

# Emotion Regulation and Screen Use among Parents of Toddlers: A Moderating Role of Parental Personality

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## ABSTRACT

Despite the American Academy of Pediatrics' (2016) recommendation to limit screen exposure in the early years, toddlers' screen use exceeds these guidelines (Rideout & Robb, 2020). Given the significant role of parental media use in children's exposure to screens (Domoff et al., 2020; Lauricella et al., 2015), it is important to understand the factors that contribute to parental screen use. Digital technologies have been posited as tools for emotion regulation (Wadley et al., 2020), suggesting that parental emotion regulation may serve as a significant determinant of parental media use. Prior studies have shown the association between emotion regulation strategies and different types of screen use, including non-interactive and interactive media (Extremera et al., 2019; Rozgonjuk & Elhai, 2021). It has also been suggested that the role of emotion regulation strategies may differ by personality traits (Gross & John, 2003). However, limited research to date examined these associations with the focus on parents of toddlers. Therefore, the purpose of this study is to examine the association between parents' emotion regulation strategies on their screen use and the moderating role of personality traits in this association. This study used secondary data collected from an online survey of 296 mothers of children between 18 to 36 months in the United States. Linear regression models were fitted to examine the association between emotion regulation strategies and parental screen use, with a focus on two specific regulation strategies and interactive and non-interactive screen use. They were founded that cognitive reappraisal was not related either non-interactive and interactive screen uses and that expressive suppression was only associated with non-interactive screen use. Cognitive reappraisal was related to agreeableness and expressive suppression was related to extraversion. No moderator roles of agreeableness on the association between cognitive reappraisal and both types of screen use and extraversion on the association between expressive suppression and both types of screen use were found. Future research is needed to test the possible biases resulting from the self-report technique, understand the causation between emotion regulation strategies and screen use, and include the context of screen media for deeper understanding.

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## GENERAL AUDIENCE ABSTRACT

Toddlers use screens, like smartphones and tablets, more than recommended by American Academy of Pediatrics (2016), and understanding why may help to support children's healthy developmental outcomes. How much parents use screens is related to how much children use screens (Lauricella et al., 2015), making it valuable to examine parents' screen use. Screens may help individuals learn to control or regulate their emotions (Wadley et al., 2020), suggesting that parental emotion regulation may be one reason that parents use screens. Prior studies have shown that emotion regulation is related to different types of screen use, including non-interactive (e.g., video viewing) and interactive media (e.g., playing video games; Extremera et al., 2019; Rozgonjuk & Elhai, 2021). I examined two strategies of emotion regulation: cognitive reappraisal, which is reinterpreting the situation that cause emotions, and expressive suppression, which is hiding and inhibiting emotions. It has also been suggested that the role of emotion regulations strategies may differ by personality traits (Gross & John, 2003). However, limited research to date examined these associations with the focus on parents of toddlers. The current study examined how maternal cognitive reappraisal and expressive suppression related to both non-interactive and interactive screen use and moderating role of personality traits on these relations. Mothers of toddlers ( $N = 296$ ;  $M_{\text{age}} = 31.8$  years) completed surveys for this study. Findings showed that cognitive reappraisal was not related to either non-interactive or interactive screen use, although it was related to agreeableness and that expressive suppression was related to non-interactive screen use and extraversion. Associations between these two emotion regulation strategies and both types of screen use were not moderated by personality characteristics. Further explanation is needed to examine the context of screen media and the causal links between emotion regulation strategies and screen use.

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## CHAPTER 1

### Introduction

Screen media use is not recommended for optimal development of children under two years of age, except for socially interactive use of video chat (American Academy of Pediatrics, 2016; World Health Organization, 2019). Even for children over two years, it is recommended to limit screen time to one hour of educational content (American Academy of Pediatrics, 2016). Despite these guidelines, a daily average of screen time among young children is considerably higher, with 49 minutes among those under age 2 and more than 2.5 hours for those aged 2 to 4 years (Rideout & Robb, 2020). An increasing body of research has highlighted the importance of parents' screen use in children's screen use (Lauricella et al., 2015; Lauricella & Cingel, 2020). Therefore, it is critical to understand the factors that contribute to parents' screen use in order to support children's healthy media habits and overall development. Previous research has found that emotion regulation strategies are related to different types of screen use, such as non-interactive and interactive screens (Extremera et al., 2019; Rozgonjuk & Elhai, 2021) and to personality traits (Gross & John, 2003). However, few studies have examined these associations in the context of parenting. Therefore, this study handled to investigate whether parents' emotion regulation strategies are associated with their screen use and to what extent this relation is moderated by their personality traits.

Why do parents of young children use screen media? One of the important motivations of using digital media could be related to parental emotions. Emotions are comprehensive responses of the body to significant positive and negative affective states (Lazarus, 1993). Although individuals cannot determine when emotions will arise, they can exert control over them when

they are connected to important situations (Gross, 2015). Therefore, emotion regulation plays a crucial role in understanding what emotions individuals experience, when they experience them, and the way they experience them (Gross, 1998). Understanding emotion regulation is critical as it enables people to work more effectively, build better social connections, and enhance their well-being (Brans et al., 2013). Digital emotion regulation is an emerging interdisciplinary field encompassing psychological and computing research that studies how digital technologies are used for managing and regulating one's own emotions (Wadley et al., 2020). Research on adolescents and young adults has begun to reveal the role of digital media in emotion regulation (Blumberg et al., 2016; Myrick, 2015; Osmanovic & Pecchioni, 2015; Randall & Rickard, 2016; Smith et al., 2022; Wadley et al., 2020), but limited research has focused on digital emotion regulation in the parenting context.

People use different strategies to regulate their emotions, with some strategies potentially displaying greater adaptability than others (Gross & John, 2003). Two commonly studied emotional strategies are *cognitive reappraisal*, which involves reinterpreting situations that elicit emotions in order to change their emotional impacts (Gross & John, 2003), and *expressive suppression*, which involves reducing the impacts of existing emotions by hiding and inhibiting them (Gross & John, 2003; Gross & Levenson, 1993). Theoretical and empirical evidence suggests that cognitive reappraisal is a more optimal emotion regulation strategy than expressive suppression because, unlike expressive suppression, cognitive reappraisal positively contributes to well-being (Gross, 2015; Gross & John, 2003; Mohammed et al., 2021; Moore et al., 2008; Zhu et al., 2021). Therefore, examining the association between parental emotion regulation strategies and their screen use has the potential to inform *how* parents use screens—whether screen media is used to regulate their emotions and to the extent to which such usage is adaptive.

Although screen use has been frequently viewed as a general term, a growing body of evidence suggests the importance of examining users' specific media activities rather than the total duration of media use (Lauricella et al., 2015; Nielsen et al., 2008). Non-interactive media refers to the receptive consumption of content without direct human control, while interactive media refers to digital tools that allow for active user engagement and participation, such as video games and video chatting (Anderson & Davidson, 2019; Kirkorian et al., 2017). Prior research with adolescents and young adults has shown that emotion regulation strategies are differentially related to screen use depending on media interactivity (Şakiroğlu, 2019). Similarly, for parents, using media interactively may serve a different function compared to using media non-interactively. Thus, the present study examined the association between parental emotion regulation strategies and screen use as a function of media interactivity.

Lastly, the association between parental emotion regulation and screen use may be moderated by other parental factors. Researchers have shown that people may use different emotion regulation strategies based on their personality traits (Gross & John, 2003). Specifically, they found that cognitive reappraisal was negatively related to neuroticism and positively related to extraversion, openness, agreeableness, and conscientiousness, and expressive suppression was negatively related to extroversion, openness, agreeableness, and conscientiousness. It has been postulated that people who are high in agreeableness are likely to use cognitive reappraisal strategies, and people who are low in extraversion tend to use expressive suppression strategies (Gross, 2008). That is, extroverted people express their emotions more easily and therefore suppress their emotions less. In addition, individuals high in agreeableness are compatible with others and communicate better, and as a result of this good communication, they can reinterpret

their negative emotions with more positive ones. Thus, parental personality may serve as an important moderator between the association between their emotion regulation and screen use.

Thus, the purpose of this study was to examine the association between emotion regulation strategies (cognitive reappraisal and expressive suppression, respectively) and screen use and to investigate the moderating role of personality traits in the relation between emotion regulation strategies and screen use among parents of toddlers. Given the potential differential role of media interactivity, the proposed study examined these associations for interactive and non-interactive media use, respectively.

### **Theoretical Background**

I used two theories to conceptualize my proposed model: ecological systems theory and the process model of emotion regulation. First, I described ecological systems theory as a framework for connecting parental emotion regulation strategies and screen media use. Next, I introduced the process model of emotion regulation to conceptualize specific emotion regulation strategies and the potential mediating role of parental personality.

#### ***Ecological Systems Theory***

Ecological systems theory, which was developed by Bronfenbrenner (1979), proposes that various levels of the environment, ranging from the microsystem to the chronosystem, play important roles in child development. This basic theory explains the impact of each level on the developmental process of children. The *microsystem*, which is the first level, is the immediate environment that has a direct role on children and includes important others in children's lives such as parents and teachers. The *mesosystem* represents the interaction of various microsystems, such as communication between parents and teachers. The *exosystem* includes the impact of indirect environmental factors such as the effects of parents' work life on children. The

*macrosystem* focuses on social, cultural, and political structures that affect children, such as children's rights and lockdown processes. The *chronosystem*, which is the last level, is the impact of major changes on children over time, such as having a new sibling. In addition to these systems, Bronfenbrenner (1995) stated the importance of the proximal processes, which is the interaction between children and the environment, on developmental outcomes as well as situational factors—immediate events in a person's life that are part of the microsystem—being relatively more powerful than contextual factors—broader environmental elements that affect individuals indirectly (Ashiabi & O'Neal, 2015).

Studies focusing on the influence of parental factors on children in the context of technology have primarily focused on the microsystem and proximal processes based on the ecological systems theory (see Lauricella et al., 2015; Lauricella & Cingel, 2020). Parental factors, such as emotional climate at home (Darling & Steinberg, 1993; Morris et al., 2007) and screen media use (Lauricella et al., 2015; Lauricella & Cingel, 2020), may shape children's developmental outcomes when considering the effects of parents on children in the microsystem. The effects of screen media use are becoming increasingly complex as the use of technological devices increases. While Bronfenbrenner (1979) located television in the microsystem, Johnson and Puplampu (2008) proposed the techno-subsystem as a new subsystem that provides a connection between children and the microsystem and includes different devices, such as computers, computers, portable audio/video devices, and e-books.

