87, week 4 = .91). We also explored each individual item as they may represent different types of screen use. Items were informed by the work of McDaniel and Radesky [66] on child media use; items were adapted to more closely align with media behaviors very young children might more commonly engage in.

2.2.2. Parent Screen Use. Parents responded to "Thinking about the past two weeks, how much time did YOU participate in the following activities on a TYPICAL WEEKDAY?" across 6 items, including (1) make calls on cellphone, (2) text on cellphone, (3) use social networking sites (e.g., Facebook, Twitter, and Instagram), (4) watch shows or videos on TV, (5) watch shows or videos on phone or mobile device, and (6) play games on phone or mobile device. Parents responded on a 9-point scale from 0 (none) to 8 (5 or more hours). As explained above in the child media use section, we converted these items to minutes. Then, the items were averaged and divided by 60 to produce an overall parent screen use hours score (Cronbach's alphas = .81, .74, .77). We also explored each individual item as they may represent different types of screen use. Items came from or were adapted from previous work on parent media use [67].

2.2.3. Frequency of Parent Phone Use around their Child. Parents responded to "Thinking about THE PAST TWO WEEKS, how frequently did you get on your phone or mobile device during times you were around your child?" on a 5-point scale, from 1 (never) to 5 (almost always). This item comes from McDaniel [40] and has been shown to be associated with but distinct from parent problematic phone use behaviors and thoughts during the parent-child time. For this study, we adapted the wording to ask about the past two weeks.

2.2.4. Parent Negative Beliefs about Phone Use around Children. Parents were presented with "Thinking about times when a parent is physically near their young child, please rate your level of agreement with the following statements." They then responded to 2 items, including (1) this phone use makes them miss important parenting moments with their young child; and (2) this phone use makes a parent less sensitive to their young child's needs. Items were on a 6-point scale, from 1 (strongly disagree) to 6 (strongly agree). Items were averaged to produce an overall parent negative beliefs about phone use around children score, with higher scores representing greater negative beliefs ($r = .74, .77, .76, ps < .001$). These items come from research on parent attitudes about their phone use [68]. McDaniel et al. [68] have shown the items load well together, and these negative beliefs about phone use around children are associated as expected with lower parent phone use during parent-child

time (measured via phone-logged data across 8 days) and mothers' greater feelings of guilt concerning their phone use.

2.2.5. Parent Struggles with Phone Use around their Child. Parents responded to the 4-item Distraction In Social Relations and Use of Parent Technology scale (DISRUPT; [40]), in which parents are asked to respond specifically about times spent with their child. Example items include "I find it difficult to stay away from checking my phone or mobile device" and "I find myself thinking about what I could be doing on or messages/notifications I might receive on my phone or mobile device." In general, the measure examines how much parents may be struggling with control or cognitions around phone use while around their child. Items are on a 6-point scale, from 1 (strongly disagree) to 6 (strongly agree), and were averaged to produce an overall score (Cronbach's alpha = .82, .84, and .85).

2.2.6. Setting Limits on Child Media Use. Parents were given the following instructions, "Please respond with how much you agree with the following statements. When we say 'screen use' or 'screens,' we mean TV, tablet, phone, computer, or other screen use." They responded to 6 items regarding tracking and setting limits on child media use, such as "I keep track of how much time my child spends on screens" and "I limit how much time my child spends on screens." Items were adapted from Asplund et al. [49] to refer to screens, instead of only TV. Parents responded on a 6-point scale, from 1 (strongly disagree) to 6 (strongly agree). Items were averaged to produce an overall score, with higher scores representing greater screen management by parents (Cronbach's alphas = .94, .83, .90).

2.2.7. Parent-Child Relationship Satisfaction. Parents responded to 4 items concerning their relationship with their child (PCRS; [69]). The first item asks about their overall degree of happiness and is on a 7-point scale from 0 (extremely unhappy) to 6 (perfect). Items 2, 3, and 4 (such as "I feel close and connected to my child") are on a 6-point scale, from 0 (not at all) to 5 (completely). Items were averaged, with higher scores representing greater relationship satisfaction (Cronbach's alpha = .83, .82, and .87). This scale was previously and successfully used by Peltz et al. [69] on parents with 2- to 3-year-old children.

