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**Parents regulating children's screen media use
in the digital age:**

**Developing new assessment tools and a model of factors influencing
parental mediation strategies within the Italian context**

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TUTOR

Prof.ssa Valentina Boursier

CANDIDATA

Valeria Rega

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Introduction

In recent decades, digital screen media use has increased significantly among young people, particularly children and adolescents. According to the EU Kids Online report published in 2020 (Smahel et al., 2020), approximately 80% of European children and adolescents aged 9-16 use various digital devices, especially smartphones, to access the Internet for more than 2 hours a day. The use of digital screens has also increased among younger children and preschoolers aged 0-8 (Rideout & Robb, 2020). Despite widespread awareness of the risks associated with children's use of digital screens, to date most research has investigated problematic Internet use, problematic online gaming, problematic social media and social networks use, primarily among adolescents and young adults (Blasi et al., 2019; Boursier et al., 2020; Fioravanti et al., 2013; Kuss et al., 2013; Kuss & Griffiths, 2012; Musetti et al., 2019; Schimmenti et al., 2017; Young & Rogers, 1998). In contrast, few studies have focused on risky and problematic screen media use in childhood (Domoff et al., 2019, 2020), particularly in the Italian context (De Pasquale et al., 2021; Donati et al., 2019; Monacis et al., 2022; Rega et al., 2023). Given the profound social changes occurred in recent years, including the Covid-19 pandemic, which has inevitably increased the amount of time spent online among all age groups (Duan et al., 2020; Masaeli & Farhadi, 2021; Oka et al., 2021), more attention needs to be paid to the problematic and risky screen media use also in childhood and pre-adolescence, because early identification of maladaptive patterns of media use can mitigate the risk of developing more serious media-related addictive behaviours in later stages of life, particularly in adolescence and young adulthood.

The literature has long shown that parents can play a pivotal role in both reducing the risks and maximising the benefits of digital screen use among children and adolescents (Domoff et al., 2020; Smahel et al., 2020; Livingstone et al., 2010). For this reason, the concept of *parental mediation* has been introduced in the literature to refer to the interpersonal communication strategies parents use to mediate and regulate their children's media use (Clark, 2011). However, studies often report conflicting results regarding the effect of different parental strategies on children's screen media use (Nielsen et al., 2019a; Chen & Shi, 2019; Fam et al., 2023), which may be attributed to several reasons. One reason is that, to date, research has not reached a unanimous consensus on a clear definition of parental mediation and its specific strategies (Kuldas et al., 2021), as they appear to vary across cultural contexts. Indeed, parents may be more likely to adopt different strategies based on their cultural and parenting values (Kirwil, 2009), which may influence the effectiveness of mediation in different contexts. A second reason is that the most commonly used scales in the literature to measure parental mediation have several methodological limitations that need to be addressed (Kuldas et al., 2021). Finally, a third reason is that parental mediation alone may not be sufficient to protect children from risky online behaviours, as its effectiveness can be influenced by other variables that operate within the broader family context (Ren & Zhu, 2022).

In light of this evidence, the present research aims to expand and deepen the existing literature on problematic screen media use in childhood and preadolescence and, in particular, on the strategies parents adopt to mediate their children's screen use, providing a contribution that is rooted in the specific Italian context through the implementation of four studies. The first chapter provides a comprehensive review of

the existing literature on both problematic screen media use in childhood and parental mediation, highlighting the main gaps that must be addressed. The second chapter shows the results of Study 1, which explores children's perceptions of digital screens through a qualitative focus group study. The third chapter provides the results of Study 2, which contributes to the Italian validation of the most widely used parent-report instrument for assessing problematic screen media use in childhood and pre-adolescence, namely the Problematic Media Use Measure (PMUM) (Domoff et al, 2019). The fourth chapter shows the results of Study 3, which focuses on the development and validation of the Italian Parental Mediation Scale (I-PMS), a parent-report measure that aims to assess parental mediation strategies within the Italian cultural context. Finally, the fifth chapter provides the results of Study 4, which aims to test two structural equation models (SEM) to identify the key factors that may influence parents' adoption of specific mediation strategies.

Chapter 1

Parental Mediation of Children’s Screen Media Use in the Digital Age

1.1 Screen media use in children and preadolescents: prevalence rates, emerging risks, opportunities, and health implications

Over the past decade, the technological landscape has changed dramatically. Children today have access to many more online platforms and digital devices than ever before, and exposure to screen media devices often begins in the early years of life (Kabali et al., 2015). Children are exposed to screen media constantly in their daily lives and for increasingly longer periods (Kabali et al., 2015; OFCOM, 2023; Rideout & Robb, 2020; Smahel et al., 2020). The term ‘Screen media’ refers to all devices with a digital visual display, such as computers, laptops, smartphones, tablets, game consoles, televisions, and similar devices (Domoff et al., 2019). Moreover, major global events such as the COVID-19 pandemic have also contributed to changing children’s digital habits (Gueron-Sela et al., 2023; Hantrais et al., 2021; Trott et al., 2022). Indeed, the prolonged lockdown periods imposed by the pandemic and the widespread use of distance learning have led children to spend much more time engaged in online and indoor activities than in the past, thus increasing children’s involvement in the use of screen media (Duan et al., 2020; Hedderson et al., 2023).

The American Academy of Pediatrics has long recommended avoiding the use of screen media in children under 2 years of age and limiting it to less than 2 hours a day for children up to 8 years of age (Council on Communications and Media, 2013).

However, data and percentages relating to the spread and quantity of screen media use by children from early childhood to preadolescence reveal a very different scenario. A study conducted in the United States in 2015 showed that many children begin to use multimedia devices in the first months of life. In children under one year of age, 9.8% use a tablet and 3.9% use a smartphone to access the Internet. In two-year-olds, the corresponding percentages are 27.9% using a tablet and 4.4% using a mobile phone (Kabali et al., 2015). In Europe, nearly 20% of children aged 3 to 4 have access to a mobile phone to surf the Internet (OFCOM, 2023). In terms of the amount of use, the Common Sense Census showed that US children aged 5 to 8 spend an average of more than 3 hours a day using digital media on screen (Rideout & Robb, 2020). Digital screen media use is even more pervasive among older children and adolescents. The latest EU Kids Online report (Smahel et al., 2020) shows that over 80% of children aged 9 to 16 use digital devices, especially smartphones, to connect to the Internet in at least 11 European countries. Furthermore, the average time European children spend in front of screens has increased dramatically over the last decade, from 1 hour to 2.5 hours per day (Smahel et al., 2020; Livingstone et al., 2010).

The intensive and prolonged use of screen media from early childhood raises significant concerns as it exposes children to various risks but also opportunities that require particular attention. Undoubtedly, the use of screen media can offer numerous benefits to children, such as expanding the possibilities of communication and socialization, accessing educational content, and fostering play and creative activities (Holloway et al., 2013; Marsh et al., 2018; Stoilova et al., 2021). However, the use of screen media is also associated with the possibility of being involved in a series of risks, such as viewing violent, explicit, and age-inappropriate content (Flood, 2009),

engaging in interactions with strangers or hackers (Cernikova et al., 2018), cyberbullying (Chicote-Beato et al., 2024; Holloway et al., 2013; Monks et al., 2012), participating in dangerous online challenges (Lupariello et al., 2019), and sharing personal information online (Lwin et al., 2012). Moreover, recent studies showed that excessive screen media use in early childhood is related to a series of negative health-related effects, such as obesity or overweight, delays in language development, sleep disorders and symptoms of hyperactivity and inattention (C. Li et al., 2020; Moavero et al., 2023). Finally, excessive use of screen media during childhood can increase the risk of developing problematic or addictive use of these tools (Bae et al., 2023; Park & Park, 2021).

1.2 Problematic screen media use (PMU) in children and preadolescents: conceptual definition and existing measurement instruments

Over time, different labels have been used to refer to excessive use of the Internet and screen media that result in addictive use with significant negative effects on physical and mental health, such as Internet addiction (Widyanto & Griffiths, 2006; Young, 1998), problematic Internet use (Caplan 2002, 2010), pathological Internet use (Davis, 2001), compulsive Internet use (Greenfield, 1999; Meerkerk et al., 2009), gaming addiction (Kuss & Griffiths, 2012), Internet gaming disorder (Petry & O'Brien, 2013), and problematic online gaming (Demetrovics et al., 2012). To date, only Internet gaming disorder (IGD) has been included first in the Section III of the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (APA, 2013) among the conditions that require further clinical and empirical investigation, and then in the 11th revision of the International Classification of Diseases (ICD-11) (WHO, 2018). However, the inclusion of IGD in the ICD-11 has generated disagreement among researchers and a long debate, highlighting the need for clear diagnostic criteria to avoid pathologizing normal gaming behaviour (Billieux et al., 2021). The use of multiple terms to refer to the same construct indicates a lack of scientific consensus on how problematic and addictive screen media use should be theoretically defined, operationalized, and measured, which in turn has led to extensive debate regarding its official recognition and inclusion in diagnostic manuals (Billieux et al., 2015). Some authors prefer to use the construct of 'problematic Internet use' (Davis, 2001; Caplan 2010) rather than 'Internet addiction' or 'Internet disorder' (Young, 1998; Widyanto & Griffiths, 2006), because the former helps to treat the phenomenon as something more complex than a mere addiction, to adopt a less

categorical and more dimensional approach, and to avoid stigmatizing the behavior in question. Consequently, this perspective allows us to recognize that, in some cases, such behaviors may be transitory and linked to specific difficulties or be the consequence of more complex and less evident psychological mechanisms that therefore need to be explored in greater depth (Billieux et al., 2015; Kardefelt-Winther et al., 2017).

Most of the existing studies in the literature on problematic behaviors related to screen-based media (e.g. smartphones, video games) and web-mediated activities (e.g. Internet, social media) have focused specifically on adolescents and young adults' samples (Kormas et al., 2011; Festl et al., 2013; Boursier et al., 2020; Elhai et al., 2020). However, few studies explored problematic screen media use (PMU) in children, even though multimedia devices have become increasingly widespread across all age groups including younger children (Domoff et al., 2019; Domoff et al., 2020).

Problematic media use (PMU) in childhood can be defined as the excessive use of various media devices (e.g. computers, video games, smartphones, tablets and television) that impairs children's social, behavioural or academic 'functioning' (Domoff et al., 2019; Domoff et al., 2020). According to Domoff et al (2020), the impairment of children's functioning is crucial in distinguishing between normal/excessive use and problematic levels of media use. Indeed, excessive time spent with media is a necessary but insufficient condition for PMU (Domoff et al., 2020), as there is no convincing evidence that screen time alone directly impairs children's functioning and psychosocial development (Ophir et al., 2021). More recently, a longitudinal study has shown that children's PMU increases gradually from

the age of 2.5 years onwards, suggesting that problematic media-related behaviors may occur at an even earlier age (Coyne et al., 2024). Although this area of research is still in its infancy, some studies have shown that PMU is associated with several negative health outcomes in children (C. Wang et al., 2023), including sleep problems (Moavero et al., 2023; Sakamoto et al., 2022), more problematic behaviours, lower emotional intelligence (Cho & Lee, 2017), and higher depressive symptoms (Jeong et al., 2019).

1.2.1 Assessing children's PMU: limitations and issues of existing scales

There are currently few instruments specifically designed to measure levels of PMU in children. Among the major measurement scales, the Problematic Media Use Measure (PMUM) (Domoff et al., 2019) is the most widely used parent-report instrument to detect PMU in younger children and preadolescents. The PMUM is based primarily on the nine criteria for Internet Gaming Disorder (IGD) outlined in the DSM-5 (APA, 2013) and is specifically designed to assess parental perceptions of PMU among children aged 4–12 years. It assesses children's PMU over the previous month and not the previous year in order to increase the reliability of parents' recall of their children's behaviour (Domoff et al., 2019). Furthermore, the scale refers to 'screen media' in general to allow for the identification of problematic use across a wide range of digital devices. Indeed, using the term 'screen media' becomes especially useful if parents have trouble identifying with certainty which specific device is causing problems in their children's lives. The PMUM is a reliable assessment tool that has been widely used and validated in different linguistic and cultural contexts (Dwairej et al., 2022; J. Li et al., 2023; Morales Domínguez et al., 2022).

Other child-report instruments in the literature have been specifically designed to capture the perspective of children aged 6-12 years regarding their addiction to games and digital devices. The Digital Addiction Scale for Children (DASC) (Hawi et al., 2019) is a tool developed and validated to assess the addiction to various digital devices, including video games, social media, and texting, in children aged 9 to 12 years old. The Videogame Addiction Scale for Children (VASC) (Yılmaz et al., 2017) is a child-report instrument that assesses videogame addiction among children aged 12 years and under. Finally, the Video Game Scale For Children (VGS-C) (Donati et al., 2019) is a child-report instrument developed and validated to assess specifically video-gaming habits and pathological video-gaming use in children 6 to 12 years old. Overall, child-report screening tools specifically designed to assess problematic device and gaming use in children under 9 years old are still few and not so widely used.

These findings show that there are still few validated and reliable measures to detect PMU among children under the age of 10, thus reflecting the limited advancement of this research area. Moreover, these existing parent-report and child-report measures have several limitations that need to be addressed.

First, all the aforementioned scales (i.e., PMUM, DASC, VASC, and VGS-C) rely on assessing the classic nine symptoms of Internet Gaming Disorder (IGD) as outlined by the American Psychiatric Association in the DSM-5 (APA, 2013). The IGD criteria were developed to identify problems specifically related to online gaming addiction in adults or adolescents with a different capacity for self-regulation than children. Therefore, these criteria are likely not adequate to detect PMU in younger children, who intrinsically have more difficulties in self-regulation due to the cognitive immaturity associated with their stage of development. Furthermore, the use of criteria

aimed at detecting addictive disorders at an early age may increase the risk of pathologizing behaviors that may instead be transitory and used by children to cope with stressful situations and regulate negative emotional states (Billieux et al., 2015; Kardefelth-Winther, 2017).

Second, a specific limitation of the PMUM is its exclusive focus on the parental perspective to detect PMU. Undoubtedly, parental insights are essential for understanding children's PMU, as parents often have better self-reflection abilities to evaluate their children's behaviors (Domoff et al., 2019). However, parent's perception of their child's media use may not necessarily align with the child's self-perception, which therefore increases the risk that parents may either overestimate or underestimate their child's actual screen use. Indeed, research has demonstrated that the level of agreement between parents and children's perspectives can vary depending on the specific behaviour being assessed, with studies reporting low to moderate agreement between parental and child reports on children's media use (Poulain et al., 2020; Wood et al., 2019). Some studies show children reporting higher levels of screen media exposure compared to their parents, while others show the opposite (Koning et al., 2018). Several factors may contribute to these differences between parental and child reports. For example, parents might provide socially desirable responses, underreporting their child's screen time to align with perceived social norms or expectations (Putnick, 2019; Sonck et al., 2013; Stokes et al., 2011). Furthermore, parents may also lack complete knowledge of their children's screen time, especially if children use personal devices or engage in media consumption outside of parental supervision (Geržičáková et al., 2023; Sonck et al., 2013). To overcome discrepancies between parent and child reports, future research should integrate both perspectives by

using measurement scales specifically designed to capture the viewpoints of both parents and children.