Another recent theory that builds upon ecological systems theory to explain children's and parents' screen use is the interactional theory of childhood problematic media use (IT-CPM) developed by Domoff et al. (2020). The IT-CPM theory focuses on children's problematic use of screens and integrates the roles of parents, peers, and technology by conceptualizing them as

distal, proximal, and maintaining factors that influence children's problematic media use. This theory conceptualizes parents' own media use as a proximal factor and parents' own problematic media use as a distal factor, which are posited to affect the problematic media use of children. Compared to Bronfenbrenner's ecological systems theory and the techno-subsystem proposed by Johnson and Puplampu (2008), the IT-CPM theory provides specific factors at the child, parent, peers, and technological levels, allowing for systematic hypothesis generation. However, the IT-CPM theory focuses specifically on children's problematic media use; therefore, a more comprehensive theory is needed to explain and predict general media use, including normative and positive use.

In summary, the ecological systems theory provides an important framework for the current thesis by highlighting the importance of parental factors as a microsystem and proximal processes to better understand children's development in relation to technology. However, focusing on different levels may limit the understanding of which specific factors are most influential in screen media use and may cause lack the depth to understand complexity. Furthermore, given the rapid development of technology over the past two decades, this theory may not be sufficient to explain the impact of technological change on people. Moreover, this theory mainly focuses on environmental factors, which limits its specificity in conceptualizing and explaining individual characteristics that contribute to development. In addition to ecological systems theory, the IT-CPM framework provides a theoretical basis to integrate parents' individual characteristics, parental media use, and technological contexts. However, it may not be sufficient to explain the general use of screen media because of its focus on problematic use. This thesis was built upon these theories while going further to examine the intersection of

specific parental factors related to parental emotion regulation and parents' general screen media use, encompassing aspects beyond problematic media use.

### ***The Process Model of Emotion Regulation***

The process model of emotion regulation conceptualized by Gross (1998) examines how people regulate their emotions using five strategies: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. Before discussing these strategies, it is important to consider the concepts of emotion generation and emotion regulation to understand the current model. Emotion generation is the primary process by which people encounter, observe, assess, and react to various situations (Wadley et al., 2020). On the other hand, emotion regulation is the secondary process by which individuals evaluate their emotions in relation to their current goals and make decisions on whether to modify them. If modification is deemed necessary, they then select an appropriate regulation strategy, implement a tactic tailored to the specific situation, and subsequently monitor its effectiveness (Gross, 2015).

There exist two distinct categories of emotion regulation, namely intrinsic and extrinsic emotion regulation (Gross, 2015). Intrinsic emotion regulation pertains to individuals regulating their own emotions. On the other hand, extrinsic emotion regulation refers to individuals regulating the emotions of others, such as parents attempting to reduce their children's negative emotions. In addition to the categories of emotion regulation, people have different motivations for regulating their emotions. First, people engage in hedonic regulation of their emotions with the goal of enhancing their well-being, intensifying positive emotions, and alleviating negative ones. Thus, the predominant tendency among individuals is to down-regulate negative emotions (Gross et al., 2006) and up-regulate positive emotions (Quoidbach et al., 2010). Alternatively, individuals can employ instrumental regulation of their emotions to achieve specific goals or

conform to socially acceptable norms (Tamir, 2015). In these contexts, they may intentionally seek to intensify negative emotions and diminish positive emotions. For example, individuals might deliberately increase their stress levels in a competitive situation in order to attain desired outcomes (Wadley et al., 2020). These instrumental motives diverge from hedonic motives due to the pursuit of specific objectives.

Understanding the distinction between emotion generation and emotion regulation is crucial because the process model of emotion regulation encompasses the five aforementioned stages and their interference with the emotion generation process (Wadley et al., 2020). The first stage in the process model of emotion regulation is situation selection, where people deliberately approach situations that elicit desired emotions and avoid those that trigger undesired emotions. After selecting a situation but before experiencing an emotional reaction, individuals can regulate their emotions through three methods: situation modification, attentional deployment, and cognitive change. Situation modification allows individuals to modify the chosen situation in order to regulate their emotions. This process is referred to as problem-focused coping (Lazarus & Folkman, 1984) or primary control (Rothbaum et al., 1982) in different literature sources. It is important to note that the boundary between situation selection and situation modification may not always be clear, as modifying a situation can lead to a new one. Furthermore, attentional deployment involves redirecting one's focus of attention to influence emotional responses. People may shift their attention away from the current situation to reduce negative emotions, or they may redirect their attention back to the situation to attenuate emotional intensity. Moreover, cognitive change entails people's efforts to modify their appraisal of a situation in order to alter its emotional impact. Various strategies are employed for cognitive change, including positive interpretations of events, downward social comparison, cognitive reframing, and reappraisal.

Cognitive change can result in both increases or decreases in positive and negative emotions, and it is applicable to both internal and external situations. Finally, once an emotion has developed, individuals can regulate their emotions by influencing the experiential, behavioral, and physiological dimensions of their emotional response. This process is referred to as response modulation.

Based on the interventions of the process model of emotion regulation, two of the most studied emotion regulation strategies are cognitive reappraisal and expressive suppression. Cognitive reappraisal, which is a type of cognitive change, refers to modifying emotions by changing one's thought patterns through reinterpretation of situations that are the source of emotions (Gross & John, 2003; McRae et al., 2012). Expressive suppression, a kind of response modulation, refers to inhibiting, hiding, and reducing expressions that are consequences of emotions (Gross, 2015; Gross & Levenson, 1993). Cognitive reappraisal is an antecedent-focused strategy whereas expressive suppression is a response-focused strategy (Cutuli, 2014; Wang et al., 2017). In other words, cognitive reappraisal acts before emotional responses are fully completed; however, expressive suppression acts after emotional responses and behavioral responses are generated. Moreover, they have different effects on people's affective states. Cognitive reappraisal has been shown to positively contribute to well-being by reducing the impact of experiences that cause negative emotions and increasing positive ones, whereas expressive suppression has shown the opposite effect by decreasing positive emotions (Abler et al., 2010; Balzarotti et al., 2016; Gross & John, 2003; Larsen et al., 2012). Further, in a social setting, people experience more stress when they interact with a person with expressive suppression compared to cognitive reappraisal (Butler et al., 2003; Richards et al., 2003). Given

the conceptual and empirical groundings, it can be argued that cognitive reappraisal is a more optimal emotion regulation strategy compared to expressive suppression.

In addition, the process model of emotion regulation provides potential mechanisms that may moderate the effects of emotion regulation strategies. Gross (2008) conceptualizes the potential role of personality by proposing that cognitive change strategies may be related to agreeableness and that response modulation may be related to extroversion, based on the five-factor model of personality (McCrae & John, 1992).

In summary, the process model of emotion regulation provided a useful framework for this thesis to conceptualize not only emotion regulation but also emotion regulation strategies as well as the moderating role of parent personality. This model proposes five stages of emotion regulation and two significant strategies within these stages: cognitive reappraisal as a type of cognitive change and expressive suppression as a type of response modulation. It suggests that cognitive reappraisal is a more optimal emotion regulation strategy compared to expressive suppression (Gross & John, 2003); therefore, the associations between each type of emotion regulation strategies and screen use patterns and could inform how parents use screen use—whether screen media is used to regulate their emotions and to what extent such usage helps parents to regulate with their emotions in an optimal way. However, this model does not specify emotion regulation processes in parenting in the context of digital technology, limiting the full consideration of environmental and contextual factors. Therefore, this proposed study not only built on but also extended the process model by examining how parental emotion regulation strategies are related to their non-interactive and interactive screen use and to what extent the association is moderated by parental personality.

## **Literature Review**

The literature review presented empirical findings on (1) parental emotion regulation strategies, (2) parental screen use, (3) the association between parental emotion regulation strategies and their screen use, and (4) a potential mediating role of parental personality in the association between parental emotion regulation strategies and their screen use.

### ***Parental Emotion Regulation***

Parental factors play a significant role in children's developmental processes, and emotion regulation is one of these factors that affect children's emotion regulation and well-being (Rutherford et al., 2015). Morris et al. (2007) proposed a tripartite model where parents influence their children's emotion regulation through children's observation of their parents, parenting practices, and the emotional climate of the family. Children can learn from their parents how to regulate their emotions through modeling or social reference (Denham, 1998; Morris et al., 2007). Furthermore, strategies that parents use to regulate their emotions shape their parenting practices (Lorber, 2012), and this situation affects the quality of care they give to their children. When parents utilize adaptive emotion regulation strategies, they tend to demonstrate positive parenting behaviors, leading to the development of adaptive emotion regulation skills in their children (Zimmer-Gembeck et al., 2021). For example, parents who have adaptive emotion regulation strategies, such as cognitive reappraisal, were theorized to provide positive and supportive responses to their children's negative emotions (Dix, 1991). On the other hand, parental emotion dysregulation can also be transmitted to children, leading to problems in the parent-child dyadic relationship in the long term (Seddon et al., 2020). Children's ability to regulate their emotions is associated with positive socioemotional development (Blair et al., 2014), whereas difficulties in emotion regulation are linked to

psychopathological outcomes (Hofmann et al., 2012). Therefore, it is crucial to understand parental emotion regulation in order to prevent potential negative outcomes for both parents and children.

Most of the studies in the literature have used a questionnaire method to assess parents' emotion regulation skills (see Bertie et al., 2021; Kohlhoff et al., 2016; Lorber, 2012; Preuss et al., 2021). One of the most widely used measures is the Emotion Regulation Questionnaire developed by Gross and John (2003). Prior studies using this measure suggest that parental expressive suppression may be less optimal for parents compared to cognitive reappraisal (Hughes & Gullone, 2010). In terms of cognitive reappraisal, Preuss et al. (2021) has shown that the interventions focusing on increasing cognitive reappraisal strategies significantly decreased stress levels of parents of preschoolers, school-aged children, and adolescents. For expressive suppression, Lorber (2012) showed that mothers of toddlers who suppress their emotions display maladaptive parenting practices, such as physically aggressive discipline. Indeed, higher levels of parental negative expressions have shown to be related to lower cognitive reappraisal (Havighurst & Kehoe, 2017) and higher expressive suppression (Hughes & Gullone, 2010). Furthermore, Bertie et al. (2021) showed that parents of preschoolers and school-aged children who frequently used expressive suppression and rarely used cognitive reappraisal as emotion regulation strategies reported not only higher levels of stress but also depression and anxiety. Given the distinct role of emotional suppression and cognitive reappraisal in parenting behaviors and child outcomes, it is important to understand how these different emotion regulation strategies are related to various parenting contexts.