2.2.8. Frequency of Parent-Child Play. Parents responded to the frequency of parent-child play subscale of the parent play questionnaire [70]. Parents are asked, "Thinking back over the past two weeks, please indicate how often you have played with your child in the following ways..." and they then responded to 8 items, such as "active physical play—for example, lifting or swinging your child, rough, and tumble" and "play with toys—for example, grasping, tickling, moving child's limbs, playing finger games such as 'this little piggy,'" on a 6-point scale from 1 (never) to 6 (several times a day). Items were averaged, with higher scores indicating greater frequency of play (Cronbach's alpha = .88, .86, and .87).

2.2.9. Parent Competence in Play. Parents responded to three items including (1) "I know how to play with my child," (2)

When I have time with my child, I have a good idea of what to play and do together,” and (3) “I feel prepared to play with my child.” Items were on a 6-point scale from 1 (strongly disagree) to 6 (strongly agree), and the three items were averaged to produce a parent play competence score (Cronbach’s alphas = .93, .94, .91). Items were created for this study to specifically reference competence in play, as this was the parenting context we were most interested in and believed might be impacted by our intervention. Items most closely align with the concept of parenting efficacy (i.e., feeling prepared and having the necessary skills to do well in parenting; [71]).

2.2.10. Parent Depression. We asked parents to respond to the CES-D-7 [72], where parents rate how often they have experienced seven different depression symptoms. We asked them to rate across the last week, and response options ranged from 0 (rarely or none of the time—less than 1 day) to 3 (most or all of the time—5 to 7 days). Items were averaged, with higher scores indicating greater depressive symptoms (Cronbach’s alphas = .85, .82, .82).

2.2.11. Parenting Stress. Parents responded to three items regarding the difficulties of parenting (e.g., “Raising my child brings about a lot more problems than I expected;” [73]). Items were on a 7-point scale, ranging from 1 (strongly disagree) to 7 (strongly agree), and items were averaged to produce an overall score; higher scores indicate greater parenting stress (Cronbach’s alphas = .87, .81, .88).

2.2.12. Engagement with the SFW Program. At week 1, parents were asked to indicate how much their child engaged in the screen-free activity provided by us on each day of the screen-free week (including Monday, Tuesday, Wednesday, Thursday, and Friday). They responded on a 5-point scale, ranging from 1 (not at all) to 5 (completely). The five items were averaged to produce an overall child engagement score (alphas are not reported as internal consistency was not necessarily expected, as engagement could change from day-to-day). Parents then were asked to indicate how much they engaged with their child in the screen-free activity on each day (i.e., Monday, Tuesday, etc.). They responded on the same 5-point scale, and these five items were averaged to produce an overall parent engagement score.

2.2.13. Feelings about the SFW Program. At week 1, parents responded to three items. The first item was “How likely would you be to participate in screen-free activities, like the activities we provided, in the future?” The scale ranged from 1 (not at all likely) to 5 (very likely). The second item was “How much did you enjoy the Screen-Free Week?” and the scale ranged from 1 (not at all) to 5 (very much). Finally, the last item was “How valuable do you feel the Screen-Free Week was for your family?” with a scale from 1 (not at all valuable) to 5 (very valuable). Each item was examined separately.

2.3. Data Analysis. We first examined frequencies and descriptives for engagement in and feelings about the SFW program. For descriptive purposes, we also explored whether

there were differences in parent and child engagement (as reported by parents). Then, to address our hypotheses and research questions, we examined mean differences between baseline and week 1 as well as baseline and week 4. All mean differences were examined utilizing nonparametric Wilcoxon signed rank tests, instead of paired sample *t*-tests—as paired sample *t*-tests are sensitive to small sample sizes and normality of data. Analyses were performed in SPSS 26.

3. Results

3.1. RQ1: Engagement in and Feelings about the SFW Program. In terms of engagement with the activities that were sent out each night, on average (across the 5 weekdays), 85.7% of parents reported that their child engaged “a little bit” or more with the activities ($M = 3.02$, $SD = 1.13$), and 85.7% of parents also engaged “a little bit” or more ($M = 3.48$, $SD = 1.22$). However, parents reported themselves as being significantly more engaged than their children in the activities, $z = -2.73$, $p < .01$, r effect size = 0.61.

Overall, 90.9% said they enjoyed the SFW program at least “some” ($M = 3.59$, $SD = 0.96$), 77.3% found the program to be at least “moderately valuable” ($M = 3.45$, $SD = 1.14$), and 59.1% indicated they would be at least “moderately likely” to participate in screen-free activities, like those that were provided, in the future ($M = 3.27$, $SD = 1.35$).