1.3 Factors influencing children's PMU: the role of family environment, school context, and children's psychological symptoms

Specific family-related factors may significantly contribute to the increased risk of PMU among children. First, the quality of interactions and relationships between parents and children and between parents themselves influences the development of PMU in children. For example, dysfunctional parent-child relationships (Holmgren et al., 2022), spending a lot of time without parental supervision (2-4 hours per day) (Bae et al., 2023), having divorced, separated or widowed parents (H.-M. Yang & Kim, 2021), the presence of maltreatment and abuse conditions (Hsieh et al., 2016) may increase the risk of developing PMU in children. Parental mental health also plays an important role in the onset of PMU in children. In fact, parental psychological and psychopathological symptoms, including maternal depressive symptoms (Holmgren et al., 2022; Oh et al., 2021), maternal postpartum depression (Holmgren et al., 2022), and maternal work-family conflict (Yang & Kim, 2021), may increase the risk of children developing PMU. Concerning the role of family income levels in PMU, the results are mixed. While some studies suggest that lower family income is associated with a higher risk of PMU in children (Karayağiz Muslu & Aygun, 2020; Park & Park, 2021; Zhou et al., 2020), other research indicates that family income does not have a significant impact on children's PMU (Abdullah et al., 2022).

Several studies have also examined the role of parenting style and parental mediation strategies in relation to children's PMU. As regards parenting styles and practices, authoritarian and permissive parenting styles, as well as inconsistent parenting practices, are associated with higher levels of PMU in children (Bae et al.,

2023; Hsieh et al., 2018; Miltuze et al., 2021; H.-M. Yang & Kim, 2021). As regards the role played by parental mediation practices, studies have shown that parents who adopt restrictive mediation in a more controlling style, forbid Internet access, and apply strict technical controls (e.g., block/filter content, monitor online time, or limit online interactions), are more likely to have children with higher levels of PMU (Miltuze et al., 2021; Van Petegem et al., 2019). However, a decline in media-related rules (Kroshus et al., 2022), fewer rules at home regarding Internet use (Miltuze et al., 2021), and inconsistent maternal mediation (Yang et al., 2022) can also lead to an increase in PMU in children. Moreover, some parents are inclined to use media to manage and regulate their children's emotions. In this case, using media as a tool to regulate children's difficult feelings and to calm them down was found to be associated with increased PMU in children (Coyne et al., 2021; Abdullah et al., 2022).

On the contrary, having parents who use an authoritative parenting style, which implies that parents demonstrate reasonable emotional control, high responsiveness and consistency in discipline, and establish clear rules and limits on media use without exaggerating their controlling style (Bae et al., 2023; Hsieh et al., 2018; Miltuze et al., 2021; Song, 2022; Van Petegem et al., 2019; H. Yang et al., 2022; H.-M. Yang & Kim, 2021), is associated with a reduction in children's PMU. Therefore, parents should adopt a more authoritative parenting style and more consistent and not excessively restrictive mediation practices, especially during the transition from childhood to adolescence. In this phase, in fact, children are exposed to a greater risk of PMU, but they also develop new self-regulation skills (Raffaelli et al., 2005) and seek greater autonomy from parental figures by going through the second separation-individuation process (Blos, 1967). Therefore, using an authoritative parenting style and a parental

mediation style that is too controlling and restrictive may be perceived as an obstacle to the preadolescents' need for autonomy, which consequently risks increasing their involvement in PMU (Lukavská et al., 2022).

Some studies have also highlighted the influence of the school context on children's PMU. Factors such as low levels of school connectedness (Liu et al., 2017) and difficulties in school functioning (Takahashi et al., 2018) have been associated with an increased risk of PMU. However, it is interesting to note that some school- and family-based interventions are effective in reducing PMU by promoting children's self-regulation skills (Apisitwasana et al., 2018), thus supporting previous research that has highlighted the importance of improving self-regulation skills as a key factor in preventing PMU (Liau et al., 2015; Billieux & Van der Linden, 2012).

Children's mental health also plays a key role in significantly increasing the risk of developing PMU. In fact, individual risk factors that may predispose children to develop PMU include early exposure to the use of mobile devices (Abdullah et al., 2022), higher levels of internalizing and externalizing symptoms (Richard et al., 2022), problems in executive functions (Song, 2022), autistic traits, sensation seeking (Liu et al., 2017), depressive symptoms (Takahashi et al., 2018; Jeong et al., 2019), anxiety (De Pasquale et al., 2021), emotional dysregulation (Paulus et al., 2021), symptoms of post-traumatic stress disorder (PTSD) (Hsieh et al., 2016), previous high levels of PMU (Song, 2022; Miltuze et al., 2021), pre-pandemic PMU levels (Eales et al., 2021), and ADHD symptoms (Paulus et al., 2018).

Regarding the role of age, studies have confirmed that children's PMU tends to increase with age and school grade, and from year to year (Takahashi et al., 2018;

Park & Park, 2021; Muslu & Aygun, 2020; Eales et al., 2021; Van Petegem et al., 2019; Sakamoto et al., 2022; Sayı & Sahin, 2021).

Regarding gender differences, studies revealed that boys are more likely to experience PMU than girls (Abdullah et al., 2022; Bae et al., 2020; Takahashi et al., 2018; Paulus et al., 2018; De Pasquale et al., 2021; Kroshus et al., 2022; Yang & Kim, 2021; Muslu & Aygun, 2020; Kök Eren & Örsal, 2018; Hsieh et al., 2016; Hsieh et al., 2018; Miltuze et al., 2021; Van Petegem et al., 2019; Liu et al., 2017; Sakamoto et al., 2022; Sayı & Sahin, 2021).

Aligning with previous research which highlighted the key role of the family environment and the parent-child relationship in the development and persistence of problematic and addictive behaviors during adolescence and early adulthood (Bussone et al., 2020; D'Arienzo et al., 2019; Ghinassi & Casale, 2023), it is possible to hypothesize that children experiencing stressful family dynamics are more exposed to the development of psychological symptoms and emotional distress, which in turn they try to regulate by seeking refuge in virtual spaces, which increases the probability of developing PMU. In line with the Compensatory Internet Use Theory (Kardefelt-Winther, 2014), PMU may represent a maladaptive coping strategy aimed at compensating for unsatisfied emotional and relational needs and alleviating negative emotions.

1.4 The EU Kids Online theoretical model and the Interactional Theory of childhood Problematic Media Use (IT-CPU): Two comprehensive theoretical frameworks to understand children's PMU

Two models have emerged as the main comprehensive theoretical frameworks for understanding the factors influencing young children's interaction with screen-based media and representing potential precursors of children's PMU.

The EU Kids Online theoretical model (Livingstone et al., 2010; Smahel et al., 2020), inspired by Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979), was developed to understand the individual, social, and country-level factors influencing children and adolescents' engagement with the online environment and its impact on their well-being. At the individual level, the model examines how various factors may affect children's general psychological and digital well-being. These factors include age, gender, socioeconomic and cultural background, personality traits, disabilities, Internet access opportunities, digital skills, and different Internet usage patterns. At the social level, the model highlights that children's Internet use and its outcomes are influenced by a wider social system, which includes parents, siblings, educators, and the community, as well as online communities and other virtual environments. These social factors can determine whether Internet and screen media use leads to potential harm or becomes an opportunity for developing more adaptive coping skills and well-being. At the national level, the model includes the role played by economic, social, and cultural factors specific to each country in influencing children's PMU.

The second model, called the Interactional Theory of Childhood Problematic Media Use (IT-CPU), was introduced in 2020 by Domoff, Borgen & Radesky and is

also based on Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979). According to the IT-CPU, understanding PMU in children requires analyzing how children interact with their environment. As Bronfenbrenner (1979) pointed out, children's development occurs within a complex system of relationships between different environmental levels that influence each other. Parents, significant other adults, peers and technology exert a significant influence on the development of the child, who, in turn, actively influences these individuals and groups. Based on the findings of various studies examining childhood media use, the IT-CPU categorizes the variables that influence PMU into three distinct levels of impact, namely distal, proximal, and maintaining factors. The IT-CPU theory explains how the interaction between distal, proximal and maintenance factors contribute to the onset of problematic media use (PMU) during childhood. Maintenance factors, in particular, represent those mechanisms that link distal and proximal risk factors to the development and persistence of PMU over time.

'Distal factors' are early risk factors for problematic media use (PMU) in childhood, but they do not directly contribute to its development. Instead, these factors influence the emergence of PMU over time only if they interact with proximal factors and, indirectly, with maintaining factors. According to IT-CPU (Domoff et al., 2020), 'distal factors' that indirectly influence PMU include lower socioeconomic conditions, household chaos or lack of routines and structure in the home, and parent's own excessive or problematic media use. Furthermore, digital environments that are intentionally designed to prolong children's engagement with screens pose a particular risk, especially for children with self-regulation difficulties.

Compared to distal factors, ‘proximal factors’ have a more immediate impact on the emergence of PMU. Proximal factors are antecedents to childhood problematic media use (PMU) that, through interaction with maintenance factors, can lead to more severe PMU over time. These factors include children’s behavioral and emotional characteristics, parents’ attitudes toward technology, parents’ stress levels and low self-efficacy, and specific media-related parenting approaches. Additionally, peer dynamics and children’s desire for social inclusion through technology ownership also play crucial roles as proximal factors. The persistence of PMU over time is strengthened by several ‘maintaining factors’ that include specific reinforcing behaviors within the family. For example, parents may use screens as a tool to manage children’s challenging behaviors or as a reward, while children may turn to media to cope with negative emotions. Low self-efficacy and poor self-regulation in children, along with peer pressure to engage in online activities, further contribute as maintaining factors to the persistence of PMU. Furthermore, there is a risk that these patterns of dysfunctional media use might become habitual coping strategies for both parents and children. For example, children may increasingly rely on media as a means of regulating their emotions (Gioia et al., 2021; Schramm & Cohen, 2017), while parents may continue to use media to manage their children’s problematic behaviors (Coyne et al., 2021).

1.5 How parents regulate children's media use in the digital age: evolution of Parental Mediation Theory (PMT) from television to digital screen-media and Internet

According to Parental Mediation Theory (PMT), the term *parental mediation* refers to the set of 'interpersonal communication strategies' used by parents to mediate and mitigate the negative effects associated with their children's media use (Clark, 2011, p. 325). The concept of parental mediation was first introduced in television media research to understand the active role that parents play in mediating television's influence on children's and adolescents' attitudes and behavior (Clark, 2011). Early studies in this field aimed to better understand how the communication strategies that parents use to regulate television content consumption influence the effects of television advertising on children's consumer behavior (Robertson, 1979), children's aggressive tendencies induced by TV (Nathanson, 1999), and the way children interpret television content (Austin, 1993; Valkenburg et al., 1999). Bybee et al. (1982) and Valkenburg et al. (1999) were the first to develop measurement scales aimed at identifying the main mediation strategies used by parents to reduce the negative effects of television on children. The first style of mediation that parents can adopt is called *restrictive* mediation, in which the parent sets rules, which are usually non-negotiable, aimed at limiting the viewing of certain content or the amount of time spent with the media. The second strategy is called *active* mediation, also known as *evaluative* or *instructive* mediation, which consists in discussing with the child the positive and negative aspects of the content seen on television, both during and after the viewing. Finally, the third strategy is *co-viewing* mediation, which occurs when parents and

children watch content together, but without discussing what they are watching (Valkenburg et al., 1999; Nathanson, 1999).

The first studies to highlight the effects of different television mediation strategies on children's and adolescents' behavior showed that active mediation was associated with less aggressive behavior, greater scepticism about television content, and greater attention and involvement in public affairs among adolescents (Austin et al., 1993; Nathanson, 1999). Furthermore, studies showed that restrictive mediation was negatively related to children's generalised and TV-induced aggressive tendencies, whereas co-viewing was positively related to them (Nathanson et al., 1999). However, it was also shown that restrictive mediation has a negative effect on adolescents, so that excessive use of rules in this age group may lead them to be more active in the search for prohibited content and to disregard the limits imposed by their parents. For example, Nathanson et al (2002) found that restrictive mediation of television use among adolescents was associated with less positive attitudes towards parents, more positive attitudes towards violent and sexual content, and more viewing of this content with friends. In line with this point, parents of younger children were more likely to use television mediation strategies than parents of older children, probably because they feel that the need for mediation diminishes as their children grow up and demand more autonomy (Valkenburg et al., 1999; Böcking & Böcking, 2009). In addition, it was highlighted that the tendency to use one television mediation strategy over another can vary depending on the cultural context. For example, while co-viewing mediation is preferred in the Netherlands (Valkenburg et al., 1999), active mediation is more commonly used in the United States (Austin et al., 1993). These

data therefore suggest that cultural context might influence parental mediation practices and, consequently, their impact on children's media use.

Subsequently, the concept of parental mediation has been extended and adapted to research on Internet and screen-based media use to understand how parents mediate their children's relationship with digital devices (Lee & Chae, 2007; Livingstone & Helsper, 2008; Warren & Bluma, 2002), and whether different mediation strategies implemented by parents can protect children from online risks, including cyberbullying (Mesch, 2009).

However, as outlined by the PMT (Clark, 2011), the digital age with the advent of new screen media and the Internet has generated new opportunities but also new concerns and emotional states for both parents and children. New screen-based media can expand opportunities to relate and connect with other people overcoming physical distance (e.g., with friends, family members, etc.), broadening educational experiences and access to information. Nevertheless, they can increase the risk of free and unfiltered access to age-inappropriate and highly dangerous content. Furthermore, compared to television, which is a fixed medium located in a space that the whole family can easily share, new screen-based media are often mobile, private, and personal, and therefore more difficult to share with other family members and consequently more difficult for parents to supervise. As screen media become increasingly personal and private as young adolescents grow older, parents must also address the issue of the greater autonomy that their children require in using such devices and negotiating rules. Finally, the introduction of new technologies, such as filters that allow technical control and forbid access to certain content and applications (e.g., using parental control apps), also raises the issue of whether parents may risk

delegating the mediating role to the technology itself. Concerning the emotional states experienced by both the parents and the children in this new digital context, parents may feel anxiety about the greater freedom offered by new screen media, which increases the possibility that their children will take risks when using them alone; sadness about the end of childhood and the growing importance of peers in children's decisions and choices; frustration with adolescents who circumvent parental authority and rules. On the other side, children, especially adolescents, are excited about the new possibilities and opportunities for more freedom, autonomy, connections, and relationships that the Internet offers, but also frustrated and angry with parents and restrictions on their screen media activities (Livingstone, 2009). This scenario highlights the complexity of the phenomenon of parental mediation. In the new landscape characterised by new digital technologies, parents are required to adapt, negotiate, and flexibly modify their mediation strategies from time to time according to the different emotional, cognitive and social needs of their children.

Therefore, as Clark (2011) argued, there is a need to re-examine PMT in the light of the digital age, to assess how it applies to new mobile digital media (e.g. smartphones, laptops, video games, and tablets), to reconsider the role of new media particularly in family life (Livingstone & Helsper, 2008), and the role that these different emotions experienced by both parties play in the process of regulating the use of digital media.

1.5.1 Parental Mediation Strategies adapted to digital screen media and Internet use: restrictive, enabling, monitoring, supervision, and co-use

So far, research on the role of parental mediation in children's and adolescents' use of digital screen media has continued to focus on the three main mediation strategies originally developed in studies on television media, namely active, restrictive, and co-viewing mediation (Valkenburg et al., 1999; Livingstone et al., 2010; Beyens & Beullens, 2017; Chen & Chng, 2016). However, traditional television mediation strategies are no longer adequate to capture the characteristics of new screen media and the new way in which children engage with them (Modecki et al., 2022).

While in the past children and adolescents were passively exposed to television media content, now they can interact more actively and freely with new digital devices. Children actively search for information, create new content, develop new skills and abilities, and build new contacts and relationships online. Furthermore, the generation gap (Clark, 2009) between children and parents (i.e., between digital natives and non-digital natives) means that children and adolescents are often more experienced and skilled than parents in the use of new screen media, making it even more necessary to rethink parental mediation strategies in light of these new changes and, in particular, the more active role played by children. Moreover, in addition to setting rules, parents can now use new and sophisticated technologies to limit, filter, block, and prohibit access to the Internet, specific content or web-mediated activities, compared to the past and television mediation. Finally, as children are exposed to screen media on a daily basis and for increasingly longer periods, parental involvement in regulating, mediating and moderating their screen media use is even more necessary than in the past.