### *Screen Use*

An increasing body of research has revealed that parental media use is significantly associated with their children's media use, and majority of these studies used self-report questionnaires to measure both parents' and children's media use (Barradas et al., 2007; Bleakley et al., 2013; Coyne et al., 2017; Davison et al., 2005; Hardy et al., 2006; Jago et al., 2010; Lauricella et al., 2015; Lauricella & Cingel, 2020; Pila et al., 2021; Rideout et al., 2006; Salmon et al., 2005). For example, Bleakley et al. (2013) found that the amount of time parents of children under the age of 17 spent watching television influenced the amount of time their children spent watching television. Furthermore, Rideout et al. (2006) detected that children who were aged 6 months to 6 years watched television 28 minutes more per day if their parents used screen media for at least 2 hours per day when compared to children whose parents used less screen media.

Although many of the studies have focused on a single type of media device, usually non-interactive televisions (Barradas et al., 2007; Bleakley et al., 2013; Davison et al., 2005; Jago et al., 2010; Rideout et al., 2006; Salmon et al., 2005), recent studies have begun to focus on other types of media devices that offer interactivity (e.g., smartphones, computers and tablets, video game systems, e-readers) due to their increasing presence in our daily lives (Lauricella et al., 2015; Lauricella & Cingel, 2020; Pila et al., 2021). For example, Lauricella and Cingel (2020) included not only television use but also a variety of other digital media tools, such as smartphones, tablets, video games, computers, and e-readers in their study and found that children's and adolescents' media use was related to their parents' own media use. Lauricella et al. (2015) also found that parental screen time had a significant effect on children's screen time, not only for television use but also for computer, smartphone, and tablet use among parents of

children under the age of 8 years. That is, increased parental screen time on televisions, computers, and tablets was positively associated with higher levels of children's use of these devices. High levels of parental smartphone use were also related to similar usage by children, except for children under the age of 2, who were mainly affected by parental use of television and computers. That is, when parents of children under age 2 were heavy television and computer users, children's media use was more than double that of other children. For children aged 3 years and older, parental television viewing of more than 3 hours significantly influenced children's screen use.

The types of screen media that parents use may not only shape the type of screen their children use (Lauricella et al., 2015; Lauricella & Cingel, 2020) but may also differentially influence the children's developmental outcomes. Interactive media provides an opportunity for users to play an active role when they engage with digital content, playing video games and chatting with others on online platforms. A growing body of research has shown that children learn better from interactive media, such as video games (Lauricella et al., 2010), touchscreens (Choi & Kirkorian, 2016), and video chat (Nielsen et al., 2008; Roseberry et al., 2014), compared to non-interactive media. For example, toddlers learn novel verbs better from interactive screen media tools, such as video chat, compared to non-interactive videos, such as video recording (Roseberry et al., 2009; 2014). Further, Myers et al. (2017) showed that toddlers not only learned more words, but also responded synchronously during interactive video chat compared to non-interactive, pre-recorded video, suggesting that interactive media supports toddlers' social and cognitive development. Considering the differential impact of non-interactive and interactive screen use on toddlers, it is important to understand parental media use with the consideration of the presence and absence of interactivity.

### ***Emotion Regulation and Screen Use***

Given that parents' media use affects children's media use (Lauricella et al., 2015; Lauricella & Cingel, 2020), it is important to understand factors that contribute to parental screen use. As digital technologies have been considered as tools for emotion regulation (Wadley et al., 2020), parental emotional regulation may be associated with their media use. However, prior research on the association between emotion regulation and screen use mainly focused on adolescents and young adults (Dolev-Cohen & Barak, 2013; Myrick, 2015; Randall & Rickard, 2016). Thus, this section summarized existing findings from adolescents and young adults and considered their implications for parents of young children.

Prior studies have found that individuals engage in a variety of media activities to regulate their emotions (Smith et al., 2022). Watching videos (Myrick, 2015), listening to music (Randall & Rickard, 2016) and nature soundscapes (Newbold et al., 2017), playing video games (Osmanovic & Pecchioni, 2015), communicating with others on social media platforms (Blumberg et al., 2016), and online shopping (Bui & Kemp, 2013) have been shown to play a role in reducing negative emotions, increasing positive emotions, and supporting well-being. For example, Randall and Rickard (2016) found that a wide range of people from 13 years to 51 years use online music applications to cope with the consequences of undesired emotions caused by negative situations. Similarly, Myrick (2015) found that, after watching online cat videos, the level of negative emotions reduced and positive emotions increased among adults aged 18 years and up. Some studies have found that video games have a positive effect on players' psychological well-being (Granic et al., 2014; Jones et al., 2014) because of increasing positive emotions (Osmanovic & Pecchioni, 2015) and decreasing stress (Russoniello et al., 2009). Furthermore, adolescents who communicate with their friends via instant messaging have a

positive mood and interaction because written communication is related with self-regulatory behaviors, and they can regulate their emotions depending on response from other people during the communication setting (Dolev-Cohen & Barak, 2013).

Although many studies have shown the positive role of digital media on emotion regulation, they have not been entirely without negative consequences, such as procrastination (Myrick, 2015). Therefore, it is important to understand the adaptive use of digital emotion regulation, which could be examined in relation to different emotion regulation strategies. Greenwood and Long (2009) claimed that people who experience difficulty in emotion regulation are more likely to use media devices to regulate their external mood; therefore, using media to regulate emotion may depend on people's existing emotion regulation capacities. Prior studies examined the relation between emotion regulation strategies and problematic smartphone use among adolescents and young adults (Şakiroğlu, 2019), which suggest the varying role of different emotion regulation strategies and the non-interactive versus interactive use of screen media. When it comes to cognitive reappraisal, Extremera et al. (2019) found that cognitive reappraisal and smartphone use are negatively correlated. As different types of media use were not specified in these studies, it remains unclear whether cognitive reappraisal would be negatively associated with either non-interactive or interactive screen use, or both. In terms of interactive screen use, Granic et al. (2014) stated that video games expose players to a variety of new challenges, and players may develop their cognitive reappraisal strategies as they deal with the ever-changing challenges in the game.

When it comes to expressive suppression, Apriani et al. (2021) found that college students who suppress their emotions have higher problematic smartphone use. More recently, Shahidin et al. (2022) conducted a meta-analysis and reported that expressive suppression is

positively correlated with problematic smartphone use although the strength of the association was relatively weak compared to the moderate correlation between emotion dysregulation—difficulty in regulating emotions and emotion-related behaviors—and problematic smartphone use. Thus, suppressive expression may be not optimal but probably to a lesser degree when it is compared to cognitive reappraisal. However, they defined problematic smartphone use with the frequency of smartphone use, and they did not separate interactive and non-interactive use of smartphones.

Overall, studies found the positive association between expressive suppression and smartphone use, without specifying interactivity of media use. An important exception is the study conducted by Rozgonjuk and Elhai (2021) in which they revealed that the relation between expressive suppression and problematic smartphone use was mediated by specific type of smartphone use. That is, they found that expressive suppression was not correlated with social use of smartphones, such as communicating with someone via calls, texts, and social networking sites. Contrarily, expressive suppression was positively correlated with non-interactive use of smartphones, such as watching. In terms of interactive media that is not entirely social, such as gaming without social interaction, it was positively related to expressive suppression (Rozgonjuk & Elhai, 2021). Similarly, Bowman et al. (2021) stated that entertainment-oriented content of interactive media (e.g., games) would distract users from deeper emotional processing rather than constructively helping people cope with undesired emotions.

In summary, although some emotional regulation strategies are shown to be related to the use of technological devices (Wadley et al., 2020), little research to date systematically examines how parents of young children use screen media to regulate their emotions and whether the association with their emotion regulation and screen use differs as a function of media

interactivity. If parents of young children use digital media to regulate their emotions in a similar manner to adolescents and young adults, it is expected that cognitive reappraisal to be negatively associated with non-interactive screen use and that expressive suppression would be positively associated with non-interactive screen use. Given the mixed or absence of evidence from the previous research (Bowman et al., 2021; Şakiroğlu, 2019; Shahidin et al., 2022), it remained as an open question as to whether there would be association between expressive suppression and interactive screen use and the association between cognitive appraisal and non-interactive and interactive screen use.

### ***Big Five Personality Traits***

Furthermore, personality traits, especially agreeableness and extraversion, may moderate the relation between parental emotion regulation and parents' screen use (Balzarotti et al., 2010). Gross (2008) conceptualized that cognitive change strategies may be related to agreeableness and that response modulation may be related to extroversion, based on the five-factor model of personality (McCrae & John, 1992). Agreeableness is related to a person's friendliness, pleasantness, and level of cooperation during their interpersonal interactions with others (Graziano & Tobin, 2009), and Gross (2008) specifically claimed that individuals whose agreeableness level is high can easily neutralize negative emotions compared to individuals low in agreeableness; therefore, high levels of agreeableness may be an opportunity to change thoughts that cause negative emotions with optimal thoughts. Extroversion addresses the high level of responsiveness, tendency to be sociable, confidence in expressing opinions, and significant display of emotions (Power & Pluess, 2015), and extraverted individuals are more capable to express not only positive but also negative emotions; therefore, they suppress their emotions less (Gross & John, 2003).