3.2. H1: Parent Screen Use Would Decrease. The program appears to have had an impact on parent media use (see Table 1), with parents decreasing their use by week 1 (from an average of 8.23 hours to 5.68 hours); however, this effect was not maintained into week 4. At the item level and by week 1, parents decreased their phone use for calling (although not texting) and the watching of shows/videos on TV and on their phone; however, their playing of phone games and use of social media did not decrease. By week 4, there were trends toward lower use, but differences were not statistically different from baseline ($ps = .059$ to $.087$).

One of the strongest effects of the program was on parent phone use while around their child (see Table 2). According to parent reports, parents decreased their phone use while physically around their child at week 1 and maintained this effect into week 4.

3.3. RQ2: Parent Beliefs and Struggles with Phone Use. Although parents decreased the frequency of their use around their child, the program had no significant effect on their overall feelings about whether using a phone around children impacts parenting quality as well as whether they struggled with phone use or thoughts centered around phone use while around their child (see Table 2).

3.4. H2: Frequency of Parent-Child Play and Relationship Satisfaction Would Increase. Parents reported engaging in more frequent parent-child play at week 1, although this effect was not maintained by week 4. Unfortunately, parent-child relationship satisfaction did not improve due to the program (see Table 3).

TABLE 1: Descriptives in hours and mean differences for child and parent screen use.

	Baseline		Week 1		Week 4		Baseline vs. week 1			Baseline vs. week 4		
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.	<i>z</i>	<i>p</i>	Effect size	<i>z</i>	<i>p</i>	Effect size
Child screen use hours	3.28	(3.85)	1.60	(2.50)	2.19	(3.09)	3.06	.002	.64	1.66	.098	.36
Watch TV, videos, and movies	1.46	(1.32)	0.74	(0.96)	0.93	(1.01)	3.06	.002	.64	2.16	.031	.47
Play games on a device	0.58	(0.83)	0.18	(0.35)	0.31	(0.62)	2.67	.008	.56	1.54	.123	.34
Look at photos on a device	0.52	(0.85)	0.26	(0.68)	0.34	(0.75)	2.14	.032	.45	1.18	.238	.26
Read on a device	0.19	(0.43)	0.11	(0.24)	0.11	(0.35)	0.81	.416	.17	0.94	.345	.21
Video chat with family/friends	0.53	(0.94)	0.33	(0.65)	0.48	(0.75)	1.61	.107	.34	0.42	.673	.09
Parent screen use hours	8.23	(5.95)	5.68	(4.21)	6.01	(4.78)	2.23	.026	.46	1.89	.058	.41
Watch shows or videos on TV	1.80	(1.57)	1.21	(1.34)	1.31	(1.49)	2.32	.021	.49	1.78	.075	.39
Watch shows or videos on phone	0.83	(1.06)	0.37	(0.58)	0.52	(0.93)	2.50	.012	.52	1.89	.059	.41
Play games on phone	0.63	(1.14)	0.47	(0.91)	0.51	(1.05)	0.97	.333	.20	0.68	.498	.15
Use social networking sites	1.95	(1.59)	1.66	(1.19)	1.34	(1.05)	1.12	.263	.23	1.71	.087	.37
Text on phone	1.85	(1.63)	1.28	(1.25)	1.29	(1.43)	1.68	.092	.35	1.79	.073	.39
Make calls on phone	1.18	(1.26)	0.68	(0.69)	1.03	(0.89)	2.37	.018	.49	0.91	.362	.20

TABLE 2: Descriptives and mean differences for parent phone use and phone use difficulties around their child.

	Baseline		Week 1		Week 4		Baseline vs. week 1			Baseline vs. week 4		
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.	<i>z</i>	<i>p</i>	Effect size	<i>z</i>	<i>p</i>	Effect size
Frequency of phone use around child	3.17	(1.03)	2.52	(0.99)	2.48	(0.75)	3.22	.001	.67	2.96	.003	.65
Phone beliefs (e.g., use makes parents miss important parenting moments)	4.20	(1.48)	4.48	(1.20)	4.31	(1.46)	-1.21	.227	.25	-0.14	.887	.03
Struggles with control/cognitions around phone use while around child	3.27	(1.08)	3.15	(1.17)	2.86	(1.08)	0.61	.541	.13	1.92	.055	.42

TABLE 3: Descriptives and mean differences for parenting outcomes and parent well-being.