As a result, in response to the new possibilities offered by digital devices and the new ways in which both parents and children relate to them, several new parental mediation strategies emerged over the last decade (Livingston & Helsper, 2008; Clark, 2011; Valkenburg et al., 2013; Nikken & Jans, 2014; Jiow et al., 2017; Ho et al., 2020). However, as noted in the recent review of Kuldass et al. (2021), this has resulted in an excessive proliferation of new mediation strategies, often with a tendency to use different labels to describe the same content. As a consequence, there is a lack of unanimous consensus on a clear definition of parental mediation, as well as on which and how many strategies should be included within this construct.

Recently, two literature reviews helped to summarize the main strategies and the corresponding measurement scales used in research studies on parental mediation (Kuldass et al., 2021; Modecki et al., 2022). Based on these reviews and other existing studies, it is possible to outline the main parental mediation strategies adapted to digital screen media and Internet use.

The first category includes ‘*restrictive mediation strategies*’, which aim to limit children’s screen media use by setting *general rules* about the amount of time allowed per day, the time and place where devices can be used, or *content-specific rules* that limit access only to certain platforms and applications (e.g., a specific social media) and for certain purposes (e.g., doing homework), or rules about *specific activities*, such as engaging in online interactions (Modecki et al., 2022). In this case, the rules are set and enforced by the parent, rather than negotiated with the child through discussion. Studies in the literature define this type of strategy as *restrictive mediation* (Livingstone et al., 2010; Dürager & Sonck, 2014; Ho et al., 2020; Gozum & Kandir, 2020), *restrictive mediation general*, *restrictive mediation content specific*, (Nikken &

Jansz, 2014), *restrictive content mediation* (Sonck et al., 2013), *parental restrictions* (Livingstone et al., 2017), *control/restriction* (Ergin & Kapçı, 2019), *access restrictions* (Symons et al., 2017b, 2017a), *interaction restrictions* (Sonck et al., 2013; Symons et al., 2017a, 2017b), *gatekeeping* (Jiow et al., 2017), and *restrictive mediation and monitoring* (Glatz et al., 2018). Sometimes, parents tend to be unpredictable, unstable, and inconsistent in establishing rules about screen media use (e.g., the child knows that in theory he/she is not allowed to play a certain video game, but in practice, he/she will still be able to play it undisturbed). This type of mediation is called *inconsistent restrictive mediation* (Valkenburg et al., 2013). This category also covers strategies such as using technical filters, apps, and software (e.g., parental control) to manage access to certain content, websites or applications and limiting time on certain devices (Modecki et al., 2022). These kind of strategies are defined by various studies as *technical restrictions* (Livingstone & Helsper, 2008), *technical mediation of the child's Internet use* (Livingstone et al., 2010), *technical monitoring* (Smahel et al., 2020), *gatekeeping* (Jiow et al., 2017), *restrictive mediation and monitoring* (Glatz et al., 2018), *restrictive technical mediation* (Sonck et al., 2013), *technical mediation* (Symons et al., 2017a), and *technical controls* (Livingstone et al., 2017).

The category includes ‘*active or enabling mediation strategies*’, which rely on a two-way discussion between parents and children, and on viewing the child as an online agent in both online risks and opportunities (Kuldass et al., 2021; Modecki et al., 2022). Parents can take the initiative to communicate with the child by explaining the potential risks of screen-based media and the Internet and helping the child to solve any problems or difficulties that may arise while using the devices. However, modern screen media allow children to play a more active role in creating content and acquiring

new knowledge. For this reason, parents' mediation strategies are aimed not only at discussing and explaining how to avoid online risks and use the Internet safely but also at using screen media in a positive way, improving their digital skills, and accessing new opportunities. Therefore, the attention to the new possibilities offered by the use of screen media has led to a change in the conceptualization of parental mediation, which is now understood not only as a set of strategies aimed at reducing risks but also at maximising opportunities (Livingstone et al., 2017). This type of strategy has been defined as *active mediation* (Nikken & Jansz, 2014; Glatz et al., 2018; Ergin & Kapçi, 2019; Ho et al., 2020), *active safety mediation* (Sonk et al., 2013), *interpretative mediation* (Symons et al., 2017a), *active mediation of Internet safety*, *active mediation of Internet use* (Dürager & Sonck, 2014; Livingstone et al., 2017), and *enabling mediation* (Livingstone et al., 2017). Emphasizing the active role of children means, first and foremost, acknowledging their ability to take the initiative to communicate with their parents. This can occur when children choose to involve parents in their online activities, seek parental guidance to improve their digital skills or ask for support to manage difficult situations. In this context, the parent-child relationships becomes less authoritarian and more collaborative, so learning and meaning-making in the digital world emerge through a reciprocal and dynamic exchange of experiences. Parents do not simply offer advice, but actively encourage and promote open conversations, recognizing that they have much to learn from their children (Clark, 2011; Livingstone et al., 2017; Kuldass et al., 2021). These strategies are referred to in some studies as *participatory learning* (Clark, 2011) and *child-initiated support* (Livingstone et al., 2017).

The third category of parental mediation strategies includes ‘*monitoring*’, which involves controlling children’s screen media activities through both technological and non-technological means (e.g., checking text messages and social media profiles, and installing software on the child’s device). These strategies refer only to control without gaining in-depth knowledge of the activities (Modecki et al., 2022; Livingstone & Helsper, 2008; Dedkova & Smahel, 2020). However, the conceptualisation of monitoring is often contradictory, as it is not clear whether it should be classified as restrictive or not (Kuldas et al., 2021). Studies define this type of strategy as parental *monitoring* (Livingstone & Helsper, 2008; Livingstone et al., 2017; Symons et al., 2017a; Ergin & Kapçi, 2019) or *non-intrusive inspection* (Ho et al., 2020).

Finally, other types of strategies include ‘*supervision*’ and ‘*co-use*’ mediation (also known as *co-viewing*). Supervision involves staying close or nearby (e.g., in the same room) to the child while they are using screen media. This type of strategy is referred to in the literature as *supervision* (Nikken & Jansz, 2014) or *mediation through proximity* (Glatz et al., 2018). On the other hand, co-use involves the parent doing the same activity as the child by actively participating in it (e.g., playing video games, watching videos together, etc.) and is defined in studies as *co-use* (Nikken & Jansz, 2014) or *active co-use* (Livingstone & Helsper, 2008). However, in some studies, supervision and co-use are treated as a single construct rather than distinguishing them as separate concepts, referring to it as *supervision and co-use* (Symons et al., 2017a).

1.5.2 Differences between Parental Mediation and Parental Monitoring

In the literature on parental mediation, ‘monitoring’ has often been included among the different strategies that constitute the construct of parental mediation (Livingstone et al., 2010; Dedkova & Smahel, 2020). This strategy allows parents to know what their children are doing when surfing online, by controlling their activities on the devices and browsing history, or by requesting information directly from the child (Livingstone & and Helsper, 2008; Dedkova & Smahel, 2020). However, the construct of ‘parent mediation’, which includes the monitoring strategy, seems to be very similar to that of ‘parental monitoring’ introduced in the 2000s by Stattin and Kerr (2000). Therefore, in order to avoid overlap between the two constructs and generate confusion, it is necessary to clarify the boundaries and differences between them.

Parental monitoring has been defined as a set of parental behaviours aimed at paying attention to and tracking children’s activities (e.g., where children go, their friendships, etc.) (Dishion & McMahon, 1998). More specifically, it is an umbrella term that encompasses different parental practices (Dishion & McMahon, 1998), namely: parental solicitation, where parents spend time actively soliciting their child to talk about what he or she is doing outside the home environment (e.g., at school, with friends, etc.) (Stattin & Kerr, 2000); parental control, where parents control and supervise the child’s activities through rules by adopting a more asymmetrical relationship (Stattin & Kerr, 2000); and parental knowledge, which represents the result that parents achieve through parental solicitation and parental control (Lionetti et al., 2018). Stattin & Kerr (2000) proposed a reinterpretation of the construct of parental monitoring, distinguishing between parental knowledge (the outcome) and the methods (the process) by which parents can acquire this knowledge. Such methods

include not only parental solicitation and control, but also child disclosure, or the willingness of children themselves to reveal information to their parents. Therefore, in this new perspective on parental monitoring, it is necessary to take into account not only the active role of parents but also that of children in enabling parents to gain knowledge about their children's activities (Miranda et al., 2013).

According to Stattin and Kerr (2000), 'parental monitoring' should not be confused with 'parental knowledge', which refers to the extent to which parents are aware of their children's activities. Parental knowledge is one of the key dimensions of parental monitoring, alongside parental control, parental solicitation, and child disclosure. Thus, parental knowledge represents the outcome, while parental control, parental solicitation, and child disclosure represent the process through which the parent acquires this knowledge. In other words, parental monitoring represents the parental knowledge of their children's activities, which is achieved through different methods: the child voluntarily revealing information, the parent controlling access to information, and the parent soliciting the child to share information about their activities outside the home (Miranda et al., 2013).

To date, the literature has not clarified the boundaries between the constructs of parental mediation and parental monitoring. According to Bleakley et al. 2016, parental mediation is mainly distinguished from parental monitoring because the former refers specifically to web-mediated activities, whereas the latter refers to all behaviours regardless of the digital context. However, the reinterpretation of the parental monitoring construct proposed by Stattin and Kerr (2000) has introduced a significant change in the conceptualisation of parental practices aimed at monitoring and controlling children's activities, especially by including children's disclosure

among the constitutive processes of parental monitoring. This change has shifted the focus from the exclusively active role of parents to a more dynamic conception of the parent-child relationship, in which children also actively participate in the monitoring process (Sameroff & Mackenzie, 2003; Miranda et al., 2013). This new conception of parent-child relationship dynamics has likely also influenced the theory of parental mediation in the digital age. Indeed, recent studies on parental mediation have increasingly recognised the importance of children's active role in mediating and regulating the use of screen media (Clark, 2011; Livingstone et al., 2017). This implies that children do not passively accept the rules set by their parents but instead see themselves as active participants in the mediation process and, therefore, take the initiative to discuss any online issues with their parents.

1.5.3 Assessing PMS: limitations and issues of existing scales

As stated by Kuldass et al. (2021), there is still no unanimous consensus in the literature on a common model of parental mediation adapted to screen media and Internet use, nor on the specific strategies it should include. As a result, over the years there has been a proliferation of various labels to refer to parental mediation strategies and measurement tools designed to assess them. This proliferation of different labels and instruments stems from several problems associated with the existing scales in the literature for measuring parental mediation, which have been thoroughly examined in a recent literature review by Kuldass et al. (2021)¹.

¹ For a reference to the ten parental mediation scales reviewed by Kuldass et al. (2021), see: Livingstone & Helsper, 2008; Sonck et al., 2013; Dürager & Sonck, 2014; Nikken & Jansz, 2014; Symons et al., 2017a; Symons et al., 2017b; Livingstone et al., 2017; Australian Office of the eSafety Commissioner, 2018; Glatz et al., 2018; Ergin & Kapçi, 2019.

One major issue is the lack of content validity in many of the currently existing scales, meaning that the items used do not adequately represent the theoretical construct they are intended to measure. For example, Kuldass et al. (2021) noted that the item '*Parents talk to their children about online risks*' is used simultaneously to measure both 'active mediation' in one study (Glatz et al., 2018) and 'open parenting style' in another (Australian Office of the eSafety Commissioner, 2018). Similarly, the item '*Parents check their children's personal messages by logging into their email or Facebook accounts*' represents 'active tracking' in one study (Symons et al., 2017a) and 'restrictive mediation' in another (Glatz et al., 2018). In these cases, the use of different terms to refer to the same content may indicate a lack of content validity, as the underlying definition of the different strategies that constitute the construct of parental mediation is imprecise or inconsistent. In addition, Kuldass et al. (2021) pointed out inconsistencies and contradictions not only in the content of scale factors but also in the number of items within each factor. Although at least three items are required to adequately represent a single factor (Costello & Osborne, 2005), some studies use only two items to measure interpretive mediation, technical mediation (Symons et al., 2017a), and active mediation (Glatz et al., 2018). Another issue of some existing scales is that the items rely on binary (yes/no) response formats rather than ordinal ones (e.g. multi-point Likert scales), which may contribute to an underestimation of the number of factors in exploratory factor analysis (EFA) (Kuldass et al., 2021). Moreover, as Kuldass et al. (2021) pointed out, many scales primarily use Principal Component Analysis (PCA) as a method of item reduction. However, unlike EFA, which is a statistical technique used to identify latent factors, PCA carries the risk of overestimating the number of dimensions in a scale (Kuldass et al., 2021;

Costello & Osborne, 2005). In addition, some studies may have conducted PCA and confirmatory factor analysis (CFA) on the same sample, which is another issue potentially leading to inconsistencies in factor solutions and that statistical literature suggests should be avoided (Kuldas et al., 2021; Costello & Osborne, 2005). Finally, the absence of an explanation of how the items were generated (e.g., through qualitative studies, expert reviews, or interviews with the target population) is another key factor contributing to the lack of content validity in these scales (Kuldas et al., 2021).

The ambiguous results regarding the factor structure of parental mediation scales could be due not only to problems with item generation, content validity, number of items per factor, and statistical methods of data analysis but also to the characteristics of the samples involved in each study (Kuldas et al., 2021). In fact, according to Kuldas et al. (2021), parental mediation models could differ and change across studies also depending on the age of the children, whether the self-report instruments are completed by parents or children, or even the country of residence.

In light of the above-mentioned issues, the ultimate aim of the review by Kuldas et al. (2021) has been to contribute to the content validity of parental mediation strategies and thus outline a more comprehensive and coherent model of parental mediation, which however needs to be tested in future studies. To this end, the authors provided a full list of all the items of the 10 scales which have been reviewed by 8 researchers in the parental mediation field. The researchers were asked to indicate their level of agreement about the extent to which each item or group of items represented a particular parental mediation strategy. Based on the analysis of the expert classifications, three main parental mediation strategies emerged, namely *restrictive*,

enabling, and *observant* mediation. Restrictive mediation was divided into three sub-dimensions, namely *rule-setting restriction*, which involves setting rules for Internet and screen media use, *technical restriction*, which involves using filters to limit and block access to certain content, applications, and devices, and *monitoring restriction*, which consists in checking children's device activity. Enabling mediation was further divided into two sub-dimensions, namely *parent-initiated enabling*, which implies that parents take the initiative to communicate and explain the positive and risky aspects of the Internet and devices, and enable children to actively manage online safety and risks, and *child-initiated enabling*, which implies that children take the initiative to communicate and ask parents for help when facing problems online. Finally, observant mediation involves the parent intermittently observing both the child's screen use behavior and the child's screen activity.

Overall, it is important to address the issues in the conceptualization, operationalization, and measurement of the parental mediation construct in future studies, as they may contribute to the conflicting findings on the effectiveness of different parental mediation strategies in influencing problematic screen media use and other risky behaviors (Collier et al., 2016; Nielsen et al., 2019b; Fam et al., 2023).

1.6 Factors influencing Parental Mediation Strategies

Several studies in the literature have tried to explore the impact of parental mediation on various risky behaviours associated with children and adolescents' screen media use (Collier et al., 2016; Nielsen et al., 2019; Fam et al., 2023). However, these studies have often shown conflicting findings regarding the effectiveness of specific parental mediation strategies in reducing or increasing problematic screen media use and other online risks. These conflicting results are likely due not only to issues with measurement scales and content validity but also to the impact of broader family and cultural factors on the effectiveness of parental mediation.