Gross and John (2003) found that cognitive reappraisal is positively associated with agreeableness and that expressive suppression is negatively related to extroversion. Their sample group consisted of undergraduate students; therefore, examining a different group may result in varying relations between emotion regulation strategies and personality traits. A recent meta-analysis on emotion regulation and the big five personality traits among individuals from school-aged children to 50-year-old adults was conducted by Barańczuk (2019). The study revealed the association between cognitive reappraisal and agreeableness and the association between expressive suppression and extraversion, both of which were positive but had small effects. The studies presented in this meta-analysis exhibit variability in age and measures. That is, the study population included individuals with a wide age range from children to adults. Furthermore, diverse measures of personality (e.g., Big Five Inventory, International Personality Item Pool, and Neo Five-Factor Inventory) and emotion regulation (e.g., Cognitive Emotion Regulation Questionnaire, Emotion Regulation Questionnaire, and Stress and Coping Process Questionnaire) were employed. However, none of the studies included in this meta-analysis paper focused specifically on parents. Therefore, further studies that specifically target parental emotion regulation and personality traits would expand the scope of the literature.

Prior research suggests that emotion regulation strategies may be used differentially depending on personality traits (Balzarotti et al., 2010; Barańczuk, 2019; Gross & John, 2003; Hughes et al., 2020). Therefore, in the current study, I examined whether agreeableness and extraversion, the two of the big five personality traits that are shown to be related to cognitive reappraisal and expressive suppression respectively (Gross, 2008), moderated the relation of parents' emotion regulation to their own screen use.

### *Covariates*

Prior studies revealed several factors may influence parents' use of screen media. For example, Choe et al. (2023) found that parents' screen media use was negatively correlated with their educational level such that more educated parents used screen media less. In addition to parents' education level, Pila et al. (2021) showed that parental income was positively correlated with parents' smartphone use. Therefore, I used parental education and income levels as covariates in this study.

### **The Current Study**

The objective of the current study was to examine the association between parental emotion regulation and screen media use and the moderating role of parental personality. The main objective of this study was to examine the relation between emotion regulation strategies and screen media use in the parenting context with consideration of both non-interactive and interactive screen use. The secondary objective was to explore how individual differences in parental personality moderate this relation. This secondary data analysis was conducted on a sample of 296 mothers of toddlers ages 18 to 36 months in the United States.

Consistent with the findings from prior research on adolescents' and young adults' their smartphone use (Extremera et al., 2019), it was hypothesized that parental emotion regulation strategies would be linked to their own screen media use, but the patterns of association were expected to vary as a function of the specific types of emotion regulation strategies and media interactivity.

**RQ-1 & RQ-2.** It is an open research question as to whether and how cognitive reappraisal is associated with non-interactive media use (RQ-1) and interactive media use (RQ-2) because the findings from the earlier studies are mixed. Some posited that gaming

is positively associated with cognitive reappraisal (Granic et al., 2014) whereas others found that general smartphone use, without specifying interactivity, was negatively associated with cognitive reappraisal (Extremera et al., 2019).

**H-1.** Expressive suppression is hypothesized to be positively associated with non-interactive media use based on the prior studies showing a positive association between emotional suppression and video viewing and smartphone use in general (Apriani et al., 2021; Rozgonjuk & Elhai, 2021; Shahidin et al., 2022).

**RQ-3.** It is an open research question as to whether and how expressive suppression is associated with interactive screen use because the findings from the earlier studies are mixed—gaming and smartphone use in general are positively associated with expressive suppression whereas texting and calling was not related with expressive suppression (Rozgonjuk & Elhai, 2021).

In terms of the big five perspective, using cognitive reappraisal to regulate emotions may be related with a higher level of agreeableness, whereas expressive suppression may relate with lower levels of extroversion (Gross, 2008). Therefore, agreeableness and extraversion could moderate the association between parental emotion regulation and screen use; however, the presence and directionality of the association remain an open question.

**H-2.** Cognitive reappraisal is expected to be positively associated with agreeableness.

**RQ-4 & RQ-5.** It is an open research question as to whether and how the association between cognitive reappraisal and screen use is moderated by agreeableness for non-interactive media use (RQ-4; Figure 1a) and for interactive media use (RQ-5; Figure 1c).

**H-3.** Expressive suppression is hypothesized to be negatively associated with extraversion.

**RQ-6 & RQ-7.** It is an open research question as to whether and how the association between expressive suppression and screen use is moderated by extroversion for non-interactive media use (RQ-6; Figure 1b) and for interactive media use (RQ-7; Figure 1d).

## CHAPTER 2

### Method

#### Participants

The sample for this study was the part of a cross-sectional study of mothers of toddlers, which focused on different types of screen use by mothers and toddlers and included measures such as interactive and non-interactive media use, personality traits, and emotion regulation. Recruitment was conducted through Qualtrics' Research Panel Service, an online data collection panel.

The participants in this study were 296 mothers ( $M_{age} = 31.8$  years,  $SD_{age} = 5.7$ ) of toddlers ranging in age from 18 months to 36 months ( $M_{age} = 28.0$  months,  $SD_{age} = 5.3$ , 52.4% boys). In terms of race, 63.2% of the mothers self-identified as White, while 12.2% identified as Black or African American, 7.4% as Asian or Pacific Islander, 0.7% as Native American or Alaska Native, and 16.6% as other or mixed race. The mean level of mothers' education was 15.3 years ( $SD = 3.3$ ,  $range = 10.0$ – $39.0$ ), which is equal to an associate's degree. In terms of annual family income, 46% of the participants earned less than \$60,000, 32.4% earned between \$60,000 and \$100,000, and 21.6% earned over \$100,000.

#### Procedures

The Qualtrics Research Panel Service was used to recruit mothers of toddlers between the ages of 18 and 36 months. Mothers needed to be older than 18 years and living in the United States, and an online version of the questionnaires in this study was sent through the service. The survey included two attention-check items that required participants to select specific answers. Responses from participants who gave incorrect answers to these attention items were considered

invalid, and as a result, data from 296 mothers were analyzed. Participants had to answer each question to complete the survey; therefore, the dataset has no missing values. Participants who completed the online survey devoted time and were thus compensated by the Qualtrics Panel Service.

## **Measures**

### ***Emotion Regulation***

Parental emotion regulation was measured via the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The scale consists of 10 items that mothers answered using a 7-point Likert scale (1 = strongly disagree, 4 = neutral, and 7 = strongly agree) to indicate how each item is personally related to them.

This scale includes two subscales: cognitive reappraisal (6 items) and expressive suppression (4 items). An example of cognitive reappraisal is “I control my emotions by changing the way I think about the situation I’m in.”, and an example of expressive suppression is “I keep my emotions to myself.” Cognitive reappraisal ( $\alpha = .87$ ) and expressive suppression ( $\alpha = .80$ ) scores were computed by taking the average of each item in the subscale, and higher scores for the subscale indicate that mothers use this strategy more.

### ***Screen Use***

Parental screen use was measured via combining and modifying various versions of the Common Sense Media survey (Rideout, 2011, 2013, 2017). Although the original version of the questionnaire used a 6-point Likert scale, additional response options were added for this study. In this study, mothers reported their frequency of screen use on a 10-point Likert scale (0 = has never done this, 1 = less than once per month, 2 = less than once per week, 3 = once per week, 4 = several times per week, 5 = once per day, 6 = several times per day, 7 = once per hour, 8 =

several times per hour, and 9 = all the time). The following screen activities were measured: reading e-books (e.g., Kindle and Nook), watching shows (e.g., Netflix, Prime Video, and DVDs) on any device (e.g., TV set, smartphone, tablet, and computer), playing video games on any device (e.g., smartphone, computer, game console, or handheld player), video chatting on mobile devices, and using other types of screens. Mothers' responses for each activity were summed to create a total score. Higher scores represent greater use of non-interactive (e.g., video viewing) or interactive (e.g., e-book reading, playing games, video chatting) screen media use.

### *Personality*

Parent personality traits were measured via the Big Five Inventory (BFI; John & Srivastava, 1999). This scale includes 44 items and 5 subscales; extraversion (8 items; e.g., I see myself as someone who is talkative) and agreeableness (9 items; e.g., I see myself as someone who is helpful and unselfish with others) were used in the current study.

After replacing the responses provided for 16 reverse-scored items with their corresponding reversals, the mean score was calculated for extraversion ( $\alpha = .76$ ) and agreeableness ( $\alpha = .77$ ). Higher average scores in a subscale reflect higher levels of the personality trait represented by the subscale.

## CHAPTER 3

### Results

#### Preliminary Analysis

For the preliminary analyses, I conducted descriptive statistics, including means and standard deviations, for all relevant study variables, including child age, parent education level, family income, cognitive reappraisal, expressive suppression, non-interactive screen media use, interactive screen media use, extraversion, and agreeableness.

Table 1 presents descriptive statistics for participant demographics for the 296 mothers who completed the survey. Data were analyzed separately for both the full sample and the sample with outliers removed, as determined by  $\pm 3 SD$ . However, there were no differences between analyses with and without the outliers. In addition, the skewness and kurtosis values of studied variables were from -1.0 to +1.0, except for the kurtosis of interactive screen use, which was -1.03. According to the accepted norms, excellent normal distribution is indicated by skewness and kurtosis values ranging from -1.0 to 1.0, while acceptable values fall within a range -2.0 to 2.0 (Hair et al., 2022). All variables showed acceptable normal distributions. Therefore, the preliminary and main analyses were conducted using the entire sample.

Mothers rated cognitive reappraisal use higher than expressive suppression,  $t(295) = 10.71, p < .001$ . Regarding screen use, mothers were more frequently engaged with interactive screen media than non-interactive media,  $t(295) = 4.66, p < .001$ . In terms of personality traits, parents scored higher in agreeableness than extroversion,  $t(295) = 11.72, p < .001$ .

Next, I calculated bivariate correlations between the study variables to examine associations between variables and identify covariates to include in the model. Table 2 presents

the bivariate correlations between emotion regulation strategies, screen media use, personality traits, and demographics. Expressive suppression was significantly correlated with non-interactive screen use, although no significant correlations were found between expressive suppression and interactive screen use as well as cognitive reappraisal and either screen uses. Regarding the covariates, only education showed a negative significant correlation with non-interactive screen use. In addition to education and income, mothers' age and toddlers' age were not significantly correlated with both non-interactive and interactive screen use although they were considered as potential covariates. No significant correlations were found between education and interactive screen use, as well as between income and both emotion regulation strategies. However, both education and income were included as covariates in the main analysis, as proposed based on previous research (Choe et al., 2023; Pila et al., 2021) to control for their potential influence on non-interactive and interactive screen use.

