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# Emotion Regulation and Media Use in Young Children

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By

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## DEDICATION

I would like to dedicate this thesis to my family who cheer me on every step of the way. Thank you for always believing in me and encouraging me to do my best.

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## ABSTRACT

Child screen time has increased tremendously in the past several years because of new technological advances. This is a great resource for some individuals on a limited basis. However, many children are being taught to regulate their emotions through media use. The initial aim of this study was to attempt to find a correlation between parent reported screen time and problematic media use. It was hypothesized that higher reported screen time would be significantly related to greater problematic media use and that higher reported screen time and problematic media use would be related to a greater negative reaction in screen time interruption.

Parents completed an online survey consisting of questions about their child's screen time usage. Parents and their children then completed an in-person experiment. The study analysis was conducted through SPSS and made use of the Pearson's correlation using a significance value of $p < .05$. Upon analysis, it was found that problematic media use was significantly positively correlated to the parent reported screen time amount ($r = 0.391$, $p = .043$). However, there was no relation between parent reported screen time and a child's emotional reaction to the device suddenly turning off.

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## LIST OF ABBREVIATIONS

AAP: American Academy of Pediatrics

PMUM-SF: Problematic Media Use Measure - Short Form

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# Introduction

## Media Use in Children

For the last few years, children between the ages of three and eight have become overwhelmingly familiar with technology. Despite the fact that the American Academy of Pediatrics (AAP) recommends that children not be given a media device to regulate negative emotions, parents and caretakers often give children a tablet, smartphone, and other media devices each day to console or keep them occupied (Hacker et al., 2020). Parents may use digital devices to give themselves a break or make sure the child's behavior does not escalate into a full tantrum when something goes wrong. This is becoming the case more often as parents are working from home. Young children are able to access many educational apps, YouTube, or Netflix when given a device by their caregiver. Companies thrive off young children using devices as there are more educational apps created for children under the age of five than any other age group (Hiniker et. al, 2016).

With the invention of mobile media devices, children spend their leisure time watching videos or playing games on the device (Twenge & Campbell, 2018). Cerniglia and colleagues reported an average of 14 hours of screen time per week in children as young as two years of age (Cerniglia et al., 2021). This is not only an issue in the United States but around the world. Parents in Australia report that children ages 2 to <6 spent an average of 25.9 hours (n=854) and children ages 6 to <13 spent an average of 31.5 hours (n=1,519) of screen time at home per week (Rhodes, 2017). All types of media use should be included in this data, but this is sometimes not the case. Parents often underreport screen time. Parents do not want to appear to be irresponsible or negligent to others. According to one study, mothers reported a smaller amount of screen time

than fathers, causing a confounding variable in research studies that require at-home analysis (McDaniel et al., 2020).

**Problematic Media Use**

Media use becomes a noticeable problem when it affects the family lifestyle and motivation efforts. Many of these negative occurrences happen when the parents take the device away from the children. According to a previous study, 93% of parents reported that their child whines, throws a tantrum, or resists screen time ending occasionally; 37% of parents reported that ending screen time almost always ended in a fight with their child (Hiniker et al., 2016). This study also indicated that parents sometimes do not want to end screen time because it leads to a fight (Hiniker et al., 2016). These results have been duplicated in other studies as high use of child screen time was related to a higher likelihood of the child to lose their temper and argue when asked to switch tasks (Twenge & Campbell, 2018). Parents are continuing to give into their child to prevent these reactions, especially in public settings.

**Emotional Regulation by Media**

Emotional regulation by media is characterized by giving a child a device to regulate difficult emotions (Coyne et al., 2021). Learning to regulate emotions is a pivotal lesson when children are young and allows them to deal with their emotions when confronted with a new or hard situation. In the past, parents taught their children how to manage their emotions at home; these lessons transferred over to public places such as schools and restaurants. Children were taught different techniques to help them, such as leaving the situation to calm down or talking through it with someone they trust. Parents now use media as a "quiet time" to catch up on house cleaning or participate in activities for themselves. A longitudinal study indicated that children with self-regulation issues as infants are more likely to be given a screen to soothe them in order

to give the parent a break (Radesky et al., 2014). These children see the device as something to help comfort them, causing problematic use as toddlers. This result was also confirmed in another study two years later (Radesky et al., 2016b). The participants in this study were more likely to give a device to a child with social-emotional difficulties (61.8%) compared to a child without social-emotional difficulties (38.1%). Parents were often more likely to give their child a device to calm down when upset (51.5%), for peace and quiet in the house (47.6%), to keep the child occupied while the parent is working around the house (40.4%), and at bedtime (42.3%) (Radesky et al., 2016b). There are many times where the parent would provide the child with their own tablet to bring to stores and restaurants to keep them occupied. However, this can cause disruption to others around them. Recent guideline changes in the United States addressed concerns about using media as a tool to regulate child behavior because it might under-develop internal mechanisms for emotion regulation (Cliff et al, 2018). These trends show that there is an alarming problem with screen time in young children. Authors of a study on early childhood media exposure and self-regulation concluded that there was some correlation between lower media exposure and better self-regulation within a two-year period (Cliff et al., 2018).