1.6.1 The role of parent and child characteristics and their relationship in influencing Parental Mediation

Regarding the variables that influence active mediation strategies, a supportive parenting style was found to significantly moderate the effect of active parental mediation on Internet use, thus, active mediation was associated with less Internet use by adolescents if they perceived a supportive parenting style (Ren & Zhu, 2022). In addition, having a responsive parenting style and spending more time on shared activities with the child were also positively associated with the use of active mediation by the parent (Shin & Li, 2017; Wang, Lwin, et al., 2023). The tendency to engage in more active mediation can also be influenced by parents' attitudes towards technology, their digital skills, and the extent to which they feel they can influence their children's screen media use. In fact, parents' positive attitudes towards media (Nikken & Schols, 2015; Wang, Lwin, et al., 2023), engagement in a wider range of digital technology activities (Shin & Li, 2017), higher digital skills (Dedkova & Smahel, 2020; Iqbal et

al., 2021), and perception of themselves as important influencers of their children's screen media use (Shin & Li, 2017) were all associated with greater use of active mediation strategies. Parents' perceptions of online risks and their children's addiction to screen media also have an important influence on active mediation. For example, parents who are more concerned about online risks reported more active mediation during the lockdown than before (Sciacca et al., 2022). In addition, parents who perceive their children's online risks to be serious (Iqbal et al., 2021), who believe their children are addicted to social media (Rudnova et al., 2023), and who believe that smartphone addiction can have serious consequences (Hwang & Jeong, 2015) engaged in more active mediation. In terms of parental characteristics, parents with higher self-efficacy (Hwang et al., 2017) and personality traits such as openness to experience and agreeableness were more prone to use active mediation (Hwang & Jeong, 2015). Regarding the influence of individual child characteristics, parents were more likely to engage in more active mediation when they perceive their children as having high self-esteem (Iqbal et al., 2021) and being happy (Rudnova et al., 2023). On the other hand, some factors reduced the tendency of parents to use active mediation. For example, parents who had more confidence in their children's ability to protect themselves online (Iqbal et al., 2021), parents whose children spent more time with screen media and social networks (Rudnova et al., 2023), and parents who were addicted to their smartphones were less likely to use active mediation (Hwang & Jeong, 2015).

Research showed that parents' perception of their children's relationship with digital media, along with their attitudes towards the Internet and digital devices, significantly influenced their decision to adopt more restrictive mediation. In

particular, having children who spent more time online, on social networks and digital media was associated with greater use of restrictive mediation (Sciacca et al., 2022; Rudnova et al., 2023). High levels of children's Internet addiction, compared to no addiction, were significant predictors of restrictive mediation (Iqbal et al., 2021). However, this finding contrasts with another study that found social media addiction to be a negative predictor of parental restrictive mediation (Rudnova et al., 2023). Furthermore, parents who perceive that media can have negative effects, have more negative attitudes towards technology (Wang, Lwin, et al., 2023), express greater worries about its use and have lower digital skills (Sciacca et al., 2022) were more prone to adopt restrictive and technical mediation to regulate their children's screen media use. Moreover, greater involvement in different technological activities, which means that the parent has greater knowledge of digital technology, was found to be a significant predictor of restrictive mediation (Shin & Li, 2017). Some individual characteristics of parents may also influence their likelihood of adopting restrictive mediation. For example, the personality trait of conscientiousness was a marginally significant predictor of restrictive mediation, while neuroticism was a strong positive predictor, which could mean that parents who are more emotionally unstable and easily distressed were more likely to engage in restrictive mediation (Hwang & Jeong, 2015). Furthermore, agreeableness was a positive predictor of both restrictive and active mediation (Hwang & Jeong, 2015). As noted by Hwang & Jeong (2015), this could be because individuals who exhibit higher levels of agreeableness were more likely to provide both warmth (associated with active mediation) and protection (associated with restrictive mediation) in their parenting. Finally, in terms of parent-child relationships, parenting style, responsive parenting style was a significant predictor of

restrictive mediation, whereas parental involvement in children's activities was not (Shin & Li, 2017).

Concerning parental monitoring, some studies showed that this mediation strategy was positively predicted by greater parental involvement in shared activities with children, as spending time together may make it easier for parents to observe what the child is doing on digital devices (Shin & Li, 2017). Furthermore, parents were more likely to use monitoring if their children had a higher level of Internet addiction and if the parents had good digital skills, could use several digital devices, felt confident about their children's response-efficacy to online risks, and attributed a high level of self-esteem to their children (Iqbal et al., 2021; Shin & Li, 2017).

Finally, some studies focused on the role of some demographic variables (e.g., child gender, income level, parental education level) in predicting specific parental mediation strategies, but the results are more mixed. This can be explained by previous research (Sonck et al., 2013; Valkenburg et al., 1999; Warren et al., 2002), which indicated that factors such as parents' perceptions of media use, parent-child relationship, parenting style, and children's emotional traits were more influential on parental mediation strategies than demographic variables (Shin & Li, 2017; Beyens et al., 2019; Beyens & Valkenburg, 2019).

1.6.2 The role of child's age in influencing Parental Mediation

Several studies have shown that parents adapt the use of parental mediation according to the age of their child. This means that the different strategies that parents use may also have different effects on their children's media use depending on the child's age (Chen & Shi, 2019; Suárez-Álvarez et al., 2022; Fam et al., 2023). It has

been found that parents of younger children tend to use more parental mediation as compared with parents of adolescents (Dedkova & Smahel, 2020). Specifically, the longitudinal study by Beyens et al. (2019) examined the developmental trajectory of parental mediation across early and middle childhood and showed that parental mediation follows a curvilinear trend over time, where parental mediation starts to increase in early childhood (between 3 and 6 years), reaches a peak in middle childhood (between 7 and 9 years), and then gradually decrease. This study observed that parents are likely to adjust their use of parental mediation according to the developmental stage of the child and the child's different relationship with technology. Specifically, according to Beyens et al. (2019), parents tend to increase parental mediation from early to middle childhood because they realise that children are increasingly attracted to violent and action content. Therefore, parents are concerned that such content may trigger fear and aggression in their children, especially as they are aware that younger children find it harder to separate reality from fantasy in media content. At the same time, parents acknowledge the educational potential of screen media. As a result, they are increasingly motivated to engage in active mediation during this development stage to promote the positive benefits of screen media use and reduce exposure to risky content. The decline in parental mediation that begins around the end of middle childhood suggests that parents gradually begin to see their children as more able to manage and identify the risks and opportunities of screen media, less vulnerable to the negative effects of screen media, and more in need of autonomy from parental influence as they approach adolescence.

Finally, several studies showed that parents tend to use less restrictive mediation and more discussion and confrontation with active mediation as their

children grow up (Iqbal et al., 2021; Sciacca et al., 2022; Rudnova et al., 2023; Wang, Lwin, et al., 2023). During the transition from childhood to adolescence, parents recognise that adolescents need more independence and personal autonomy than younger children. As parental mediation is often perceived as an intrusion into personal autonomy (Sasson & Mesch, 2014), restrictive mediation strategies may further discourage adolescents from sharing negative experiences with parents. Therefore, mediation through dialogue and mutual discussion, rather than by imposition of rigid and restrictive rules, may be more appropriate in adolescence.

1.6.3 The role of cultural context in influencing Parental Mediation

The effectiveness of parental mediation strategies in protecting children from media-related risks may also depend on the cultural context, as parents may be more likely to use parental mediation in general, and certain mediation strategies over others, based on their parenting culture and value orientations (Kirwil, 2009). First, research indicated notable differences in parental mediation practices between Eastern and Western cultures. Specifically, it has been seen that Chinese adolescents experience higher levels of parental mediation than Americans (Wright, 2015). Regarding the specific type of parental mediation strategy that parents prefer to adopt based on their cultural background, a recent study conducted in 12 European countries showed that parents increasingly prefer to adopt less technical and restrictive mediation and more active mediation, especially with adolescents, as it promotes more communication and dialogue opportunities (Kalmus et al., 2022). Other studies have focused on how the effectiveness of specific parental mediation strategies may vary in different cultural contexts. For example, active mediation appears to be more effective in reducing

media-related risks in Eastern countries than in Western countries (Chen & Shi, 2019). In line with this, another study has shown that cultural context moderates the relationship between parents' negative attitudes toward media and active mediation, meaning that the effect of parents' negative attitudes on active mediation varies across countries (Wang, Lwin, et al., 2023). Specifically, In Western countries, such as the United States and Europe, parents who have negative attitudes toward the media often adopt an active mediation approach. This means that they tend to explain and discuss media content with their children rather than impose strict rules. As noted by Wang, Lwin, et al. (2023), this may be because parenting strategies are influenced by cultural value orientations (Kirwil, 2009). In individualistic cultures such as the United States and Europe, parents prefer dialogue and discussion with their children. In contrast, in many Asian cultures, the relationship is often reversed, so parents who have negative attitudes toward the media may engage less in active mediation with their children (Wang, Lwin, et al., 2023). While active mediation varies according to the culture of the country, restrictive mediation seems to be used similarly in all countries, with no significant differences between Western and Eastern countries (Wang, Lwin, et al., 2023). These findings highlight the need to consider the influence of cultural context when investigating factors that may predict parents' use of specific parental mediation strategies. Consequently, the conflicting results found in the literature regarding the effectiveness of parental mediation against some problematic behaviors may be likely due to the failure to consider the role of cultural differences in parental mediation strategies.

1.7 The impact of Parental Mediation Strategies on children and adolescents' PMU and risky media-related behaviors

Several literature reviews and meta-analyses have examined the impact of parental mediation strategies on media-related behaviours in children and adolescents.

Active mediation was found to have no significant impact on the amount of time children spent using media (Collier et al., 2016). However, some studies indicated that active mediation can be associated with lower levels of problematic media use (Fam et al., 2023), although there are conflicting findings. Indeed, Fam et al. (2023) found that active mediation had a protective effect towards problematic media use, but this effect was observed only among children. Conversely, Nielsen et al. (2019) found that active mediation also reduced problematic Internet use among adolescents. Despite this, Nielsen et al. (2019) noted that while active mediation was effective in reducing problematic Internet use, it did not significantly affect problematic gaming. Moreover, beyond problematic media use, active mediation helps to reduce other media-related risks, including exposure to cyberbullying (Rega et al., 2022), harmful content and negative online interactions (Chen & Shi, 2019), and adverse effects of media on aggression, substance use, and sexual outcomes (Collier et al., 2016). Furthermore, while it has a positive impact on children's attitudes and beliefs about privacy protection, its effectiveness in preventing the disclosure of private and personal information online remains more uncertain (Lo Cricchio et al., 2022).

Although restrictive mediation is quite effective in reducing children's media time (Collier et al., 2016), findings regarding its impact on children and adolescents' problematic media use (Nielsen et al., 2019) and cyberbullying (Rega et al., 20-22) are mixed. Some studies suggest that restrictive mediation may increase media addiction

(Collier et al., 2016; Chen & Shi, 2019). However, it has been shown to reduce risks associated with television and Internet use, as well as contact and content-related risks, negative sexual outcomes (e.g., early sexual activity, unwanted pregnancy, etc.) (Collier et al., 2016; Chen & Shi, 2019), and children's tendency to reveal private and personal information online (Lo Cricchio et al., 2022). However, it does not seem to impact harms related to video games (Chen & Shi, 2019) or influence children's attitudes and beliefs about privacy protection (Lo Cricchio et al., 2022).

Although Nielsen et al. (2019) found that the role of co-viewing in problematic Internet use or gaming was unclear, Fam et al. (2023) reported that greater use of co-use mediation was associated with higher levels of problematic media use. It is possible that in some circumstances co-use may be misinterpreted by children as parental encouragement to use more media (Fam et al., 2023). While some studies have shown that co-viewing is more effective than restrictive mediation in reducing the occurrence of media-related risks (Chen & Shi, 2019), other findings suggest that it may contribute to increased media time and aggression, perhaps because parents' mere presence sends an implicit message of approval of these behaviours (Collier et al., 2016).

Overall, research indicates that active mediation seems to provide a more consistent protective effect on problematic and risky behaviours than other parental strategies. In contrast, regarding the role of restrictive and co-viewing mediation strategies, studies often show more contrasting results. These discrepancies regarding the effectiveness of different parental mediation strategies may be attributed to various factors, including the specific type of risky or problematic behaviour, the child's age,

and other variables that may influence how parents apply these mediation strategies (Nielsen et al., 2019; Chen & Shi, 2019; Rega et al., 2022; Fam et al., 2023).

1.8 The aim of the present research

Problematic screen media use (PMU) in children and pre-adolescents, as well as the number of studies investigating the phenomenon during childhood and early adolescence, has increased significantly in recent years, especially following the Covid-19 pandemic (Rega et al., 2023). In Italy, however, there are still few studies investigating how excessive and problematic use of screen media may be associated with a worsening of children's mental health and psychosocial well-being. Some initial results have shown that greater media use is associated with a reduction in sleep duration in infants and toddlers (Chindamo et al., 2019; Bellagamba et al., 2021) and that, during the pandemic, greater problematic video game use among children aged 8-10 years was associated with an increase in state anxiety (De Pasquale et al., 2021). The paucity of studies on problematic media use in childhood in the Italian context is probably also related to the lack of valid measurement tools aimed at detecting this phenomenon in this age group (Rega et al., 2023). In fact, self-report measures specifically designed to understand the perspective of young children are still few, mainly aimed at detecting the symptoms of video game addiction (Donati et al., 2019) and rarely used (Rega et al., 2023). Furthermore, there are no assessment tools that take into account the parents' perspective on their children's PMU. In this regard, Domoff and colleagues (2019) developed and validated in the US context the Problematic Media Use Measure (PMUM), a scale that aims to measure children's PMU between the ages of 4 and 12 from parents' perspective. Therefore, the validation of this tool in the Italian context could contribute to a significant advancement of research studies in this field.

Undoubtedly, parents' perspectives are essential to understanding children's PMU, as they have better self-reflective skills to assess their children's behaviour (Domoff et al., 2019). However, there is evidence of low to moderate agreement between parents' and children's reports of children's media use (Poulain et al., 2020). Since parents' perceptions of their children's problematic and risky screen media use do not always align with children's own representations, future studies should integrate both perspectives. This integration can be achieved through qualitative analysis, which is particularly suited to capturing children's unexpressed thoughts and emotional experiences related to screen media use.

Recently, Domoff and colleagues (2020) proposed the Interactional Theory of Childhood Problematic Media Use (IT-CPU), a theoretical model which helps to identify the key factors involved in the aetiology and maintenance of children's problematic media use. This model highlights the key role played by parents and, more specifically, the strategies they employ to mediate and regulate their children's interaction with digital devices. The concept of 'Parental Mediation' was introduced in the literature as early as the 1980s to describe the interpersonal communication strategies parents use to maximise the opportunities and reduce the risks of screen media and Internet use (Valkenburg et al., 1999; Livingstone & Helsper, 2008; Clark, 2011). Regarding the relationship between different parental mediation strategies and children's problematic and risky behaviours, studies have shown conflicting results, as the effectiveness of specific strategies in reducing or increasing the risk of children being involved in such behaviours appears to depend on several factors (Collier et al., 2016; Chen & Shi, 2019; Lo Cricchio et al., 2022; Kuldass et al., 2021; Modecki et al., 2022; Fam et al., 2023). First, the effectiveness of different parental mediation

strategies may depend on the age of the child. During the transition from childhood to adolescence, restrictive mediation may be less effective than active mediation in reducing excessive screen media use (Chen & Shi, 2019; Suárez-Álvarez et al., 2022; Fam et al., 2023). Second, effectiveness may also vary depending on the specific media-related behaviour in question. For example, while restrictive mediation can reduce exposure to risky content and interactions, it may also increase PMU (Chen & Shi, 2019; Fam et al., 2023). Third, the effectiveness of parental mediation may also vary according to cultural context, as parents are more likely to adopt certain strategies aligned with their parenting culture (Kirwil, 2009). Fourth, conflicting results in research may also arise from issues related to how parental mediation is conceptualized, operationalized, and measured across studies, which have been extensively analysed and discussed in a recent literature review (Kuldas et al., 2021). Finally, the effectiveness of parental mediation strategies likely also depends on additional variables within the broader family context, such as parenting style (Ren & Zhu, 2022), parental digital literacy (Dedkova & Smahel, 2020; Livingstone, 2017; Griffith, 2023), and perceived risk (Hwang & Jeong, 2015). Therefore, as the conceptualization and effectiveness of specific parental mediation strategies may vary according to the context in which they are used, it is necessary to develop measurement scales that aim to overcome these methodological issues and that are culturally sensitive, i.e. suitable to capture the construct in a specific cultural context, such as the Italian one, in order to obtain more coherent and less contradictory results.