Cognitive reappraisal was positively correlated with agreeableness, as hypothesized in H-2. Expressive suppression was negatively correlated with extraversion as hypothesized in H-3. Therefore, H-2 and H-3 were supported.

### **Association between Emotion Regulation Strategies and Screen Usage**

For the main analyses, four regression models were fit to examine the main effects of the two regulation strategies and the moderating effects of personality on non-interactive and interactive use, respectively. I began with open research questions about the extent to which cognitive reappraisal would be associated with non-interactive media use (RQ-1) and interactive media use (RQ-2). Model 1 examined the association between cognitive reappraisal and non-interactive screen use, while controlling for education and income (Table 3). The results indicate education was found to be negatively related with non-interactive screen use. Thus, higher levels

of education were related to lower frequencies of non-interactive media use. However, cognitive reappraisal was not significantly related to non-interactive screen use.

Model 2 examined the association between cognitive reappraisal interactive screen use, while controlling for education and income (Table 3). In this model, education and income were not significantly related to interactive media use. Further, cognitive appraisal was not significantly related to interactive screen use.

Next, I examined the association between expressive suppression and non-interactive media use (H-1) and interactive media use (RQ-3). Model 3 examined the association between expressive suppression and non-interactive screen use, while controlling for education and income (Table 4). The overall model fit was statistically significant for Model 3. Education was negatively associated with non-interactive screen use, indicating that the higher levels of education were related to lower non-interactive screen media use. Expressive suppression was positively associated with non-interactive screen use. Higher levels of expressive suppression predicted higher use of non-interactive media. Thus, H-1 was supported.

Model 4 examined the association between expressive suppression and interactive screen use, controlling for income and education (Table 4). Neither education nor income significantly predicted interactive screen use. Further, expressive suppression was not related to interactive screen use.

### **Moderating Role of Agreeableness and Extraversion on the Relation of Emotion**

#### **Regulation Strategies to Screen Use**

To examine if the association of cognitive reappraisal to screen use would be moderated by agreeableness, RQ-4 considered non-interactive screen use and RQ-5 considered interactive screen use. Model 5 examined whether non-interactive screen use was predicted by cognitive

appraisal, agreeableness, and their interaction, while controlling for education and income (Table 5). The results showed that non-interactive screen use was significantly predicted by education, but not income. Cognitive appraisal, agreeableness, and the interaction between cognitive appraisal and agreeableness did not significantly predict non-interactive screen use.

Model 6 examined whether interactive screen use was predicted by cognitive appraisal, agreeableness, and their interaction, while controlling for education and income (Table 5). The results showed that none of the predictors was significantly associated with interactive screen use, including the interaction between cognitive appraisal and agreeableness.

I analyzed the association between expressive suppression and screen use to be moderated by extraversion, RQ-6 considered non-interactive screen use and RQ-7 considered interactive screen use. Model 7 examined whether non-interactive screen use was predicted by emotional suppression, extroversion, and their interaction, while controlling for education and income (Table 6). None of the predictors, including the interaction between expressive suppression and extraversion, showed significance except education.

Model 8 examined whether interactive screen use was predicted by expressive suppression, extroversion, and their interaction, while controlling for education and income (Table 6). None of the predictors was statistically significant, including the interaction between expressive suppression and extraversion.

### **Moderating Role of Other Personality Traits on the Relation of Emotion Regulation Strategies to Screen Use**

Furthermore, beyond the proposed models, the interactions between emotion regulation strategies and other Big Five personality traits were explored. In addition to maternal education and income, mothers' age was added to the models that included only conscientiousness and

neuroticism, which were significantly correlated with maternal age, as a covariate. For cognitive appraisal, I tested extraversion, conscientiousness, neuroticism and openness personality traits as potential moderators (see Table 7). However, none of the main or interaction effects reached significance.

For expressive suppression, I examined agreeableness, conscientiousness, neuroticism, and openness personality traits as potential moderators (see Table 8). However, none of the main or interaction effects reached significance. Among those models, I identified a significant moderating effect of openness. The overall model fit for a model that included the interaction of expressive suppression and openness was statistically significant. The results showed that expressive suppression and openness were negatively associated with interactive screen use. Higher levels of expressive suppression and openness predicted lower use of interactive screen use. Moreover, there was a significant interaction between expressive suppression and openness.

A simple slope analysis was conducted to understand the interaction between expressive suppression and openness in relation to interactive screen use. Simple slopes were tested for the association between expressive suppression and interactive screen use at low ( $-1 SD$  below the mean), moderate (mean), and high ( $+1 SD$  above the mean) levels of openness. The results showed that the slope for expressive suppression on interactive screen use was significant when openness was high ( $B = 0.32, p = .002$ ) but not when openness was moderate ( $B = 0.05, p = .55$ ) or low ( $B = -0.22, p = .10$ ). Therefore, for parents with high openness, higher expressive suppression was associated with higher interactive media use, but for those with medium or low openness, expressive suppression was not significantly associated with their interactive media use (Figure 2).

## CHAPTER 4

### Discussion

In this study, I examined the role of emotion regulation strategies in relation to both non-interactive (e.g., video viewing) and interactive (e.g., playing video games, reading e-books, and video chat) screen use among mothers of toddlers in the United States. Additionally, I examined the moderating roles of personality traits on these relations. I found that cognitive reappraisal, which was reported by mothers, was not related to either their non-interactive or their interactive screen use. Also, mothers who reported higher levels of expressive suppression had higher levels of non-interactive screen use, although this relation was not found with their interactive screen use. In addition, higher levels of cognitive reappraisal were associated with higher levels of agreeableness, and higher levels of reported expressive suppression was related to lower levels of extraversion. Next, agreeableness did not moderate the association between cognitive reappraisal and both non-interactive and interactive screen use. In addition, extraversion did not moderate the relations between expressive suppression and both non-interactive and interactive screen use. Based on exploratory analysis, the association between expressive suppression and interactive screen use was moderated by openness such that the higher levels of expressive suppression were related to the higher levels of interactive screen use for those who have higher openness. I discuss each of the main findings below.

#### **Emotion Regulation Strategies and Screen Use**

My first two research questions investigated the role of cognitive reappraisal in both non-interactive (RQ-1) and interactive (RQ-2) screen media use. The results did not reveal any significant relations between cognitive reappraisal and either type of screen use. These outcomes

diverged from the findings of Extremera et al. (2019), who reported an association between cognitive reappraisal and problematic smartphone use. It is important to note, however, that smartphone use can encompass both interactive and non-interactive screen activities due to its multifaceted features. My investigation did not specifically focus on the problematic aspect of screen use, which could account for the discrepancy between the current findings and those of previous research. Cognitive reappraisal is related to reinterpretation of the meaning of the events that people experience in terms of managing emotional reactions, which is considered an adaptive mechanism against stressful situations (Gross & John, 2003). Given the adaptive nature of cognitive reappraisal, it is possible that cognitive reappraisal may have a negative relation particularly with problematic screen use, not necessarily overall screen use.

Extremera et al.'s study (2019) focused on adolescents ( $M_{\text{age}} = 15.64$  years), whereas the sample for this study was mothers of toddlers. Opitz et al. (2012) showed that older adults were more successful at using cognitive reappraisal to enhance unpleasant emotions compared to younger adults. Thus, mothers in this study may have overall better cognitive appraisal than the adolescents who contributed to the findings of Extremera et al. (2019). Such age differences between the samples may have influenced the discrepancies observed in this and the previous studies. The relation between cognitive reappraisal and screen use is not only about mothers attributing new meaning to the events they experience but may also involve a broader context, such as the positive or negative qualities of the content consumed and social interactions. The content's positive or negative nature and the social dynamics of screen media use may directly influence the emotional impact of media consumption and the complexity of the cognitive reappraisal process. For example, positive content may uplift and require less emotion regulation

whereas negative content may increase undesired emotions such as stress and require more need to regulate emotions.

I hypothesized that there would be a significant positive relation between expressive suppression and non-interactive screen media use (H-1). I also examined my research question on the relation between expressive suppression and interactive screen use (RQ-3). The results were consistent with the first hypothesis, showing a significant positive correlation between expressive suppression and non-interactive screen use. The relation was further supported by the significant association between expressive suppression and non-interactive screen use, even after controlling for mothers' income and education level. Although this study categorized screen activities into interactive and non-interactive types, rather than primarily focusing on problematic screen use, I found a pattern consistent with findings that identified a positive relation between expressive suppression and problematic smartphone use (Apriani et al., 2021). Expressive suppression is the process by which individuals suppress their emotional responses, meaning they tend to keep their emotions to themselves instead of expressing them openly. The positive relation between expressive suppression and non-interactive screen media use may suggest that mothers of toddlers use non-interactive screen activities such as watching television to suppress their emotional expressions. That is, non-interactive screen time may be used as a means by which individuals attempt to manage their emotional expressions internally rather than externally because the nature of non-interactive screen media does not require active user participation. The finding on the significant relation between expressive suppression and non-interactive screen use may suggest that during particularly stressful or emotionally difficult times, non-interactive screen activities may function as a kind of "emotional refuge." However, due to the cross-sectional nature of this study, the directionality between the two variables remains unclear.

Further research utilizing longitudinal data is necessary to address the directionality of these findings.

No significant relation was found between expressive suppression and interactive screen use. The findings on the lack of association between expressive suppression and interactive media use aligns with those from a prior study showing that expressive suppression was related to non-social screen use such as video viewing but not related to socially interactive screen use (Rozgonjuk & Elhai, 2021). That is, non-interactive screen use in this study, including video viewing, resonated with the earlier study's categorization of non-social screen activities that was positively correlated with expressive suppression. In this study, interactive screen use included playing video games and online communication, which can be considered consistent with the earlier study's categorization of social use activities that were not related to expressive suppression. The absence of a significant association between expressive suppression and interactive screen media use suggests that interactive screen activities may not be utilized as a means to regulate emotional expressions. However, it is important to note that interactive media use can be either social or non-social. As this study did not differentiate the presence or level of social engagement, it would be an important step for future research to consider the social context of screen media use.