	Baseline		Week 1		Week 4		Baseline vs. week 1			Baseline vs. week 4		
	Mean	St. dev.	Mean	St. dev.	Mean	St. dev.	<i>z</i>	<i>p</i>	Effect size	<i>z</i>	<i>p</i>	Effect size
Parenting outcomes												
Parent-child relat. satisfaction	4.63	(0.70)	4.76	(0.58)	4.73	(0.61)	-1.02	.307	.21	-1.33	.184	.29
Frequency of parent-child play	4.73	(0.82)	4.92	(0.73)	4.76	(0.72)	-2.53	.012	.53	-0.90	.367	.20
Parent play competence	5.00	(0.97)	5.26	(0.77)	5.37	(0.71)	-2.15	.031	.45	-2.94	.003	.64
Screen limit setting	4.49	(1.31)	5.02	(0.72)	5.06	(0.80)	-2.93	.003	.61	-2.42	.016	.53
Parent well-being												
Depression	0.76	(0.65)	0.55	(0.57)	0.48	(0.50)	2.14	.032	.45	2.65	.008	.58
Parenting stress	3.00	(1.71)	3.06	(1.39)	2.90	(1.60)	-0.59	.550	.12	0.17	.867	.04

3.5. H3: Parent Management of Child Media Use Would Increase. Parents reported being more likely to track their children’s time on screens and to set limits on their children’s screen use at week 1 and week 4 (see Table 3).

3.6. H4: Child Media Use Would Decrease. Overall, child media use decreased by week 1 (from an average of 3.28 hours to 1.60 hours); however, this effect was not maintained by week 4 (see Table 1). Additionally, it appears that the types of media use we would desire to decrease were the ones that decreased by week 1 (e.g., watching TV and playing

games), while potentially positive types of media use were unchanged (i.e., reading on a device and video chatting). It should also be noted that the effect on child TV watching appears to have been maintained into week 4.

3.7. RQ3: Parent Mental Health. Parents reported feeling less depressed after the program at week 1 and week 4 (see Table 3). Parents did not feel more stressed by parenting after the program (see Table 3), which is a positive indicator that the program did not likely cause a significant amount of stress on parents.

3.8. *RQ4: Parenting Competence.* As the program contained suggested age-appropriate activities and handouts, we explored potential shifts in parent feelings of competence in their parenting. The program appeared to improve parents' feelings of competence in knowing how to play with their child (see Table 3).

4. Discussion

No longer is technology simply a tool sometimes used by families, but rather it has permeated into the inner workings of parents' and children's daily lives [1, 2]. The current study examined how a screen-free week might impact parent and child screen time, parent management of child screen time, parent well-being and feelings, parent-child play, and the parent-child relationship. Overall, the screen-free week program increased parental well-being by decreasing depressive symptoms, increased the parenting of child screen time and establishments of screen time limits, increased parent-child play, and decreased both parent and child screen time—though the decrease in parent and child screen time was not maintained beyond one week after the program; effects on child TV/video watching and frequency of parent phone use specifically around their child were maintained. These findings support previous research emphasizing screen-free times or zones as a viable method to reduce excess screen time [16, 57, 62]. Screen-free times or zones appear to help restore some interactions previously displaced by screen time [57] and also may influence more intentionality within parents concerning their personal phone use around their child.

Overall, we found some initial support for our exploratory conceptual framework of how implementing screen-free times would impact parent screen use and attitudes, the parenting of child screen use, and parent-child play. We also saw some potential spillover effects on parent well-being and child screen use (although not parent perceptions of parent-child relationship quality). We implemented a program which, when enacted by parents throughout the week, reduced parent phone and screen use. We also saw significant positive shifts in parent depressive symptoms, limit setting around child media use, parent-child play, and the frequency of child media use. In other words, implementing screen-free times (i.e., changing parent and child screen use) may have ripple effects on the family system and individual well-being. Future research is needed to examine the exact paths of influence and various mechanisms through which the effects occur and are maintained or dissipate.