In light of this evidence, the general aim of the present research is twofold: first, to fill the gap in the literature by giving voice to children's perspectives on digital screen use, which has received limited attention so far, and second to define and test a

model of Parental Media Mediation that identifies the factors influencing parents' adoption of specific mediation strategies. To this end, four studies have been implemented.

The first study (Study 1) aims to explore children's representations of beneficial, risky, and problematic screen media use through a qualitative focus group methodology with children aged between 8 and 10 years. The qualitative analysis of focus group transcripts is a preliminary step towards the future development of a child-report measure that will assess screen media use from children's perspective across these three dimensions. Furthermore, the qualitative analysis of children's views on the parental mediation strategies typically employed to regulate screen media use can also contribute to the development of a parent-report scale for measuring parental mediation strategies in the Italian context. Specifically, Study 1 aims to investigate: (1) the main risks children perceive when using screen media and surfing the Internet, (2) the protective strategies children use when facing online risks, (3) children's conceptualization of problematic and addictive media use, (4) the main motivations and needs that guide children's media use.

The second study (Study 2) aims to validate within the Italian context the most widely used parent-report instrument for assessing PMU in children aged between 4 and 12 years, namely the Problematic Media Use Measure (PMUM) by Domoff et al. (2019).

The aim of the third study (Study 3) is to develop and validate a parent-report scale for measuring parental media mediation strategies specifically implemented in Italy, starting from the model recently proposed by Kuldass and colleagues (2021) and the results from Study 1. The aim of Study 3 is to fill the methodological limitations

in the parental mediation measurement scales currently most used in the literature and provide an assessment tool suitable for detecting this construct in the Italian context.

Finally, the aim of the fourth study (Study 4) is to hypothesise and test two models of factors influencing parental mediation strategies with structural equation modelling, using the measurement scales validated in Studies 2 and 3. Specifically, this study aims to assess the influence of various factors on parental mediation strategies, including parenting style, parental digital skills, parental risk perception, parental reflective function, parental perceptions of their child's emotional regulation skills, and parental perceptions of their child's PMU.

Chapter 2

Study 1.

Children's perspectives on screen media use:

A qualitative analysis

2.1. Introduction

The new digital landscape has led children to use screen media for increasingly longer periods of time and at an increasingly younger age (Kabali et al., 2015; Smahel et al., 2020; OFCOM, 2023). On the one hand, screen media and the Internet can help children improve their knowledge, build and maintain social relationships, enjoy playing and develop creativity, but on the other hand, they can also expose children to various risks and dangers (Holloway et al., 2013; Marsh et al., 2018; Stoilova et al., 2021). This new scenario also potentially changes the way children conceptualize 'risky', 'problematic', or 'positive' screen media use. Indeed, these concepts can be influenced and shaped not only by the cultural contexts and social groups to which children belong, including parents, teachers, and peers, but also by the digital environment in which children navigate daily (Mascheroni et al., 2014).

Recent studies exploring the phenomenon of younger children's media use were mainly based on parent-report measurement tools, which capture the parents' perspective (Domoff et al., 2019). Despite the growing importance given to children's own assessments of their screen media use, child-report measurement tools are still few and underused, and their perspectives remain underestimated (Donati et al., 2019;

Rega et al., 2023). Moreover, it has been shown that the level of agreement between parent and child reports can vary considerably depending on the problematic behaviour being assessed (Poulain et al., 2020). Specifically in the context of children's media use, studies have found low to moderate agreement between parent and child reports and perceptions (Poulain et al., 2020; Wood et al., 2019).

Therefore, it is important to first explore children's perceptions of their own screen media use. In this regard, qualitative research methods such as focus groups are particularly suitable for gaining a deeper understanding of children's perspectives (Sun et al., 2023). Indeed, focus groups guarantee children a safe and familiar environment where they feel able to express their thoughts and feelings through group discussions with peers (Gillett-Swan & Sargeant, 2018). Moreover, this approach highlights the active role of children as 'competent creators, interpreters and reporters of their experiences' (Gibson, 2012, p. 150).

Therefore, this study aims to explore children's perceptions of positive, risky and problematic media use through a qualitative focus group methodology. By exploring children's experiences and viewpoints, the findings of this study can improve our understanding of how children perceive screen media engagement. To this end, this study aims to identify (1) the main risks children perceive when using screen media and surfing the Internet, (2) the protective strategies children and parents use when facing online risks, (3) children's conceptualization of problematic and addictive media use, (4) the main motivations and needs that guide children's media use.

2.2. Methods

2.2.1. Participants and procedures

In total, 170 children between 8 and 10 years old from 3 primary schools in Southern Italy and attending the third, fourth and fifth grades participated in 17 focus groups. Each focus group was gender-balanced and composed of a maximum of 10 children. Both parents and school principals provided written informed consent after being informed of the aims and objectives of the study.

The data were collected using a qualitative focus group methodology, after obtaining approval from the Ethics Committee for Psychological Research of the University of Naples Federico II. Each focus group lasted a maximum of 50 minutes and was conducted by a psychologist assisted by a silent observer. The reflections shared by the children in the peer group were transcribed verbatim by the observer during direct observation. The children were asked a series of stimulus questions about their experiences with digital media, aimed at exploring the devices they prefer to use, the amount of time they spend with them each day, their perceptions of risks, opportunities and problematic use of the media, their perceptions of parental support, the digital skills they use to protect themselves from risks, and the motivations that drive them to use digital media. See Appendix A for the instructions and the complete list of questions used in the focus group with children.

2.2.2. Data analysis

The focus group transcripts were analyzed using the Latent Thematic Analysis (Braun & Clarke, 2006), a qualitative method that identifies, analyzes, and reports

themes emerging from qualitative data. This method includes six phases: 1) transcription and re-reading of data, 2) generation of initial codes containing specific meanings, 3) categorization of codes into potential themes and sub-themes, 4) review of themes and creation of a thematic ‘map’ of the analysis, 5) definition and naming of themes, and 6) producing a report of the analysis. This type of thematic analysis is defined as ‘latent’ because it involves interpretive work that aims to highlight meanings underlying the semantic and manifest content of the data. To improve the validity of the findings of this study, investigator triangulation was used, whereby two trained researchers independently coded the focus group transcripts, supervised by a coordinator who ensured the reliability of the coding procedure.

2.3. Results

The latent thematic analysis of children's representations regarding screen media use and online experiences revealed five main themes and fifteen sub-themes, as illustrated in the thematic map (see Figure 2.1). Five main themes emerged: 'ambivalence: pleasure and risk', 'coping strategies', 'parental mediation strategies', 'opportunities', and 'screen media addiction'. Collectively, these themes reflect children's perceptions of risks, opportunities, problematic use, and protection when interacting with screen media and online environments.

2.3.1. *Ambivalence: pleasure and risks*

The theme '*Ambivalence: pleasure and risks*' is characterized by three sub-themes: (i) 'Breach into the borderline', (ii) 'fear', and (iii) 'sensation seeking'. It reflects children's ambivalent representations and feelings regarding thrilling as well as risky and frightening online experiences.

i. Breach into the borderline

When children use devices and go online, they often feel a deep sense of vulnerability and helplessness since they are aware that they may be exposed to various risks and dangers due to their naivety. Children often fear being stalked, manipulated, or deceived by strangers who may suddenly appear and approach them, disrupt their games, or start inappropriate conversations. They are particularly concerned about 'hackers' - individuals they perceive as attempting to break into computer systems to

obtain personal information or make unwanted contact. The concern is heightened by the fact that dangerous online interactions occur with people they don't know in real life, which further increases their sense of vulnerability. Indeed, they are particularly worried about the blurred lines between the virtual and physical world. Specifically, they are anxious that dangerous online experiences and interactions might cross over into the real world, potentially leading to offline harassment or harm.

Once when I was little, I was playing Roblox... I was about 8 years old and playing on the tablet... so at first, I made lots of friends and I always accepted everyone... (...) this girl wrote to me 'Where do you live?'... I totally panic... because there are often rumours about this game that there are hackers, I don't know... this person here, who could see you, (...) comes, takes you and kidnaps you... that's what I heard... (Girl, 10 years old)

They stalked me... I get a notification that says 'Give me your number... Answer me!'... I start to panic, because I think someone wants to harm me... After half an hour he told me 'Now I'm coming to your house...'... I made a mistake because I didn't tell my parents... I locked the door of my room, turned off the lights, and tried to delete and block him, but it didn't work... I replied to him, but it was the worst choice... I told him that I was banning him, and he told me he knew the coordinates of my house, he told me the street where I live... So, I went to a bad website (I don't recommend it to you) to ban him... He told me 'Stay still!' and insulted me... I went into complete meltdown... (...) I went to a website where you put the person's name, the nickname, and I searched for him... and I found this person who was 20 years old, he was a stalker who was saying bad things... I kept this thing inside me for one year! (Boy, 9 years old)

ii. Fear

Children exposed to disturbing and frightening online content or dangerous online situations often struggle to manage the resulting distress and negative emotions. They reveal to be afraid of “challenges” when young people and children have fallen victim to deadly games on social media platforms, particularly TikTok. They are also distressed by the fantasy of being chased and potentially killed by horror characters in

real life. As a result, they may experience intense anxiety, specifically associated with a fear of death. In addition, various psychological and physiological symptoms can manifest, including anxiety, agitation, rapid heartbeat, nightmares, difficulty falling asleep, frequent crying, as well as feelings of disgust, shame, and helplessness.

...but there are more negative than positive sides (*when using digital devices and the Internet*)... negative because, for example, it can become dangerous... because, for example, many years ago a little girl was doing a challenge on TikTok and she put on a belt here (*she points to her neck*) and unfortunately she died... or it could also happen that someone posts a photo, and then people insult that person and then that person commits suicide... because that person can't take it anymore... because there are weak people... we don't know the people who write behind these devices... (Girl, 10 years old)

We both had the same trauma for three years... (...) ... but I say, couldn't the creator of TikTok make TikTok better?... (...) It's a bad thing that you go (*on TikTok*) and one day you're happy and the next day you have a trauma that stays with you for three years... because we had the same thing, me and her... because, I swear, I felt bad every night... (Girl, 9 years)

...once I was playing Granny (*a horror game*) at night, and I had hidden under the bed... then she was coming (*the horror character from the game*)... and I was agitated, I mean... I had an anxiety that was killing me... and I was pacing back and forth through the house... (Boy, 9 years old)

Children worry about conflicts, insults, and jokes that might be offensive or embarrassing, and fear horror games, videos, or films that are inappropriate for their age. Some children even develop a general fear of technology itself (mobile phones, social media, etc.), because they are aware of the numerous negative consequences it may lead to.

My brother was on the PlayStation and someone entered (*in the game*)... he didn't even send him a request, he just entered... and then this person started insulting him, and my brother disconnected... he said 'Who are you? I don't even know you!'... (Girl, 9 years old)

... that's why I'm afraid of having a mobile phone! (Boy, 9 years old)

...I'm also scared of social media... when new people come out... for example, they say there's a woman who dances, 'Serbian Dancing Lady'... with a knife in her hand and she runs at you... she's real! (Girl, 10 years old)

iii. *Sensation-seeking*

However, children's intense desire for new experiences and sensations often drives them to actively seek out risky, scary, and thrilling online content. This leads them to seek out forbidden content, such as horror movies and videos, and to engage in conversations with strangers. These potentially dangerous online activities may be carried out alone or with peers.

...because the (*horror*) game was nice... it was a bit creepy, but then you get used to always playing that game... (Boy, 9 years old)

...but, I mean, at that moment (*while he was playing Granny, a horror game*) I felt a nice sensation... (Boy, 9 years old)

...I watch the first part (*of the scary videos on TikTok*), then I scroll... but then I get curious and I watch it again... and I also get scared... (Girl, 10 years old)

... There were also other people and kids who were saying 'Don't go to see this thing (*on TikTok*)!'... but obviously, if they say that, you get curious... and then, well, you go and look at it... (Girl, 9 years old)

On Omegle, you talk to people, it's like a 'dating app', but it's not... you can either do a video call or message... once we already did a video call (*with a stranger*) - me, my cousin, and my brother... (...) then we hung up and video called another person (*stranger*)... I was saying "Don't do it! Don't do it!" but they were doing it anyway... (...) We've made various video calls. (Girl, 9 years old)

2.3.2. *Coping strategies*

The theme ‘coping strategies’ is characterized by three sub-themes, namely (i) ‘self-defence’, (ii) ‘seeking help from parents’, and (iii) ‘withdrawing and seeking refuge’, which highlight different protective and supportive strategies that children can implement when facing online risks.

i. Seeking help from parents

Parents are the main source of protection that children search when they feel threatened online, followed by older siblings. However, siblings do not always prove to be a reliable source of protection. They sometimes become more like ‘companions in risky adventures’ rather than a safeguard against dangers. Specifically, children feel the need to turn to others when confronted with a danger they don’t know how to handle which causes them significant distress. When children perceive danger, they usually seek practical support from their parents, who promptly help them block and report inappropriate content.

One time my cousin received a message from an unknown number asking him where he lived, and his name ... he showed it to his father and his father immediately blocked it and deleted the number... (Boy, 9 years old)

(*One time*) they hacked my PlayStation... They started sending me faces of ‘It’ (*horror character*) with sharp teeth... Then I turned off the PlayStation... My brother did everything possible to get rid of it, but he couldn’t... He deleted my account and created a new one for me... (Boy, 9 years old)

I watch (*horror*) movies with my sister who’s older than me, she’s 15 years old... When we watch movies that are a bit scary, I get under the covers and hold her tight because I’m afraid... (Girl, 9 years)

One time a stranger called me... he was saying certain things, now I don’t remember... I told mom and then we blocked him... (Boy, 9 years old)

If someone wants to hurt you, you've got nothing... You need an adult who knows how to defend themselves... (Girl, 8 years old)

ii. *'Self-defence' strategies*

However, for a variety of reasons, children frequently rely on self-defence strategies when confronted with online risks and attempt to solve problems on their own before seeking parental intervention.

Once in a game, it's called Roblox, someone contacted me and wrote 'Hi, do you want to play with me? Shall we play?'... so I blocked him and he sent me a friend request again... I blocked it... but every day he kept sending me friend requests... (Girl, 10 years old)

I exited the game and she was replying 'Are you there? Are you there?'... I exit the game, remove her and I don't enter that game anymore, and I remove her completely as a friend... because I was afraid she could track me down... (Girl, 10 years old)

First, while children acknowledge the need for parental protection, they also feel pressure to acquire independence in navigating the digital world, feeling that they must learn to manage online risks on their own as a preparation for the future. As a result, they have a great need to establish their autonomy and be perceived as capable. However, this tendency to rely on self-defence strategies can lead children to underestimate the potentially dangerous consequences of some online experiences.