**Effects of Media Use on Children**

Excessive media use is defined as using media longer than is recommended by the AAP. This recommendation changes with age; however, children ages two to five years should be limited to one hour a day (Radesky et al, 2016a). Excessive media use before three years of age has been correlated with language development problems, low attention span, and cognition issues (Radesky et al., 2014). These negative findings can affect the child as they get older, and in some cases, may not recover to their full potential. Children are becoming more disruptive in the classroom and are not able to focus for long periods of time when it is needed.

Media use by children today can hinder proper emotion regulation. Parents are willingly giving their little ones devices to calm down or keep quiet, preventing children from thinking through and processing their emotions. Children learn this behavior and know that their parents will give them what they want when they fuss and fight. Coyne and colleagues (2022) reported that children demonstrated a negative mood when transitioned away from media use and a highly positive mood when transitioned toward it (Coyne et al., 2022). Such responses show that a child's mood can become dependent on media use. High usage of media has been linked to poor emotion regulation in children who are allowed long periods of screen time. More screen time caused children to become less curious and more upset when they were challenged (Twenge et al., 2018). Additionally, preschool-aged children were more likely to throw a tantrum when challenged or asked to switch tasks. Overall, high screen time use appears to be correlated with poor emotion regulation.

Improper emotion regulation can affect children later in life. As a result of high usage of media to regulate difficult emotions, children do not learn how to calmly deal with their emotions. Frequent media use disrupts the process of communicating with the child when they are in distress (Hacker et al., 2020). Lack of regulation typically manifests as anger with no way to manage negative emotions. If an individual never learns how to deal with their emotions, there could be negative consequences in the future, such as law trouble and jail time. Older children were more likely to be diagnosed with depression or anxiety under these same conditions (Twenge et al., 2018). Media emotion regulation is a harmful lesson to teach children at a young age.

## Objectives and Hypotheses

The objective of this study is to examine the relationship between parent reported child screen time and problematic child media use, and child emotion regulation when screen time is interrupted. The projected hypotheses for this study include: 1) higher reported screen time will be related to a greater problematic media use, and 2) higher reported screen time and problematic media use will be related to greater negative reactions in screen time interruption. It is anticipated that this study will provide important and useful information regarding early childhood media use and show the complications that can arise from too much screen time.

## Methods

### Participants

Thirty caregivers were recruited to participate in the current study. Three participants had to be excluded due to errors in administration, and thus twenty-seven participants were included in the final sample. Study inclusion criteria include caregivers between the ages of 20 and 60 years old and their children between the ages of 3 and 8 years old who are not diagnosed with a developmental disorder such as ADHD or ASD as part of a larger study. Exclusion criteria for this study include non-English speakers, caregivers below the age of 20 or above the age of 60, a child not within the ages of 3 and 8 years old, and a child with a documented neurodevelopmental disorder. Participants included 22 female caregivers (81.5%) and 5 male caregivers (18.5%). Caregivers ranged in age from 28-45 with an average age of 36.5 years (SD = 4.98). The average age of the child participant was 5.5 years (SD = 1.70). For the child participants, 12 identified as male (44.4%) and 15 identified as female (55.6%). Approximately 74.1% of caregivers were married, 11.1% divorced, 7.4% never married, and 7.4% separated.

Participants were primarily Caucasian (n=17, 63%), Hispanic/Latinx (n=4, 14.8%), African Americans (n=3, 11.1%), Asian (n=2, 7.4%), and Native American (n=1, 3.7%). In terms of highest education level attained, 11.1% of caregiver participants had completed some college, 11.1% had completed an associate's degree, 18.5% had completed a bachelor's degree, 29.6% had completed a master's degree, 22.2% had complete a doctoral degree, and 3.7% were still in school. Participants were compensated with a $30 gift card after completing the in-person portion of the study.

**Procedures**

Participants for this study were acquired using advertisements sent through the University of South Alabama's mailing list, "Daily Digest", and placed in businesses and community centers around the city. Emails were also sent to local schools and daycares, dance studios, and coffee shops. Advertisements included a QR code that, when scanned, led to an informed consent document and a Qualtrics survey. Following completion of all study procedures, the participants received a gift card for completing the survey and emotion regulation study.