Interestingly, the program appears to have had the strongest effects on parent phone use *around their child*, while overall time spent by parents and children on-screen use dissipated by 4 weeks. This suggests that perhaps the SFW program may build awareness in parents and cause them to change or desire to change their own screen habits during family time. As parent device use during time spent around their child is linked at times with feelings of internal conflict and guilt [37, 39, 74], this reduction in their phone use around their child may have resulted in better alignment of

their parenting goals with their behavior, leading to better balance and perceived autonomy and control over their device use (e.g., [46, 47]) and ultimately to decreased depressive symptoms. Another indicator that the program may have had greater impact on parents is that parents began monitoring their child's screen use more, but the child's actual screen time returned to baseline levels by 4 weeks. In other words, parents are more aware of both their own and their child's use, but child screen behavior did not shift strongly.

We also saw significant increases in the frequency of parent-child play by week 1, although this was not maintained by week 4. However, we did not see changes in parent feelings of satisfaction within the parent-child relationship. Thus, during and immediately following our program, parents and children engaged in more frequent play likely due to the intentional screen-free times and suggested activities. These small changes parents made in focusing on screen use and holding small moments of screen-free time were not sufficient to significantly shift the overall parent-child relationship. Although we did not see an impact on the overall parent-child relationship as hoped, we did not measure the quality of parent-child play or the amount of focused attention received by children. It is possible that these indicators may have shifted, although future research would need to examine this. In our current results, for example, we found that parent phone use around their children decreased, and parents expressed feeling more competent in their play with their children—both indicators that the quality of interactions and focused attention may have shifted. It may also be that the implementation of intentional screen-free times during family routines would need to be maintained for a longer period (i.e., longer than a week) to produce effects on overall relationship quality. Families, especially children, may have fallen back into old screen habits after the SFW program ended; indeed, our current results support that parent and child screen time was not significantly different from baseline by 4 weeks after the program.

This study had various limitations. As a pilot program, our study had a small number of participants, and those participants were ultimately not representative of the wider US population. Our small sample size did not allow for the testing of potential differential effects of the program. It is possible that effects of implementing screen-free times could vary based on parent, family, or child characteristics and/or the ways parents and children use their devices; future work should examine differential effects. Our data was also self-reported, which is susceptible to inaccuracy and potential social-desirability bias, and some of our measures had to be developed or adapted; thus, further measure validation may be necessary. We did not track whether families engaged in screen-free activities other than those suggested in the handouts, nor did we track email read receipts; thus, it is possible that families implemented their own strategies—although the program was designed such that adaptation by families was likely expected. The absence of a control group and randomization could also lead to bias and an inability to determine if the effects are due to being assessed

by researchers over time or due to the program itself. Self-selection bias also cannot be eliminated; it is possible that those who chose to participate viewed screen use more negatively and were therefore already poised to perceive benefits when creating screen-free times.

Various barriers to implementing screen-free times may exist depending on factors such as parent work hours, family stress, and living in poverty (e.g., [75]), and there are potential benefits to parent and child screen use which should carefully be examined in any program which recommends digital disconnection. For example, screen use can be beneficial to parenting (e.g., receiving support and finding information); thus, eliminating screen use entirely often is not the best answer. Yet, our program did not necessarily argue for screen use elimination, but instead the creation of intentional screen-free times with positive parent-child engagement. Overall, parents viewed the program positively, but it is possible that changing screen time habits made parenting and managing household or other tasks more difficult; it is promising that parents' ratings of stress did not increase though, indicating that any stressful changes were likely manageable. We call for future research to expand into randomized trials with more representative samples to determine if the promising findings we encountered continue to be supported. Additionally, one size does not fit all when it comes to how parents should implement screen-free time, and examining the best ways and areas in which to implement flexibility regarding screen-free times would be important [76, 77].

Overall, parents felt positively about our screen-free week program, and many expressed they would be willing to engage in the activities in the future. Screen-free time seems to be effective in aiding parent and child screen habits and well-being. Given the relatively strong changes in parent phone use and depression in our study, it is likely that spill-over effects into family functioning over time are possible. Although this was a pilot program and, thus, effects cannot be viewed as definitive, it is promising that for a relatively small amount of effort across one week (e.g., daily emails with possible screen-free activities), significant shifts were seen—even up to a month later—in parent well-being, parent phone use around their child, parents' feelings of competence, parent limit setting on child screen use, and child TV watching.

Data Availability

The deidentified data may be shared on reasonable request to the corresponding author.

Conflicts of Interest

Brandon McDaniel, Sydney Rasmussen, and Lauren Reining declare no conflict of interest. Kacey Deverell and Leasha Culp were involved in the development of this screen-free week program. However, to avoid potential bias, they were not involved in the evaluation, analysis, and interpretation of the data.

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