...because if you go and tell dad (*that something wrong happened online*), you still feel like a baby... you also have to defend yourself alone, not always mom and dad... they won't be there for you your whole life... (Boy, 8 years old)

I don't tell them because they might say, 'You're too young, delete this app, I don't like it, you're too young'... (Girl, 8 years old)

We don't like the words 'You're still too young...'... That's why we defend ourselves on our own... (Boy, 8 years)

Second, children often believe they have advanced digital skills and know how to protect themselves, which strengthens their confidence in handling online problems on their own. These digital skills include the implementation of various self-defence strategies such as blocking, reporting, or removing dangerous contacts.

Once I was on Roblox, and a guy started asking me what my name was... so I immediately quit the game and uninstalled it... (Girl, 9 years old)

My strategy is if someone writes to me on WhatsApp, I reply 'Who is it?'... If I see it's a number I don't know, it doesn't seem bad to me to block it, even if I know (*the person who wrote to me*)... Then I report and block it... But if I get a call, I don't answer... (Girl, 8 years)

Third, many children avoid telling their parents about dangerous online experiences for fear of punishment or restrictions, even when they are not responsible for what happened. They fear that their parents might react by limiting or removing access to digital platforms, or taking their mobile phone away, thus disrupting important social connections with peers or opportunities to play certain games.

I'm a bit afraid to tell my parents... I'm scared to tell my parents because, if they (*strangers*) start contacting me and saying something, my parents might take away my phone... (Girl, 10 years old)

If they insult me, like saying I'm ugly, I tell mom first and she blocks them... But if it's a meaner insult, I block them first, then I wait at least a few months before I tell (*mom*)... Because that way it's something that's over and gone, therefore, mom and dad no longer intervene by forbidding me to use the mobile phone ... (Girl, 10 years old)

iii. Self-reassurance

Sometimes, risky online experiences can be so overwhelming and distressing that children often try to turn to defensive behaviors of self-soothing and self-reassurance, which serve as a means of finding protection and comfort on their own, calming their agitation, and alleviate their fears, without having to share them with an adult. Such behaviors may include resorting to more childish actions, such as hiding under blankets and hugging stuffed animals.

I try to disconnect from the Internet to think about something else... I take my mom's blanket because it has her scent... (Girl, 10 years old)

When I get scared I go to bed... I take my stuffed animal... then, I go to the couch and I'm calm... and I stay on call with my friends... (Boy, 10 years old)

When I get frightened, I prepare a protective barrier with stuffed animals and blankets... I take all my stuffed animals, I put them inside... and I try to sleep and have nice dreams... (Girl, 10 years old)

2.3.3. Parental mediation strategies

This theme is characterized by two sub-themes, which reflect children's perception of the various communication strategies parents employ to mediate and regulate their screen media use: (i) restrictive and technical mediation, and (ii) disengaged mediation.

i. Restrictive and technical mediation

Parents often adopt restrictive mediation strategies by establishing strict rules for their children to follow regarding screen media use, without providing constructive dialogue about it. Moreover, parents also employ technical software and parental control

applications to further restrict children's screen media use. Examples of restrictive strategies include limiting screen time, establishing clear rules about when devices can be used, and forbidding access to specific content, games, apps, and websites. When parents adopt these types of strategies, children generally perceive a limited ability to negotiate rules regarding their screen media usage. As a result, they fail to develop self-control and self-regulation concerning the time spent on devices or the content they access, because the control is delegated to either the app or the parent, rather than being internalized by the child. Moreover, this approach can further motivate children to ignore or circumvent rules, as they feel deprived of their autonomy without fully understanding the reasons behind these restrictions.

She (*the mother*) can also set the time (*of use*), (*after which*) the phone locks... I have to show the games to my mother, otherwise, she won't let me install them... my mother can know where my phone is... (Girl, 9 years old)

For me, it's dad who turns it (*the mobile phone*) off... With the application, he makes the whole screen go black and turns it off... He decides when to turn it off... After fifteen minutes, half an hour, he decides everything... (Boy, 9 years old)

Once I was playing... I had a game where you could send messages... I wasn't allowed to send messages, but I sent them anyway... but then my father caught me and deleted the video game... (Boy, 10 years)

ii. Disengaged mediation

This subtheme includes various parental mediation strategies, such as laissez-faire mediation, inconsistent mediation, and lack of supervision. These strategies suggest that parents are often minimally involved or completely uninvolved in mediating and monitoring their children's screen use. Some parents adopt a laissez-faire and permissive approach, probably due to an underestimation of the risks also related to

their limited digital skills. They allow their children to access a variety of home devices, such as TVs, tablets, game consoles and cell phones, that are not appropriate for their age, whenever and for how long they want, without any controls or established rules. This approach allows children to independently manage the amount of time spent on screens, the contents they see online, and the devices and apps they can use.

I use the phone practically every day and I don't have time limits... (Boy, 10 years old)

The TV is always on, it's not like there's a limited time... I'm the one who turns it off because I can't study when I'm doing homework... (Girl, 10 years old)

Once my father made me install a game that's for 18 years and older, when I was like 7 years old... my brother, who was 15-16 years old, found out about it.. my father said 'Relax, let him use it'... but my brother said 'Dad, this was the one that scared even me'... (Boy, 9 years old)

Sometimes inconsistent mediation can also emerge when parents fail to apply rules coherently. This results in a discrepancy between what parents say and what they do or allow their children to do. Such inconsistency can confuse children, as they know that rules expressed in theory can often be circumvented in practice. The inconsistent mediation may also be connected to a lack of agreement between parents regarding the rules to be established and the different opinions they have regarding what constitutes risk.

When I was 6 years old, I asked for GTA (*Grand Theft Auto*)... then dad bought it for me... then mom saw what game it was and she yelled at dad... (Boy, 9 years old)

2.3.4. Opportunities

This theme is characterized by three main sub-themes: (i) funny or creative screen media use, (ii) utilities: improving knowledge and social connections, and (iii) offline activities as alternatives to online. This theme reflects children's awareness of the opportunities offered by the online world, as well as the value of offline socialization and play.

i. Funny or creative screen media use

First, screen media and online activities provide a source of enjoyment and pleasure for children, offering a space for playing, having fun alone or with peers, and expressing their creativity through various digital platforms. Screen media is often seen as a way to take a break or reward oneself after completing duties, such as schoolwork, as well as a way to pass the time during free moments. Moreover, children view their devices as private spaces that require protection from external access. Therefore, children often use passwords to prevent others from accessing their devices and the personal content stored on them, ensuring their private digital space remains safe and controlled.

I have a PIN... the things I do (*with the device*) are personal... (Boy, 9 years old)

I like drawing... so I watch a lot of tutorials on how to draw, I see many kids who also correct others' drawings... (...) With the touch pen, I go to edit, and I start drawing things like that... (...) I even got my notebook, and I do drawings... and I say I'm pretty good too! (Boy, 9 years old)

I watch (*video*) with a lady who takes a colour to draw a princess... and then I do it too... (Girl, 9 years old)

I listen to songs... I listen to music and dance... (Girl, 9 years old)

ii. Utilities: improving knowledge and social connections

Furthermore, screen media and Internet access are extremely useful tools according to children, as they help them research, discover and learn new things. They know that digital screens can expand their knowledge on a wide range of topics. Furthermore, screen media also play an important role in communication, reducing distances between family members and peers by enabling real-time interactions via video calls, messaging apps and social media platforms. This long-distance connection helps maintaining existing relationships and create new ones by facilitating new friendships and allowing children to connect with others who share similar interests, thus overcoming barriers related to physical distance.

When I received a request for a game (*from a boy*), I also accepted, I talked to him... in fact, we're still friends now... we became friends and we're still playing... we even met, he lives close to me... (Boy, 9 years old)

There are games that teach you what happened in World War II, the Trojan Horse, all these things... about history... how soldiers were organized in Roman times... (Boy, 9 years old)

But for example, this week I have a swimming competition and I use it to search for videos to do better in the competition... (Boy, 9 years old)

I have WhatsApp to talk with my parents when I go out... (Boy, 9 years old)

On WhatsApp we have the class group... to send each other homework... (Boy, 9 years old)

Every time I go to the beach, I meet new friends... if they have a phone maybe I ask if we can exchange numbers so we can talk on the phone... (Girl, 9 years old)

As for me, I also use WhatsApp to message my friends... (Girl, 10 years old)

iii. Offline activities as alternatives to online

Children recognize that engaging in hobbies and interests serves as a valid alternative to online activities. This can significantly help mitigate excessive screen media use while also developing a variety of skills and interests. Specifically, they highlight the importance of traditional games and activities, such as drawing, reading, and dancing, which can foster creativity, independent thinking, and physical well-being. Furthermore, participating in outdoor activities and games with friends and family, like playing sports or simply spending time together, constitutes a healthy alternative to screen time, which not only alleviates the resulting tiredness and stress from prolonged use of screen media but also strengthens social bonds.

As for me, when I'm always on the phone, after a while I get bored... because it's annoying to always see the same things... since I play soccer, my brother and I start playing soccer... I mean, mom doesn't even have to tell me... I turn off the phone and I go play soccer... (Boy, 10 years old)

Sometimes I'm on it (*the mobile phone*), but sometimes I go out and don't think about it at all... I do dance, so I'm not on it that much... (Girl, 10 years old)

I don't like being with the phone at all, I prefer to play outdoor games... play soccer... (Boy, 10 years old)

Technology makes me angry too... so mom, to avoid making me angrier, says 'Go to grandma's for a bit...'... and so I go there to play for a while... (Boy, 8 years old)

2.3.5. *Addiction to screen media*

The theme of ‘addiction to screen media’ refers to how children represent and experience screen media addiction, and it is characterized by five subthemes: (i) excessive quantity, (ii) difficult disengaging, (iii) discomfort, (iv) the only source of gratification, and (v) refuge.

i. Excessive quantity

According to children, addiction is linked to the constant, pervasive, and prolonged use of screen media throughout the day and over time. Moreover, they often compare screen media addiction to drug addiction, recognizing that those who develop screen media addiction may experience symptoms similar to those of other addictions, such as gambling, cocaine, or tobacco.

When you use it once (*the device*), then you use it more and more... like a video game on the phone, then it's like you always get into the habit... it's like when adults smoke cigarettes, you always want to smoke more... as if you couldn't detach yourself from the phone anymore... (Girl, 8 years old)

In my opinion, it's like a gambling addiction... you always use it (*the device*)... you always want to do that thing... (Boy, 8 years old)

ii. Difficulty disengaging

Many children report feeling unable to disconnect from or stop activities such as online gaming or other screen-related activities, because of the exciting and rewarding experience, even when they recognize the potential dangers associated with it (e.g. when this activity causes them discomfort or distress).

Once, around 2020, I got inside my aunt's wardrobe and started watching 'It', the horror movie, and I didn't sleep for 8 months... after 8 months, when I was in bed, I started watching it again... I saw it again, and I didn't sleep for another year... and then I threw the phone away... (Boy, 9 years old)

It's like you can't detach yourself from the mobile phone anymore... (Girl, 10 years old)

(After being contacted by a stranger in a game) I deleted the game... *(my parents)* told me 'Next time don't answer anymore!'... but then I reinstalled it again... (Boy, 9 years old)

I was playing GTA, my mom said we had to go out... I was almost finishing it and I got angry... (Boy, 9 years old)

(When a stranger contacts me) I delete the game... and after a month or a week I download it again... (Boy, 8 years old)

iii. Discomfort

Children understand that screen media addiction is characterized by excessive use that leads to significant psychological and physical discomfort. This discomfort can be triggered by various factors, such as feeling angry and frustrated when unable to achieve video game goals, conflicts with parents who disapprove excessive screen media use, and worsening quality of sleep and sight.

One year ago, when I spent too much time with the phone in my hand, then when I put it down I had breakdowns... I got angry... when I lost my temper, I threw whatever I had in front of me against someone... (Boy, 8 years old)

If I use the phone until late, if I fall asleep late, then in the morning I don't wake up because of the phone... (Girl, 10 years old)

iv. *The only source of gratification*

When screen media addiction develops, children are aware that the device becomes the only source of pleasure and gratification for the child. Consequently, there is a tendency to increasingly prefer online experiences and activities over offline ones, which can result in losing interest in offline relationships, school activities, and other hobbies.

(Addiction is when) you can't stay without looking at something on the phone... you can't have fun without it... by now it has become your only game... (Girl, 9 years old)

Sometimes video games can be used all the time... I mean, you don't think about anything anymore... not even about studying anything... (Boy, 8 years old)

v. *Refuge*

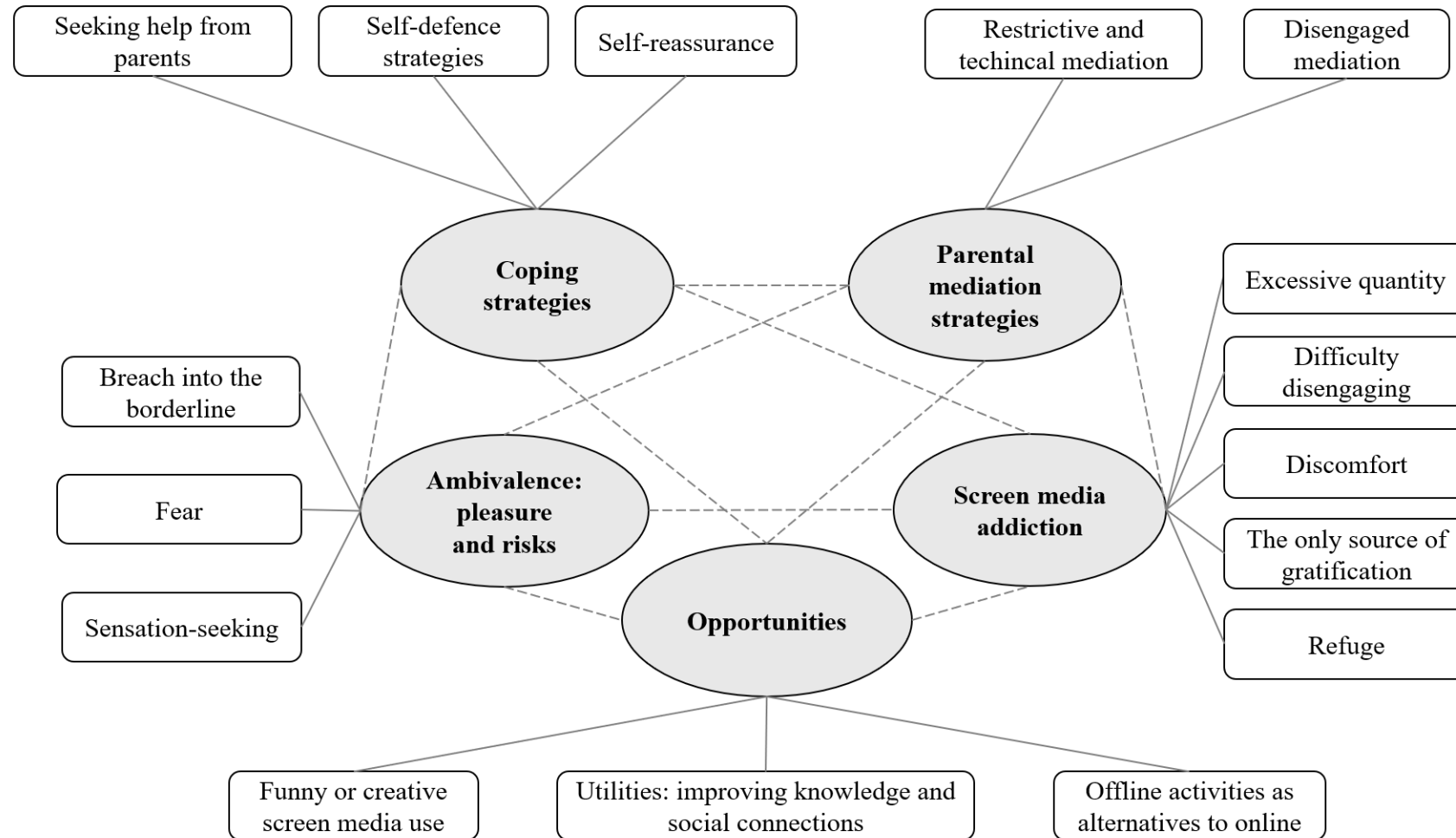
Finally, children identify a risk for developing addiction to screen media when the digital device is used as a refuge to help them alleviate and cope with fears and negative emotions.