Once caregivers responded to the advertisement, they completed the digital informed consent process and survey measures. Following completion of the survey measures, local caregivers and their children were invited to attend an in-person research session. The in-person emotion regulation task was based on a previous study (Coyne et al., 2021). As part of a larger study, families completed a number of experimental tasks. For the current study procedures, the child was put in a playroom and provided with an iPad with the television show *Daniel Tiger's Neighborhood*. The episode utilized was called, "Daniel Gets Mad", which focuses on social-emotional regulation. A timer was set so that the iPad automatically locked after five minutes, thus ending the video. The child was not informed that this would occur, and neither the parent

nor the child knew the password to the iPad. After two minutes, the researcher re-entered the room and debriefed the child and parent. After the experiment, a team of two undergraduate students coded the child behavior and responses as described below.

**Materials**

The caregivers completed a brief demographic questionnaire and answered questions about their child.

***Screentime***

Screentime was assessed by a single item completed by the parents. Parents then answered a question (see Table 1) regarding the amount of time the child spends on media devices each day, choosing from "Never", "Less than 1 hour/day", "1-2 hours/day", "3-4 hours/day", "5-6 hours/day", and "More than 6 hours/day". These items were coded on a 0-5 scale.

**Table 1**

Amount of Media Use Per Day

| To the best of your ability, please estimate the amount of time this child spends using media devices (i.e., cell phone, tablet, television, computer) on a daily basis. Please do not include time spent utilizing media devices for school or media use without using the screen (e.g., listening to music). |
|---|
| Never |
| Less than 1 hour/day |
| 1-2 hours/day |
| 3-4 hours/day |
| 5-6 hours/day |
| More than 6 hours/day |

### *Problematic Media Use*

The Problematic Media Use Measure—Short Form (PMUM-SF; Domoff et al., 2019) is a 9-item brief measure of child problematic media use completed by caregivers. Caregivers were asked, "For each statement, please select the option that is true for your child in the past month." The caregiver rated statements related to problematic media use (see Table 2) from 1 (i.e., "Never") to 4 (i.e., "Constantly"), with total scores ranging from 9-36. Items were added into a total score, representing the amount of problematic media use a child exhibited, with a higher score representing higher problematic media use.

**Table 2**

Problematic Media Use Measure

| |
|---|
| We want to know about how your child uses screen media and your experiences with your child's media use. When we say screen media, we mean any type of media that your child uses that has a screen, such as: television, video games, tablets, smartphones, handheld video games, computers. We will use the shortened term "SCREEN MEDIA" to refer to ANY screen media device or format that your child uses. When you see the term "SCREEN MEDIA" in the following questions, think of ANY type of screen media or devices that your child uses. For each statement, please select the option that is true for your child in the past month. |
| It is hard for my child to stop using screen media. |
| Screen media is the only thing that seems to motivate my child. |
| Screen media is all that my child seems to think about. |
| My child's screen media use interferes with family activities. |
| My child's screen media use causes problems for the family |
| My child becomes frustrated when he/she cannot use screen media. |
| The amount of time my child wants to use screen media keeps increasing. |
| My child sneaks using screen media. |

When my child has had a bad day, screen media seems to be the only thing that helps him/her feel better.

### *Emotion Regulation*

Emotion regulation was measured based on the child's reaction following an interruption of viewing of *Daniel Tiger's Neighborhood*. Immediately following the end of the viewing period, when the show automatically shut off, the child's reaction was recorded for two minutes, with coding based on Coyne et al. (2021). Child emotional reaction was rated in 15 seconds intervals, with behavior absent (0) or behavior present (1) (see Table 3). If behavior was coded as present, the child showed a negative or neutral behavior. A negative behavior consisted of frowning, pouting, crying, or whining. A neutral behavior when behavior was present consisted of looking confused, trying to unlock the device, or asking questions. If behavior was coded as absent, the child showed a positive or neutral behavior. A positive behavior consisted of smiling or laughing. A neutral behavior when behavior was absent consisted of ignoring the devices or playing with other items. Each 15 second interval was also coded according to severity, with these behaviors described as mild or extreme. A mild behavior was coded if the child had a whiny tone, pouted, furrowed brow, or talked about the media. An extreme behavior was coded if the child was crying or throwing a tantrum. If no behavior was present, the code was "N/A" (see Table 3).