Together, I found different patterns of associations between emotion regulation strategies and screen use as a function of media interactivity and strategy type. Non-interactive screen use, such as video viewing, was significantly related to emotional suppression but not cognitive reappraisal. These findings suggest that mothers who suppress emotions are more likely to use non-interactive screen media, which is less likely to be affected by how they cognitively interpret emotionally challenging experiences. Given that cognitive reappraisal and expressive

suppression were not significantly related to interactive screen use among mothers of toddlers, these parents may have chosen to use interactive screens to satisfy other needs, such as entertainment, information or social interaction, rather than to actively manage their emotional state. Therefore, considering both the interactivity and specific emotional regulation strategies appears to be important in understanding the unique ways in which emotional regulation strategies link to maternal screen use behavior.

### **Emotion Regulation Strategies and Personality Traits**

I hypothesized that cognitive reappraisal would be positively associated with agreeableness (H-2) and that expressive suppression would be negatively related to extraversion (H-3). In line with the existing literature (see Balzarotti et al., 2010; Gross & John, 2003), this study confirmed the positive association between cognitive reappraisal and agreeableness, supporting the hypothesis. Cognitive reappraisal is related to the positive reinterpretation of situations that cause emotions in terms of a coping perspective (Carver et al., 1989). Mothers who are more agreeable, forming harmonious and cooperative relationships with others appear to be more likely to change negative emotions with positive ones by reinterpretation of the situations that cause negative emotions. This association supports the idea that individuals with higher levels of agreeableness are inclined to positively reinterpret the situations that cause emotions (Bresin & Robinson, 2015). Prior research has shown that higher levels of agreeableness decrease the impact of negative thoughts and interpersonal harmony compared to the lower levels (Tobin et al., 2000). Therefore, agreeableness may serve as an important mechanism to deal with the impact of negative thoughts.

Consistent with the existing literature (see Balzarotti et al., 2010; Gross & John, 2003), the negative association between expressive suppression and extroversion was found, suggesting

that individuals with higher levels of extraversion are less inclined to suppress their emotions, preferring instead to express them openly (Cai et al., 2016). Those with high levels of expressive suppression would avoid expressing their emotional experiences or hide their emotions from others. This behavior may be used to maintain social harmony in the short term but may have negative effects on emotional health in the long term (Butler et al., 2003). Those individuals with high levels of extraversion have greater interest in social interaction and the outside world, who will generally prefer to be involved in social engagements, and who are inclined to openly communicate their both positive and negative emotions, making them less likely to use suppression as a strategy for emotional regulation (Anderson et al., 2001; Gross & John, 1998). Therefore, the tendency of mothers with higher levels of extraversion to express their emotions openly may reduce the need to suppress emotional expression, which could be considered as healthier emotional regulation strategies. The directionality between extraversion and emotion regulation, however, cannot be examined based on the current cross-sectional study, which warrants future longitudinal research.

### **Moderation Role of Personality Traits**

The next two research questions of the study examined if agreeableness moderated the relation between cognitive reappraisal and non-interactive (RQ-4) and the relation between cognitive appraisal and interactive (RQ-5) screen media use. However, the interaction effects of cognitive reappraisal and agreeableness on non-interactive or interactive screen media use were not significant. The findings indicated that agreeableness did not serve as a moderator in the relation between cognitive reappraisal and either non-interactive or interactive screen use among mothers of toddlers. The absence of moderating effects of agreeableness may be explained two ways. First, cognitive reappraisal may not be associated with either non-interactive or interactive

screen use, regardless of individual differences in agreeableness. Second, the nature of agreeableness includes individuals' tendency towards cooperation and social harmony (Yao & Moskowitz, 2015), and the lack of social interaction in non-interactive screen use and the physical distance of this interaction in interactive screen use may make it difficult to observe any moderating effect of agreeableness.

The last two research questions examined the moderating role of extraversion on the association between expressive suppression and non-interactive (RQ-6) screen media use and the association between expressive suppression and interactive (RQ-7) screen media use. Although expressive suppression, extraversion, and their interaction together significantly explained non-interactive screen use after controlling for education and income, there was no significant interaction effect of expressive suppression and extraversion on either non-interactive or interactive screen use. Although expressive suppression was a significant predictor of non-interactive screen use after controlling for education and income (Model 3), it did not show a significant relation with non-interactive screen use when extraversion and interaction of expressive suppression and extraversion were added to the model (Model 7). To compare these two models, I conducted a model comparison analysis and found no significant difference between them ( $p = .49$ ), suggesting that Model 3 (reduced model without the interaction term) provides a better fit than Model 7 (full model with the interaction term), and expressive suppression was significantly associated with non-interactive screen use. Together, these findings indicate that the effects of expressive suppression on both interactive and non-interactive media use did not significantly differ by levels of extraversion. It is possible that the moderating role of extraversion might have been more salient if maternal screen use measures were clearer in terms of the levels of social interaction. Given that I have not explicitly measured

the social context of both interactive and non-interactive screen use, the level of social interaction using screens in both types of screen use was not clear. That is, some mothers might have engaged in non-interactive screen use such as video viewing with other people while others have used them as a mainly solitary activity. Similarly, interactive screen use may be used to build social connections (e.g., playing games together) by some people or to engage in solo activities (playing games alone) by others. The unclear nature of social interaction during media use may obscure the effect of extraversion as a moderator on the association between expressive suppression and both non-interactive and interactive screen use. In addition, the absence of moderating role of extraversion on the association between expressive suppression and interactive screen use may be explained by the lack of significance on the association between expressive suppression and interactive screen use. That is, the ambiguity surrounding the social context within which screen use occurs—whether it involves shared experiences or solitary activities—might eliminate the potential moderating effect of extraversion on the relations between expressive suppression and both types of screen use.

As exploratory analyses, I examined the moderating role of other personality traits. Only the interaction between expressive suppression and openness significantly predicted mothers' interactive screen use. Specifically, expressive suppression was related to interactive screen media use for only mothers who had higher levels of openness but not for either medium or lower levels of openness. Openness involves being open to new experiences, showing interest in ideas and arts, and a willingness to explore novelty. Creativity and curiosity are important features for individuals with higher levels of openness. In terms of interactive screen use, the significant interaction between expressive suppression and openness have been found in this study, suggesting the interplay between how individuals express themselves and are open to new

experiences in interactive media environments. Interactive screen media provides new features such as discovering the knowledge and removing boundaries in communication compared to non-interactive screen media. Therefore, interactive media may be more likely to attract the attention of individuals in terms of creativity and curiosity especially when they are more likely to suppress their emotions. On the other hand, for those of who have lower or medium openness, higher emotional suppression was not associated with interactive media use, suggesting that interactive media may not provide the same level of engagement or appeal for individuals with lower openness and higher emotional suppression.

### **Limitations & Future Directions**

The current study examined the role of emotional regulation strategies on both non-interactive and interactive screen use and the moderating role of mothers' personality traits in the associations. In the current study, mothers reported all of these variables; therefore, the nature of self-report measures is one of the limitations of this study because self-report may cause biased responses of participants by social desirability. In addition to self-report, using diverse assessments may increase our understanding about emotion regulation. Previous studies measured emotion regulation through brain imaging techniques (Etkin et al., 2015; Goldin et al., 2008; Johnston et al., 2011; Ochsner et al., 2012) and physiological and behavioral coding (Kassam & Mendes, 2013). Future works can use these additional methods to develop a deeper understanding about emotion regulation.

The current study was correlational in nature. Therefore, it is not possible to infer from the results that mothers' emotion regulation strategies caused their screen use. There may be other factors that impact parents' screen use such as lifestyle, work and educational requirements, social interaction needs, and personal interests. In addition to these factors,

extraordinary circumstances may impact mothers' screen use. For example, people's screen time dramatically increased during the COVID-19 pandemic because of remote working, online education, and social isolation (Madigan et al., 2022). The impact of emotion regulation strategies on screen use should be investigated in an experimental or longitudinal research design to provide further understanding on the directionality of associations.

In terms of both non-interactive and interactive screen use, only frequencies of mothers' screen use were measured; therefore, there is still a lack of information about the content or social context of screens that mothers use. In terms of emotion regulation, the content of the screen media may be important because the content of mothers' screen use may vary depending on the type of emotions they would like to regulate and the emotion regulation strategy they predominantly use. Focusing on not only screen use frequency but also content of the screen may improve our understanding in future.

## **Conclusion**

It is important to understand the factors that shape children's screen use to support their optimal development (Madigan et al., 2019; McArthur et al., 2020), and parental screen use is one of these factors (Lauricella et al., 2015). This thesis represents a first step in understanding the factors that influence screen use of mothers of toddlers with a focus on mothers' emotional regulation strategies. These findings demonstrate how maternal emotion regulation strategies are associated with their non-interactive and interactive screen use with the consideration of personality traits. The findings from this thesis show that emotion regulation strategies have distinct relation with mothers' screen use behaviors, and this differentiation highlights the nuanced ways in which mothers engage with media based on their emotional coping mechanisms. Further, dividing screen use into two groups, non-interactive and interactive,

improves our current knowledge of understanding variations in screen use. Practically, these findings may use to develop interventions aimed at promoting healthier media use habits, particularly in the context of parenting, and provide much-needed information about the role of maternal emotion regulation strategies in their healthy screen usage habits, which has shown to play a key role in supporting optimal levels of screen use for their children (Lauricella et al., 2015). For example, the findings from this thesis suggest that higher levels of maternal expression suppression are linked to higher levels of non-interactive screen use. Therefore, mothers who predominantly use expressive suppression to regulate their emotions may be supported in using more optimal emotional regulation strategies. Further research is needed to integrate children's screen use to examine the role of parental emotion regulation and screen use in children's screen use with the consideration of different emotional regulation strategies and media interactivity. Given the significance of parental screen use on children's screen use (Lauricella et al., 2015; Lauricella & Cingel, 2020), this line of work will help deepen our understanding of parental factors contributing to children's everyday media use.