(When) you go into the phone and forget everything... (Boy, 8 years old)

(You forget) everything... and you don't think about anything... (Girl, 8 years old)

If someone scolds you, you don't think about it... you say 'I'm playing!' and you forget about it... (Boy, 8 years old)

Figure 2.1. Thematic map of latent thematic analysis



2.4. Discussion

The present study aimed to investigate children's perspective on screen media use, capturing representations and feelings related to their online experiences via screen media, through the application of qualitative data collection and analysis. Specifically, the objective of this study was to explore children's views on the potential risks they may encounter when using screen media and navigating the digital environment, the strategies they can employ to defend against online risks, and the concept of screen media addiction.

2.4.1. *What main risks do children perceive when using screen media and navigating the Internet?*

Children seem concerned about their vulnerability while using screen media and the Internet, probably due to the numerous risks and dangers they are already exposed to or have heard about. Specifically, according to previous studies, children fear being contacted, manipulated, and deceived by strangers, becoming victims of hacker attacks, getting involved in conflicts and receiving insults (Livingstone et al., 2014; Mascheroni et al., 2014). Interestingly, current findings show that blurred boundaries between online and offline lead children to fear that dangerous and distressing online experiences may break into the external reality (e.g., being contacted by strangers, and fearing that they may be haunted in their everyday life). The border line between the virtual and external world risks becoming thin and confusing, especially for vulnerable young children, who often linger in overlapping fantasy and reality. These fears of break-in are referred as deeply frightening and are often associated with anguish of death, psychological and physical symptoms such as severe

agitation, rapid heartbeat, sleeping difficulties, and feelings of disgust and shame, thus demonstrating the potentially significant emotional impact that distressing online encounters may have on children's mental health (Coyne et al., 2024; Domoff et al., 2019). Moreover, children usually lack a mature and autonomous emotional regulation system, therefore, strong negative emotions related to such distressing experiences may overwhelm them (Zeman et al., 2006). At the same time, the difficulty in disengaging from screens due to the well-known youngest' proneness towards sensation-seeking (Pérez de Albéniz Garrote et al., 2021) raises concern, especially when these risky and thrilling online activities are boosted by comparison and reinforcement between peers. Specifically, current concern also refers to the fear of being involved in highly provocative although dangerous online "challenges" particularly on social media platforms such as TikTok, which can lead to serious life-threatening risks. In this regard, the emergence of new digital technologies and related activities increasingly show the association with the development of new threats, risks, and anxieties among children.

Collectively, these findings appear to align with and support the IT-CPU model (Domoff et al., 2020), according to which poor self-regulation skills, peer influence in online activities, and the design of certain virtual environments and games intended to keep children engaged by creating excitement can all contribute to children remaining involved in these risky experiences for long periods. Specifically, these results also show fears and dangers related to the online environment and its offshoots in the external reality. Indeed, children's view informs adults of the awareness of the little ones on the risks related to the virtual world, but also of the alarming confusion that

virtual and real can generate when children overlap experiences and are left alone with the curiosity and fear that everything is possible.

2.4.2. What protection strategies do children perceive as effective when facing online risks?

According to children's views, parents are a significant source of protection and support, especially when children feel unsafe in their online experiences. In risky circumstances, parental support is practical, they primarily help the child block or remove potentially harmful contact or content.

However, several factors might prevent children from asking for parental support and openly discussing online problems with their parents, as well as ignoring parental rules and restrictions about screen media use. The main factor may be the fear of punishment and digital restriction, which often leads children to hide dangerous experiences encountered online, otherwise they could be deprived of their cell phone. This finding aligns with cyberbullying research (Mishna et al., 2009), which has revealed that children often hesitate to inform adults about their victimization experiences, as they fear that parents might restrict their Internet or cell phone access as a protective measure. Children perceive this strategy as an unfair punishment, potentially isolating them from their peer groups and other meaningful social connections. Additionally, general communication difficulties within the family and the perception of parents' limited digital skills may also contribute to this reluctance to rely on parental support. Parents rarely engage in open discussions with their children actively explaining their concerns and consequent limitations or listening to children's emotional experiences when using the Internet and technology. In children's view,

most parents mainly adopt restrictive parental mediation strategies, including parental control tools, to limit the time they spend using screen media. In contrast, some parents are completely disengaged in mediation, being lax and inconsistent, possibly because they underestimate potential online risks or lack digital skills. As a result, children often ignore imposed limits and rules, perceiving them as external constraints on their autonomy and desire to use screens, which also represent opportunities for functional, useful and fun activities. Therefore, children tend to evade these rules, because they do not understand parents and feel not understood, thus enlarging a generational gap (Clark, 2009).

Difficulty in freely discussing online danger experiences with parents may lead children to adopt ‘self-defence’ strategies as many children feel capable of handling online risks alone, also due to their advanced digital skills compared to their parents. These abilities enable them to implement technical actions for self-protection, such as blocking contacts they perceive as dangerous, reporting inappropriate content, removing unwanted contacts, or uninstalling risky applications. It has been recently shown that increased digital literacy, self-protection skills and awareness of online risks can effectively help children and adolescents aged 9 to 16 mitigate the negative consequences of risky online experiences on their health (Teimouri et al., 2018). Sometimes, children may resort to defensive behaviors of self-soothing and self-reassurance (e.g., hiding under the covers and hugging stuffed animals), in order to contain fears recurring to typical solitary childhood strategies. In our view, the excessive self-reliance and tendency to solve problems on their own may expose children to greater dangers by delaying parental intervention and support in potentially

harmful situations, as well as to experience higher stress and anxiety before they decide to talk with their parents.

As a result, these findings highlight the importance of increasing parents' digital literacy and developing more active parental mediation strategies within families to improve children's perceptions of parental comprehension and support in their screen-based experiences, thus allowing open communication rather than interdiction and punishment. Furthermore, in this regard, the quality of parent-child relationships and communication, as well as the strategies parents use to regulate their children's screen media use, may serve to reduce the likelihood of problematic and risky media use (Holmgren et al., 2022; Rega et al., 2022; Miltuze et al., 2021).

2.4.3. How do children conceptualize problematic and addictive media use?

This study has shed light on how children mentally conceptualize and personally experience the symptoms associated with screen media addiction. Children seem to be aware of the similarities between screen media addiction and other addictive behaviors, such as gambling or substance abuse, thus suggesting they understand the severity of symptoms and consequences potentially associated to this addiction.

Summarizing children's perspective, screen media addiction can be characterized by five key features: prolonged engagement over time, distress, difficulty in disengaging, preoccupation with media use as the primary source of pleasure, and the use of media as a means of escapism. Children identify 'excessive time' spent on screen media as a key factor in determining problematic and addictive media use. However, they are likely to understand that excessive use is not sufficient

to characterize this behavior as an addiction. Specifically, they report that psychological and relational distress can be experienced in association with an addiction to screen media: at a relational level: when excessive use of screen media generates conflicts with parents and at a psychological level, when they experience sleep disturbances due to prolonged screen media use, or feelings of anger and frustration if they are forced to stop screen media activities. Children seem to be quite conscious of the risks related to dysfunctional Internet use. However, many children report being unable to disengage from screen media use, even though they recognize the potential risks associated with it. This phenomenon suggests a difficulty with self-regulation and a tendency to lose control over the behavior, which can be considered an indicator of problematic and addictive patterns of use, as highlighted by Griffiths' (2005) and Caplan's (2010) theoretical models. Furthermore, children recognize that screen media use can become problematic when it becomes the predominant source of pleasure and engagement in their lives, taking precedence over other activities, which recalls the 'salience' criterion of behavioral addictions proposed by Griffiths (2005). This leads them to prioritize screen media over offline relationships, schoolwork, and other creative activities that could serve as alternatives to online. Finally, children also believe that screen media use can become an addiction when it is used as a way to escape from or manage negative emotional states experienced in other areas of their lives, surprisingly in line with part of the scientific debate on the issue (Kardefelt-Winther, 2014; Caplan, 2010).

Overall, very interestingly, children's conceptualization and experience of screen media addiction was found to be largely consistent with the existing theoretical models on addiction (Griffiths, 2005), problematic Internet use (Caplan, 2010; Davis,

2001), and compensatory Internet use (Kardefelth-Winther, 2014). Moreover, it aligns also with the IT-CPU model (Domoff et al., 2020), which highlights that such use is only considered problematic if it impairs the child's cognitive, emotional, social, and academic functioning (Coyne et al., 2024; Domoff et al., 2020).

2.4.4. What are the main motivations and needs that lead children to use screen media in a useful, risky or problematic way?

The underlying motivations and needs children seek to satisfy through screen media can vary depending on whether their use is useful, risky, or problematic.

When children use screen media beneficially, they are primarily motivated by the desire to communicate, cultivate social relationships, express creativity, play alone or with peers, and expand their knowledge through active information seeking. In addition, children view their screen media as personal spaces, so they often use passwords to protect their privacy and limit others' access. Therefore, the need to carve out a space of autonomy can be considered a further motivation for the positive use of screen media. Our results further support previous research highlighting the potential opportunities that screen media use can offer children (Holloway et al., 2013; Stoilova et al., 2021). Furthermore, the motivations that lead children to use media positively and beneficially refer to the three basic psychological needs outlined in Self-Determination Theory, namely autonomy, competence and relatedness (Ryan & Deci, 2000). This finding highlights that the use of screen media can sometimes serve as a means to satisfy basic needs in children's lives, and this can be particularly true for those who experience high-need satisfaction online, but low-need satisfaction in their daily lives offline (Shen et al., 2013).

The motivation underlying children's involvement in risky screen media use and online activities, however, appears to be the desire to experience pleasurable and adrenaline-filled sensations through sensation-seeking behaviors. These behaviors, defined by Zuckerman et al. (1978) as "the need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences" (p. 10), may manifest in activities such as playing and watching horror-themed games and videos, or contacting strangers. Sensation-seeking behaviors may serve as a means for children and adolescents to establish their autonomy from parents and test the limits of parental control (Jessor, 1992). As they approach early adolescence, older children may begin to engage in activities they know are forbidden or potentially dangerous, in an attempt to balance their childhood dependence and the growing need for autonomy they are experiencing. This finding aligns with developmental theories that emphasize risk-taking as a normal part of adolescent development (Steinberg, 2010), which however can also manifest in childhood (Morrongioello & Lasenby-Lessard, 2007).

Finally, problematic and addictive screen media use among children seems to be primarily motivated by the desire to escape from real-life stressful experiences and negative emotions. Given their limited self-regulation skills, young children may be particularly prone to using screen media as an alternative coping strategy to regulate difficult emotional states (Domoff et al., 2020). According to children's representations, screen media use can turn into addiction when it is intended as a 'refuge' allowing them to disconnect from and forget their real-life problems. This evidence is supported by the Compensatory Internet Use Theory (Kardefelt-Winther, 2014), which proposes that problematic screen media and Internet use can be

considered a maladaptive coping mechanism for dealing with negative life experiences or emotions. Moreover, according to the IT-CPU model (Domoff et al., 2020), this mechanism, combined with poor self-regulation typical in young children, may represents a maintaining factor for problematic screen media use in children.

2.4.5. Strengths, limitations, and future directions

This study has several strengths that can help us better understand how children represent and experience their relationships with screen media. First, by employing a qualitative methodology, this study captures children's direct perspectives on their relationships with screen media, shedding light on deeper emotional experiences and thoughts that may not be easily identified through parental reports and quantitative measurement scales. Second, it helps to better understand how children represent beneficial, risky, or problematic screen media use, as well as the underlying motivations that lead them to use digital media in different ways. Consequently, in our view, these findings could make a significant contribution towards the development of child-report assessment tools specifically designed to identify problematic screen media use from the children's perspective. Finally, these results can help to highlight which parental mediation strategies may be more effective in reducing risky and problematic media use, as well as which factors may encourage it, such as children's fear of being punished by parents, the need to escape from real-life difficulties, or the need to challenge parental limits to assert their autonomy. As a result, the qualitative analysis of children's perspectives on how parents mediate and regulate their screen media use can also represent a preliminary step which guides the development of a parent-report scale to assess parental mediation strategies in the Italian context.

Furthermore, these findings may guide interventions for parents and children to prevent and treat risky and problematic use of screen media in children, both in clinical and educational settings, suggesting problem areas that must be addressed.

However, this study has several limitations that need to be considered. First, this qualitative study focused on children from Southern Italy, therefore, the results may not be fully generalizable to other populations from different cultural and social contexts. Further studies could extend qualitative research to other Italian and international geographic areas, also combining it with quantitative data collection to measure the prevalence or intensity of children's reported experiences. Second, it is likely that the qualitative data collection may have been influenced by social desirability bias, as some children may have adjusted their responses to align with their peer group's or adults' perceived expectations. Third, the use of qualitative analysis methodology is inherently influenced by researchers' subjectivity, as a result, the specific individuation of codes and themes may reflect the researchers' perspective. However, the investigator triangulation employed in the analysis procedure aimed at enhancing the validity of these findings. Finally, the study examined children's perspectives on screen media use in general, without specifically delving into their experiences on different types of devices, applications, or social networking platforms. Therefore, future studies could expand the qualitative analysis by focusing more specifically on children's experiences with different digital platforms and devices.

Chapter 3

Study 2.

Validation of the Problematic Media Use Measure (PMUM): A parent-report measure to assess children's PMU within the Italian context

3.1. Introduction

There is growing concern that excessive exposure to screen media during childhood may increase the risk of developing problematic media use (PMU) in young children with negative consequences for their physical and mental health (Domoff et al., 2019; Bae et al., 2023; Park & Park, 2021; Yang & Kim, 2021). Therefore, Domoff and colleagues (2019) recently developed the Problematic Media Use Measure (PMUM), a parent-report instrument designed to assess parents' perceptions of PMU in young children and preadolescents aged 4–11 years. The PMUM, originally developed in the United States, provides a parent-report assessment of how PMU affects the cognitive, emotional, social, and scholastic functioning of younger children, and helps to identify children at greatest risk of developing an ‘addiction’ to screen media.

The PMUM has already been widely used and validated in different linguistic and cultural contexts, including English (Domoff et al., 2019), Chinese (Li et al., 2023), Spanish (Morales Domínguez et al., 2022), and Arabic (Dwairej et al., 2022). The validation of the PMUM in different countries is of great importance because it can contribute to verifying the extent to which the original scale is suitable for

capturing the same construct in different contexts. Moreover, it can foster the advancement of research studies on the PMU in specific cultural contexts and make cross-cultural comparisons. In this regard, the validation of the Chinese version of the PMUM has led to a substantial increase in the number of studies exploring the PMU in Chinese children in a short period of time (Li et al., 2024; Wang et al., 2024; Zhang et al., 2024).