**Table 3**

Emotion Regulation Coding

| **TIME INTERVAL (every 15s)** | 00:00:15 | 00:00:30 | 00:00:45 | 00:01:00 | 00:01:15 | 00:01:30 | 00:01:45 | 00:02:00 | **TOTAL** |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **NEGATIVE BEHAVIOR PRESENT (1) OR ABSENT (0)** | | | | | | | | | |
| **SEVERITY (N/A, MILD, EXTREME)** | | | | | | | | | N/A |

**Table 4**

Coding Response Definitions

| **Behavior Present** | |
|---|---|
| Negative | Whiny tone of voice, furrowed brow, frowning, pouting, crying, arguing |
| Neutral | Look of confusion, asking questions about device, trying to unlock device |
| **Behavior Absent** | |
| Positive | Laughing, smiling |
| Neutral | Ignoring device, playing with other toys |
| **Behavior Severity** | |
| Mild | Child taking about the media and displaying physical signs of mild distress |
| Extreme | More severe reactions, such as screaming, throwing a tantrum, crying, wrestling parent for control |

**Analyses**

The expected outcome of this project is that children who have more screen time will have a greater problematic media use and a negative emotional reaction when the device is suddenly turned off; a high correlation among these three factors is expected. Descriptive analyses (i.e., means, standard deviations, ranges) were conducted for the main study variables.

The main study variables were also assessed using Pearson's correlations, using a significance value of $p < .05$. Statistical analyses were conducted via version 29.0 of SPSS.

## Results

Table 5 displays the descriptive characteristics of, and the relationships between, the main study variables.

**Table 5**

Means, Standard Deviations, and Correlations for Study Variables

| | PMUM | Child reaction | Screen Time | Mean | SD | Range |
|---|---|---|---|---|---|---|
| 1. PMUM | - | | | 16.22 | 4.53 | 10-28 |
| 2. Child reaction | 0.245 | - | | 3.11 | 2.47 | 0-8 |
| 3. Screen Time | 0.391* | 0.136 | - | - | - | - |

*PMUM problematic media use measure*
*$*p < 0.05$*

Problematic media usage was significantly positively correlated to the amount of screen time a child had per day ($r = 0.391$, $p = .043$). The child's emotional reaction to the device turning off suddenly was not related to reported screen time or parent report of problematic media usage. The PMUM was analyzed through a range of 10-28, with a mean of 16.22 and standard deviation of 4.53. The child reaction was analyzed through a range of 0-8, with a mean of 3.11 and standard deviation of 2.47, showing a negative reaction for one-third of the child participants. None of the children were rated as having a severe reaction, although 92.6% had at least an initial mild reaction to the media being shut off, and 11.1% displayed a mild reaction throughout the entire two minutes of coding.

## Discussion

The current study examined the correlations between parent reported child screen time and problematic media use, and child emotion regulation when screen time was interrupted. This experiment was aimed at children aged three to eight along with their primary caregivers. The hypothesis predicted that there would be a significant correlation between these variables. Based on the results of this study, it was found that problematic media use was significantly positively correlated to the amount of screen time a child was reportedly allowed per day. This finding is supported by existing literature, which has previously found that children who have higher reported screen times also tend to have more problematic media usage (Twenge & Campbell, 2018).

However, the child's emotional reaction to the device suddenly turning off was not related to the reported screen time or parent report of problematic media use. This was unexpected due to the correlation between screen time and problematic media use. This result is contradictory to previous research (Coyne et al., 2021). This can be due to the small sample size and the environment in which this study is taking place. The Coyne study focused on children ages two to three years, while the current study focused on an older age range.

Even though there was no correlation between problematic media use and reported screen time, this study was informative in other aspects. Finding the correlation between problematic media use and the amount of screen time per day will be very beneficial for parents. Continuing high media use can interfere with brain and social development, causing unknown problems in the future.

**Limitations and Future Directions**

There were several limitations through this study. The sample size of this experiment was relatively small as there were only 27 participants total. Many individuals finished the initial survey but were not interested in completing the in-person experiment due to its time commitment and low compensation, which is a common issue with in-person data collection. Additionally, because the survey was a self-reported measure, social desirability bias may be a limiting factor. Parents may not report the accurate amount of child screen time due to not wanting to be seen as inadequate or uninvolved parents. In all survey-based research, especially technology use-related, self-report bias limits the conclusions which can be drawn from the results. Due to the nature of cross-sectional designs, causation cannot be inferred, and further studies will be needed to assess emotional regulation and problematic media use longitudinally. Another important limitation was that due to the setup of the in-person experiment, children were easily redirected from the iPad by the other toys in the room or by their parents. However, although this caused distractions away from the media once turned off, this setup made the laboratory setting more similar to a natural home setting. Many of the older children were not interested in the *Daniel Tiger's Neighborhood* and stated that they did not like or want to watch the show.

Future experiments, if wanting to purely assess reaction to the media use being taken away, should be done in a blank room with no toys or people to distract the child. Further studies should explore whether results differ if other television shows are available for the children to choose. Options should include choices for each age range. If the child were interested in a particular show, the reaction may be quite different than what was shown in this study and thus further experiments should explore whether preference impacts the child's emotional reaction.

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