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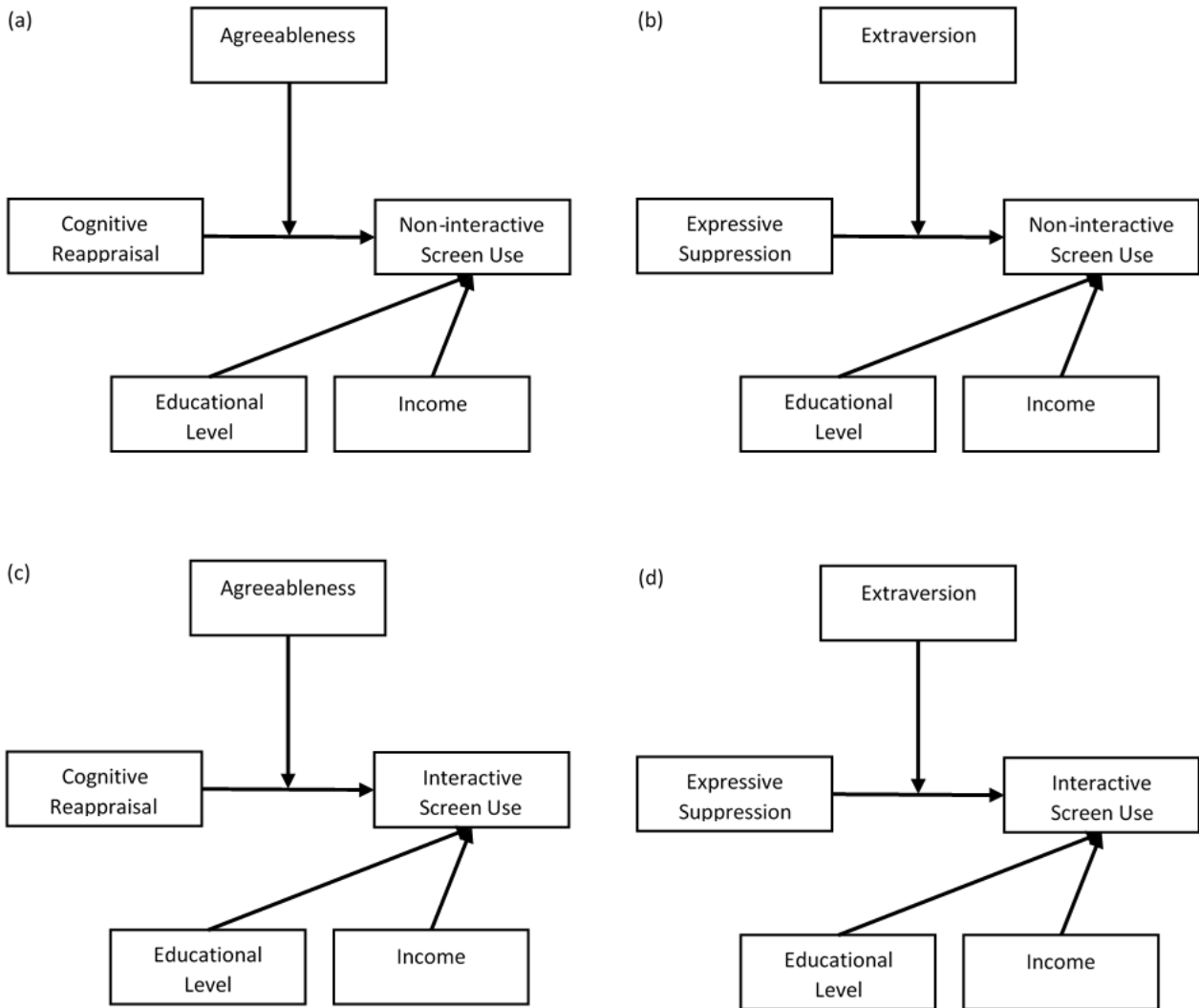
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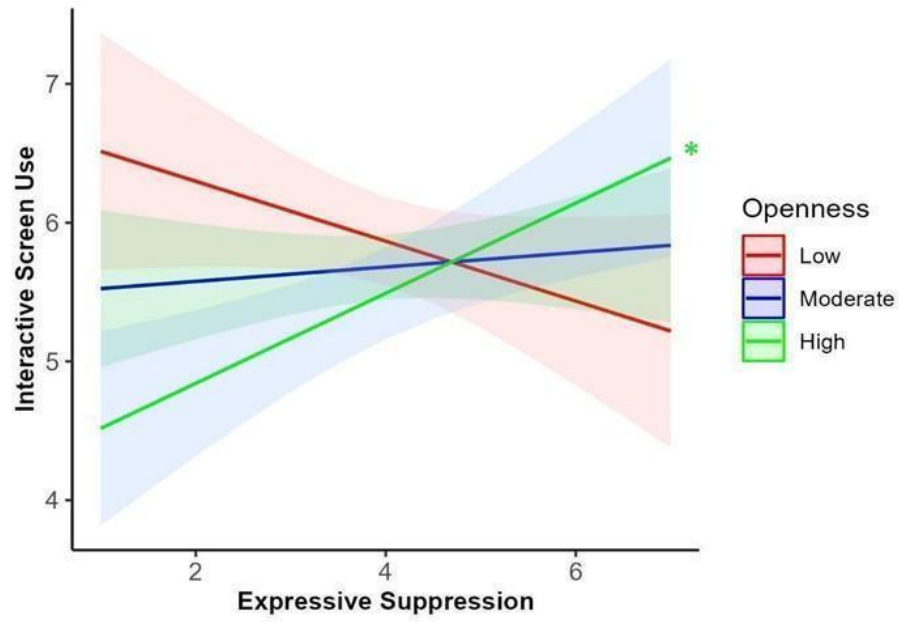
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**Figure 1***The Models of the Study*

**Figure 2**

*Interactive Screen Use as a Function of Expressive Suppression and Openness*



**Table 1***Demographic Characteristics of Participants*

Characteristics	<i>n</i>	%	<i>M (SD)</i>	<i>Range</i>
Age (years)			31.8 (5.7)	20.0 – 59.0
Ethnicity				
Hispanic or Latino	55	18.6		
Not Hispanic or Latino	241	81.4		
Race				
White	187	63.2		
Black or African American	36	12.2		
Asian or Pacific Islander	22	7.4		
Native American or Alaska Native	2	0.7		
Other/mixed race	49	16.6		
Marital status				
Married	202	68.2		
Single and living without a partner	35	11.8		
Single/divorced and living with a partner	46	15.5		
Separated / divorced / widowed	13	4.3		
Education (years)			15.3 (3.3)	10.0 – 39.0
Family income				
Less than \$15,000	27	9.1		
\$15,000 - \$30,000	26	8.8		
\$30,000 - \$45,000	42	14.2		
\$45,000 - \$65,000	41	13.9		
\$60,000 - \$75,000	42	14.2		
\$75,000 - \$100,000	54	18.2		
\$100,000 - \$150,000	47	15.9		
Over \$150,000	17	5.7		

**Table 2**

*Mean, Standard Deviation, Skewness, Kurtosis, and Correlations for Emotion Regulation Strategies, Big Five Personality Traits, Screen Use, Education, and Income*

	1	2	3	4	5	6	7	8	9	10	12	13
1. Cognitive reappraisal	-											
2. Expressive suppression	.34***	-										
3. Interactive screen use	.02	.08	-									
4. Non-interactive screen use	-.01	.14*	.48***	-								
5. Extraversion	.10	-.14*	.03	-.03	-							
6. Agreeableness	.30***	-.21***	-.01	-.02	.15*	-						
7. Conscientiousness	.22***	-.28***	.06	-.03	.14*	.64***	-					
8. Neuroticism	-.10	.17**	.05	-.01	-.32***	-.43***	-.48***	-				
9. Openness	.35***	-.01	-.09	-.03	.30***	.39***	.28***	-.22***	-			
10. Education	-.01	.01	-.09	-.13*	.06	-.06	.06	-.07	-.06	-		
11. Income	.02	-.06	-.05	-.05	.12*	.01	.13*	-.16**	-.10	.45***		
12. Mothers' age (year)	.02	-.06	.04	.04	.04	.10	.21***	-.21***	.03	.31***	.36***	
13. Toddlers' age (month)	.01	-.03	-.08	-.07	-.07	-.03	.05	-.05	-.03	-.01	-.00	.08
<i>M</i>	4.93	4.04	5.72	5.18	2.11	2.70	2.68	1.95	2.45	15.26	31.77	27.23
<i>SD</i>	1.11	1.34	1.97	1.95	0.70	0.64	0.66	0.76	0.55	3.26	5.69	5.41
Skewness	-0.44	-0.04	-0.15	0.18	-0.15	0.31	0.28	-0.31	0.13	1.86	0.53	0.02
Kurtosis	0.67	-0.26	-1.03	-0.71	0.21	-0.92	-0.75	0.10	0.47	8.96	1.70	-1.13

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 3**

*Linear Regression Results for Non-Interactive and Interactive Screen Use as a Function of Education, Income, and Cognitive Reappraisal*

	Model 1:			Model 2:		
	Non-interactive Screen Use			Interactive Screen Use		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
(Intercept)	6.53	0.74		6.42***	0.75	
Education	-0.08*	0.04	-0.14	-0.05	0.04	-0.09
Income	0.02	0.07	0.02	-0.01	0.07	-0.01
Cognitive reappraisal	-0.02	0.10	-0.01	0.03	0.10	0.01
<i>R</i> <sup>2</sup>			0.02			0.01
<i>F</i>			1.79			0.83

*Note.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 4**

*Linear Regression Results for Non-Interactive and Interactive Screen Use as a Function of Education, Income, and Expressive Suppression*

	Model 3:			Model 4:		
	Non-interactive Screen Use			Interactive Screen Use		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
(Intercept)	5.58***	0.63		6.07***	0.65	
Education	-0.09*	0.04	-0.15	-0.05	0.04	-0.09
Income	0.03	0.07	0.03	-0.00	0.07	-0.00
Expressive Suppression	0.21*	0.08	0.14	0.12	0.09	0.08
<i>R</i> <sup>2</sup>			0.04			0.01
<i>F</i>			3.86**			1.47

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 5**

*Linear Regression Results for Non-Interactive and Interactive Screen Use as a Function of Education, Income, Cognitive Reappraisal, Agreeableness, and Interaction of Cognitive Reappraisal and Agreeableness*

	Model 5:			Model 6:		
	Non-interactive Screen Use			Interactive Screen Use		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
(Intercept)	7.64***	2.13		5.33*	2.17	
Education	-0.08*	0.04	-0.14	-0.05	0.04	-0.09
Income	0.02	0.07	0.02	-0.01	0.07	-0.01
Cognitive Reappraisal	-0.20	0.41	-0.11	0.29	0.42	0.16
Agreeableness	-0.45	0.77	-0.15	0.40	0.78	0.13
CR x Agreeableness	0.07	0.15	0.18	-0.09	0.15	-0.24
<i>R</i> <sup>2</sup>			0.02			0.01
<i>F</i>			1.16			0.60

Note. CR: cognitive reappraisal. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 6**

*Linear Regression Results for Non-Interactive and Interactive Screen Use as a Function of Education, Income,*

	Model 7:			Model 8:		
	Non-interactive Screen Use			Interactive Screen Use		
	<i>B</i>	<i>SE</i>	$\beta$	<i>B</i>	<i>SE</i>	$\beta$
(Intercept)	6.66***	1.16		7.04***	1.18	
Education	-0.09*	0.04	-0.14	-0.05	0.04	-0.09
Income	0.03	0.07	0.03	-0.01	0.07	-0.01
Expressive Suppression	-0.08	0.25	-0.06	-0.21	0.26	-0.15
Extraversion	-0.50	0.45	-0.18	-0.45	0.46	-0.16
ES x Extraversion	0.13	0.11	0.26	0.16	0.11	0.31
<i>R</i> <sup>2</sup>			0.043			0.024
<i>F</i>			2.597*			1.452

Note. ES: expressive suppression. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

**Table 7**

*The Effect of Cognitive Reappraisal, Other Personality Traits, Interaction of Cognitive Reappraisal and Personality Traits, Education, and Income on Screen Use*

PTs	Extraversion		Conscientiousness		Neuroticism		Openness	
	NSU	ISU	NSU	ISU	NSU	ISU	NSU	ISU
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
(Intercept)	5.88*** (1.70)	6.86*** (1.73)	5.99** (2.13)	6.03** (2.16)	5.10** (1.65)	4.91** (1.67)	7.25*** (2.12)	9.35*** (2.14)
Education	-0.08* (0.04)	-0.05 (0.04)	-0.09* (0.04)	-0.06 (0.04)	-0.09* (0.04)	-0.06 (0.04)	-0.08* (0.04)	-0.05 (0.04)
Income	0.02 (0.07)	-0.02 (0.07)	-0.01 (0.07)	-0.04 (0.08)	-0.01 (0.07)	-0.03 (0.08)	0.01 (0.07)	-0.02 (0.07)
Mother age	-	-	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	-	-
CR	0.12 (0.31)	-0.10 (0.32)	-0.02 (0.42)	-0.11 (0.43)	0.11 (0.26)	0.09 (0.26)	-0.10 (0.42)	-0.35 (0.43)
PT	0.31 (0.76)	-0.20 (0.78)	-0.13 (0.76)	-0.04 (0.77)	0.35 (0.65)	0.31 (0.66)	-0.34 (0.82)	-1.31 (0.82)
CR x PT	-0.07 (0.15)	0.06 (0.15)	0.00 (0.15)	0.04 (0.15)	-0.07 (0.12)	-0.03 (0.13)	0.04 (0.16)	0.18 (0.16)
$R^2$	0.02	0.01	0.03	0.02	0.03	0.02	0.02	0.03
$F$	1.13	0.62	1.31	0.87	1.30	0.92	1.17	1.49

Note. NSU: Non-interactive Screen Use. ISU: Interactive Screen Use. CR: Cognitive Reappraisal. PT: Personality Trait. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 8**

*The Effect of Expressive Suppression, Other Personality Traits, Interaction of Cognitive Reappraisal and Personality Traits, Education, and Income on Screen Use*

PTs	Agreeableness		Conscientiousness		Neuroticism		Openness	
	NSU	ISU	NSU	ISU	NSU	ISU	NSU	ISU
	B(SE)	B(SE)	B(SE)	B(SE)	B(SE)	B(SE)	B(SE)	B(SE)
(Intercept)	6.14*** (1.76)	7.88*** (1.79)	4.81** (1.64)	6.72*** (1.67)	4.71*** (1.23)	3.50** (1.25)	6.33*** (1.78)	12.11*** (1.78)
Education	-0.09* (0.04)	-0.05 (0.04)	-0.10* (0.04)	-0.06 (0.04)	-0.10* (0.04)	-0.06 (0.04)	-0.09* (0.04)	-0.06 (0.04)
Income	0.03 (0.07)	0.00 (0.07)	-0.00 (0.07)	-0.03 (0.07)	-0.01 (0.07)	-0.04 (0.08)	0.02 (0.07)	-0.01 (0.07)
Mother age	-	-	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)	0.04 (0.02)	-	-
ES	0.07 (0.38)	-0.32 (0.39)	0.20 (0.37)	-0.40 (0.38)	0.27 (0.22)	0.47* (0.22)	0.11 (0.40)	-1.16** (0.40)
PT	-0.20 (0.58)	-0.65 (0.59)	-0.02 (0.54)	-0.53 (0.55)	0.02 (0.41)	0.81 (0.42)	-0.29 (0.64)	-2.33*** (0.64)
ES x PT	0.05 (0.13)	0.16 (0.16)	0.01 (0.13)	0.21 (0.14)	-0.03 (0.10)	-0.18 (0.10)	0.04 (0.15)	0.50** (0.15)
R <sup>2</sup>	0.04	0.02	0.05	0.04	0.05	0.03	0.04	0.06
F	2.32*	1.15	2.34*	1.82	2.39*	1.71	2.40*	3.61**

Note. NSU: Non-interactive Screen Use. ISU: Interactive Screen Use. ES: Expressive Suppression. PT: Personality Traits. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## Appendix A

### Demographics Information

#### *Parent Demographics*

- What is your age (in years)?
- Please indicate your gender.
  - Female
  - Male
  - Other
- What is your child's age (in months)?
- Do you allow your child (18 - 36 months) to use any digital media devices such as TV, cell phone, tablet, computer/laptop, and console/handheld game player?
  - Yes
  - No
- Please describe your ethnicity.
  - Hispanic or Latino
  - Not Hispanic or Latino
- What is your race/ ethnicity? Check all that apply.
  - Hispanic
  - Black or African American
  - Caucasian
  - Asian or Pacific Islander
  - Native American or Alaska Native
  - Other (Please describe)
- What is your current marital status?
  - Married
  - Single and living with partner
  - Single
  - Divorced
  - Separated
  - Widowed
  - Other (Please describe)
- How many years of formal education have you completed?
- Are you currently employed?
  - Yes
  - No

- If yes, how many hours do you work per week?
- Does your child have another caregiver living in your house?
  - Yes
  - No
- If yes, please check a caregiver who most takes care of your child.
  - Father
  - Stepfather
  - Grand mother
  - Grand father
  - Relatives
  - Other (Please explain)
- What is your annual combined family income (before taxes)? This does NOT include any welfare or food stamps.
  - Less than \$15,000
  - \$15,000 to \$29,999
  - \$30,000 to \$44,999
  - \$45,000 to \$59,999
  - \$60,000 to \$74,999
  - \$75,000 to \$99,999
  - \$100,000 to \$149,999
  - \$150,000 or more (please specify)
- Imagine that the scale below shows how your society is set up: On the left are people who are the worst off - they have the least money, little or no education, and no jobs or jobs that no one wants or respects. On the right are people who are the best off - they have the most money, the highest amount of schooling, and the jobs that bring the most respect. Now think about your family. Please tell us where you think your family would be on this scale. Drag the slider to the location that best represents where your family would be on the scale.



### *Child Demographics*

- In what month and year was your child born? (mm/yy)
- What are the ages (in years) of all of your children currently residing in your home, including the child(ren) participating in this project? (Use this format: “Child 1: \_\_\_\_, Child 2: \_\_\_\_, etc”)
- Please indicate your child's sex.
  - Girl
  - Boy
- Please describe your child's ethnicity.
  - Hispanic or Latino
  - Not Hispanic or Latino
- What is your child's race/ethnicity? Check all that apply.
  - Hispanic
  - Black or African American
  - Caucasian
  - Asian or Pacific Islander
  - Native American or Alaska Native
  - Other
- Does your child hear any language other than English in the home?
  - Yes
  - No, only English
- Which languages and what proportion of time does your child typically hear these languages in the home? (For instance, if a child hears English about half of the time and Spanish about half of the time, you can write "English 50% , Spanish 50%")

## Appendix B

### Emotion Regulation Questionnaire

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions.

The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways.

For each item, please answer using the following scale:

Strongly disagree
2
3
Neutral
5
6
Strongly agree

1
4
7

	1	2	3	4	5	6	7
When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.							
I keep my emotions to myself.							
When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.							
When I am feeling positive emotions, I am careful not to express them.							
When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.							
I control my emotions by not expressing them.							
When I want to feel more positive emotion, I change the way I'm thinking about the situation.							
I control my emotions by changing the way I think about the situation I'm in.							
When I am feeling negative emotions, I make sure not to express them.							
When I want to feel less negative emotion, I change the way I'm thinking about the situation.							





## Appendix D

### Big Five Inventory

Please answer the following questions about yourself.

I SEE MYSELF AS SOMEONE WHO:

	Strongly Disagree	A little Disagree	Neither Agree nor Disagree	A little Agree	Strongly Agree
Is talkative					
Tends to find fault with others					
Does a thorough job					
Is depressed, blue					
Is original, comes up with new ideas					
Is reserved					
Is helpful and unselfish with others					
Can be somewhat careless					
Is relaxed, handles stress well					
Is curious about many different things					
Is full of energy					
Starts quarrels with others					
Is a reliable worker					
Can be tense					
Is ingenious, a deep thinker					
Generates a lot of enthusiasm					
Has a forgiving nature					
Tends to be disorganized					
Worries a lot					
Has an active imagination					

Tends to be quiet					
Is generally trusting					
Tends to be lazy					
Is emotionally stable, not easily upset					
Is inventive					
Has an assertive personality					
Can be cold and aloof					
Perseveres until the task is finished					
Can be moody					
Values artistic, aesthetic experiences					
Is sometimes shy, inhibited					
Is considerate and kind to almost everyone					
Does things efficiently					
Remains calm in tense situations					
Prefers work that is routine					
Is outgoing, sociable					
Is sometimes rude to others					
Makes plans and follows through with them					
Gets nervous easily					
Likes to reflect, play with ideas					
Has few artistic interests					
Likes to cooperate with others					
Is easily distracted					
Is sophisticated in art, music, or literature					