Although studies analyzing the effect of screen media use and PMU on children's mental health are still few in Italy, early results have shown that greater media use was associated with less sleep in infants and toddlers (Bellagamba et al., 2021; Chindamo et al., 2019). Furthermore, a significant increase in smartphone use was recorded from the pre-pandemic period to the pandemic period among children aged 6 years (Serra et al., 2021; Moavero et al., 2023). Further data showed that during the pandemic, greater use of video games among children aged 8–10 years was associated with increased state anxiety (De Pasquale et al., 2021). Regarding the measurement tools of PMU in the Italian context, some studies have mainly focused on the development of tools aimed at detecting gaming addiction from the point of view of children under 10 years of age (Donati et al., 2019; Monacis et al., 2022). However, most studies have instead focused on the development and validation of tools investigating PMU among adolescents and/or young adults, such as the Problematic Internet Use (PIU) (Fioravanti et al., 2013), the Smartphone Addiction Inventory-Italian version (SPAI-I) (Bassi et al., 2023), the Problematic Online Gaming Questionnaire (POGQ) (Ballabio et al., 2017) and the Bergen Social Media Addiction Scale (BSMAS) (Monacis et al., 2017). Therefore, to our knowledge, no tools have

been developed and validated to detect and investigate children's PMU from the parents' perspective in the Italian context.

Therefore, the aim of this study is to validate the long and short forms of the PMUM on a sample of Italian parents of children and preadolescents aged 1-14 years. Furthermore, the concurrent validity of the instrument will be assessed through the association between the PMUM and the quality of the parent-child relationship. In line with previous studies (Domoff et al., 2019; Domoff et al., 2020), it is expected that greater closeness in the parent-child relationship will be associated with a decrease in the PMU, whereas conflict will be associated with an increase in the PMU. Overall, these findings may provide the first data on Italian parents' perceptions of their children's PMU, thus helping to guide prevention and clinical programmes aimed at supporting children's development and well-being.

3.2. Methods

3.2.1. Participants and procedure

This study was carried out in collaboration with the University of Padua research group coordinated by Professor Silvia Salcuni and including Drs. Giulia Bassi, Elisa Mancinelli and Vinay Jagdish Sukhjia. Before beginning data collection, this study received approval from the Interdepartmental Ethics Committee of the School of Psychology, University of Padova (Italy) and of the Department of Humanities, University of Naples Federico II. The sociodemographic characteristics of both parents (i.e., gender, parental role, nationality, marital status, highest education level, and occupation) and their children (i.e., gender, age, presence of disabilities, ownership of their device and the type of device most frequently used), PMUM and the Child–Parent Relationship-Short Form questionnaires were administered through two digital surveys, respectively developed on Qualtrics and Google Forms, and subsequently disseminated to the parental network, by relying on the snowball sampling method. Each parent could complete the survey just once; if they had more than one child falling into the age between 1 and 14 years, they were instructed to focus on ‘one specific child’ while reporting their answers.

3.2.2. Measures

Problematic Media Use Measure (PMUM). The PMUM (Domoff, Harrison, et al., 2019) was first translated from English to Italian by a bilingual translator who is a native Italian speaker. Another translator, who is a native English speaker and fluent in Italian, independently back-translated the PMUM. The translator was not informed

of the original version of the instrument to ensure an impartial translation. The original instrument and the retranslated version were then compared in order to identify and resolve discrepancies between the original and the retranslated version. As outlined in the introduction, the PMUM provides a unidimensional score of parents' perception of whether screen media use interferes with their child's daily functioning. The long and short forms contain 27 items and 9 items, respectively, which are rated on a 5-point Likert scale, ranging from 1 ('*Never*') to 5 ('*Always*'). Both the long and short-form versions demonstrated strong reliability, with Cronbach's α values of 0.97 and 0.93, respectively. The long form further exhibited strong convergent and incremental validity (Domoff, Radesky, et al., 2019). An example of an item from the long form is: '*Screen media is the only thing that seems to motivate my child*', while an example from the short form is: '*It is hard for my child to stop using screen media*'. See Appendix B for the complete list of items in the long form of the PMUM in Italian.

Child-Parent Relationship Scale – Short Form (CPRS). The CPRS (Driscoll & Pianta, 2011) measures a parent's perception of the relationship with their child. It comprises 15 items, of which 8 load onto the conflict subscale, measuring the degree to which a parent believes his/her relationship with the child is characterized by negativity (e.g., '*This child is sneaky or manipulative with me*').), while the remaining 7 constitute the closeness subscale, which assesses the extent to which the parent feels the relationship with their child is characterised by warmth, affection, and open communication (e.g., '*This child openly shares his/her feelings and experience with me*').). Parents are asked to rate the degree to which an item applies to their relationship with their child through a 5-point Likert scale, from 1 ('*Definitely does not apply*') to 5 ('*Definitely does apply*').). In the present study, the two subscales exhibit good

reliability with Cronbach's α values of 0.83 for the conflict scale and 0.76 for the closeness scale.

3.2.1. Data analysis

Analyses were performed using RStudio (R Core Team, 2019). Before conducting the Confirmatory Factor Analysis (CFA), the correlations among items were verified. Following this, descriptive statistics of all sociodemographic variables, PMUM, conflicts and closeness values were calculated. Subsequently, a CFA employing the Weighted Least-Squares Mean and Variance (WLSMV) estimator was computed, relying on the *lavaan* package (Rosseel, 2012). To evaluate both the long- and short-form model's fit, we examined various goodness-of-fit indices: the ratio of chi-square to degrees of freedom (χ^2/df), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error (RMSEA), and Standardized Root Mean Square Residual (SRMR). Based on Schermelleh-Engel et al. (2003) guidelines, χ^2/df values below 3, RMSEA and SRMR values at or below 0.06, and CFI and TLI values above 0.95 were indicative of a good model fit. Internal consistency was assessed using Cronbach's alpha (α), in line with the original study (Domoff, Harrison, et al., 2019). For evaluating the instrument's concurrent validity, bivariate Pearson's r correlations were computed between the PMUM long and short form, conflict and closeness subscales ($p < 0.05$). The significance of associations between these variables was interpreted using Cohen's effect size guidelines (Cohen, 1988), where a coefficient of 0.1 indicates a small effect size, 0.3 a medium effect size, and 0.5 a large effect size. The Kruskal–Wallis rank sum test was then conducted to explore potential differences in parents' perceptions of PMU across three age groups: preschoolers (1–5 years),

schoolers (6–10 years), and pre adolescents (11–14 years). Following this, Dunn’s post-hoc test was used for pairwise comparisons to rigorously examine the rank differences between each pair of groups. The significance level was set at $\alpha = 0.05$. Adjusted p-values less than 0.05 were considered statistically significant. Lastly, the Mann-Whitney *U* test was conducted to explore potential differences between the children’s gender (males vs. females).

3.3. Results

3.3.1. Descriptive statistics

Table 3.1. shows the main sociodemographic characteristics of both parents and their children. Overall, the sample consists of $N = 403$ parents of children aged between 1 and 14 years ($\text{Child } M_{\text{age}} = 9.43$; $SD = 2.74$). The sample is predominantly composed of female parents. In terms of marital status, most of the sample reported being married, followed by those who are cohabiting couples, and by those who are divorced. The most common types of occupations are public employees, followed by freelance workers, private employees, and homemakers. Moreover, 52.9% of our sample reported having 2 children in the household and 33.7% having one child. Parents also indicated that the screen media most used by their children is the TV, followed by the tablet, the computer/laptop, handheld video games, and lastly the mobile phone. A total of $N = 223$ (30.3%) parents reported that their children or preadolescents have their own device/media for their own use (e.g., smartphone, tablet), which was given for the first time at $\text{child } M_{\text{age}} = 8.92$ ($SD = 2.23$).

The overall skewness values for the PMUM items suggest a mild-to-moderate right skewness in the distribution of responses, providing support for the use of WLSMV estimator. In terms of kurtosis, most values are close to zero, indicating that the distributions do not significantly deviate from normality.

Table 3.1. Sociodemographic characteristics of both parents and their children

Demographic variable	Mean $\pm$SD or n (%)
Parents gender identity	
Female	353 (87.6)
Male	49 (12.2)
Other	1 (0.2)
Child age (years)	9.43 $\pm$ 2.74
Preschoolers (from 1 to 5 years)	32 (7.9)
Schoolers (from 6 to 10 years)	218 (54.1)
Preadolescents (from 11 to 14 years)	153 (38)
Child sex (male)	227 (56.3)
Children in the family¹	
One child	136 (33.7)
Two children	213 (52.9)
More than two children	52 (12.9)
Nationality	
Italian	396 (98.3)
Other	7 (1.5)
Education level	
Primary school	1 (0.2)
Middle school	22 (5.5)
High school	114 (28.3)
Professional high school	44 (10.9)
Bachelor's degree	40 (9.9)
Master's degree	100 (24.8)
Specialization	82 (20.3)
Occupational level	
Student	1 (0.2)
Unemployed	20 (5.0)
Housemaker	54 (13.4)
Freelancer	91 (22.6)
Public employee	109 (27.0)
Retired	1 (0.2)
Private employee	81 (20.1)
Labourer	7 (1.7)
Healthcare	5 (1.2)
Manager	5 (1.2)
Other	29 (7.2)
Marital status	
Married	308 (76.4)
Cohabitant	65 (16.1)
Divorced	8 (2.0)
Single	21 (5.2)
Widower/Widow	1 (0.2)
Most commonly used screen media by the child²	
TV	75 (18.6)
Mobile phone (smartphone, cellular phone)	21 (5.2)
Tablet	63 (15.6)
Computer/laptop	31 (7.7)
Video games	10 (2.5)
Handheld video games	22 (5.5)
Ipod	1 (0.2)
Child has his/her own mobile device (yes)	122 (30.3)
At what age did your child receive its own first device? (years)	8.92 $\pm$ 2.23

Note. $N = 403$ parents; ¹Two parents do not provide the information; ²Reported by $N = 223$ parents

3.3.2. *Confirmatory Factor Analysis (CFA)*

Overall, the CFA computed on the one-factor model related to the long form with 27 items reported a highly satisfactory fit of the model to the data, as evidenced by the goodness-of-fit indices, thereby supporting the tools' unidimensional structure, in accordance with the original validation study (Domoff et al., 2019). In particular, the chi-square to degrees of freedom ratio is below the cut-off ($\chi^2(324) = 857.985$, $p < .001$; $\chi^2/df = 2.65$), and the CFI and TLI show values of 0.991 and 0.992, respectively, indicating a good model fit. Additionally, RMSEA presents a value equal to 0.046 (90%CI = 0.042, 0.050) and SRMR a value of 0.055, both of which are within ranges generally considered indicative of a good fit. Figure 3.2. shows the factorial structure of the Italian version of the PMUM long form with its factor loadings. In particular, item 14 (0.28) and 25 (0.28) are just below the lowest acceptable score of 0.30 (Kline, 2015). The CFA for the 9-item short form of the PMUM yielded generally acceptable model fit indices, though some fall just short of standard thresholds. Specifically, the chi-square to degrees of freedom ratio was slightly above the conventional cut-off ($\chi^2(27) = 86.39$, $p < .001$; $\chi^2/df = 3.19$), suggesting minor discrepancies between the model and observed data. The CFI reached the recommended level of 0.95, while the TLI, though marginally below the ideal cutoff, was acceptable at 0.93. Additionally, the RMSEA was 0.037 (90% CI = 0.029, 0.046), and the SRMR was 0.040, both well within the range indicative of good fit. Together, these indices support an overall reasonable fit for the model. Figure 3.3. displays the structural factor of the Italian version of the PMUM short form and its factorial structure. It is possible to observe that item 8 (0.29) is just below the standard cutoff of 0.30 (Kline, 2015). However, in both forms, the removal of items had no impact on model fit indices. Consequently,

the full model was preferred, as it preserves alignment with the original instrument's structure and intent, ensuring theoretical integrity and retaining the scale's comprehensive scope. Moreover, in both forms the PMUM internal consistency we obtained was excellent, with ordinal Cronbach's α values equal to 0.97 for the long form and to 0.92 for the short form.

Figure 3.2. The factorial structure of the Italian version of the PMUM (long form, 27 items) and its factor loadings

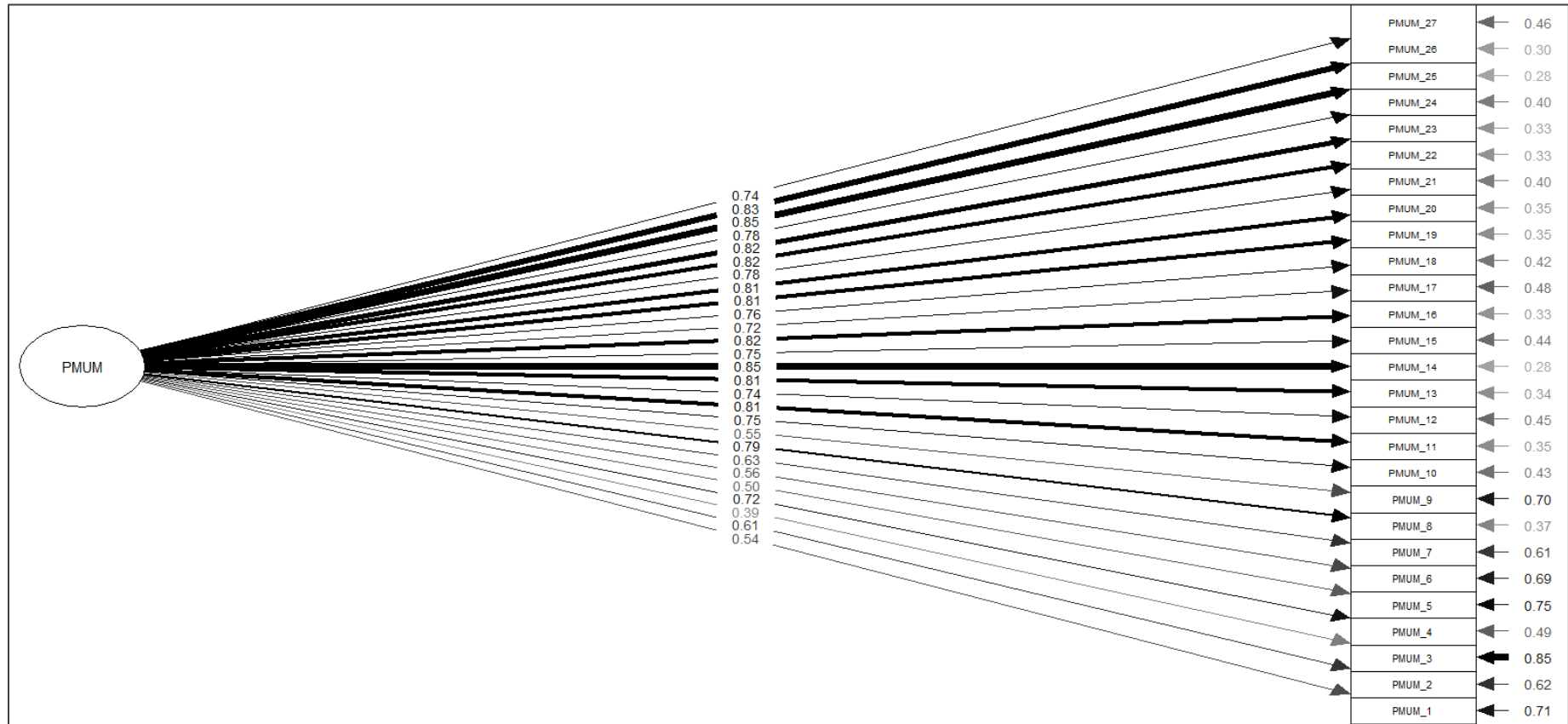
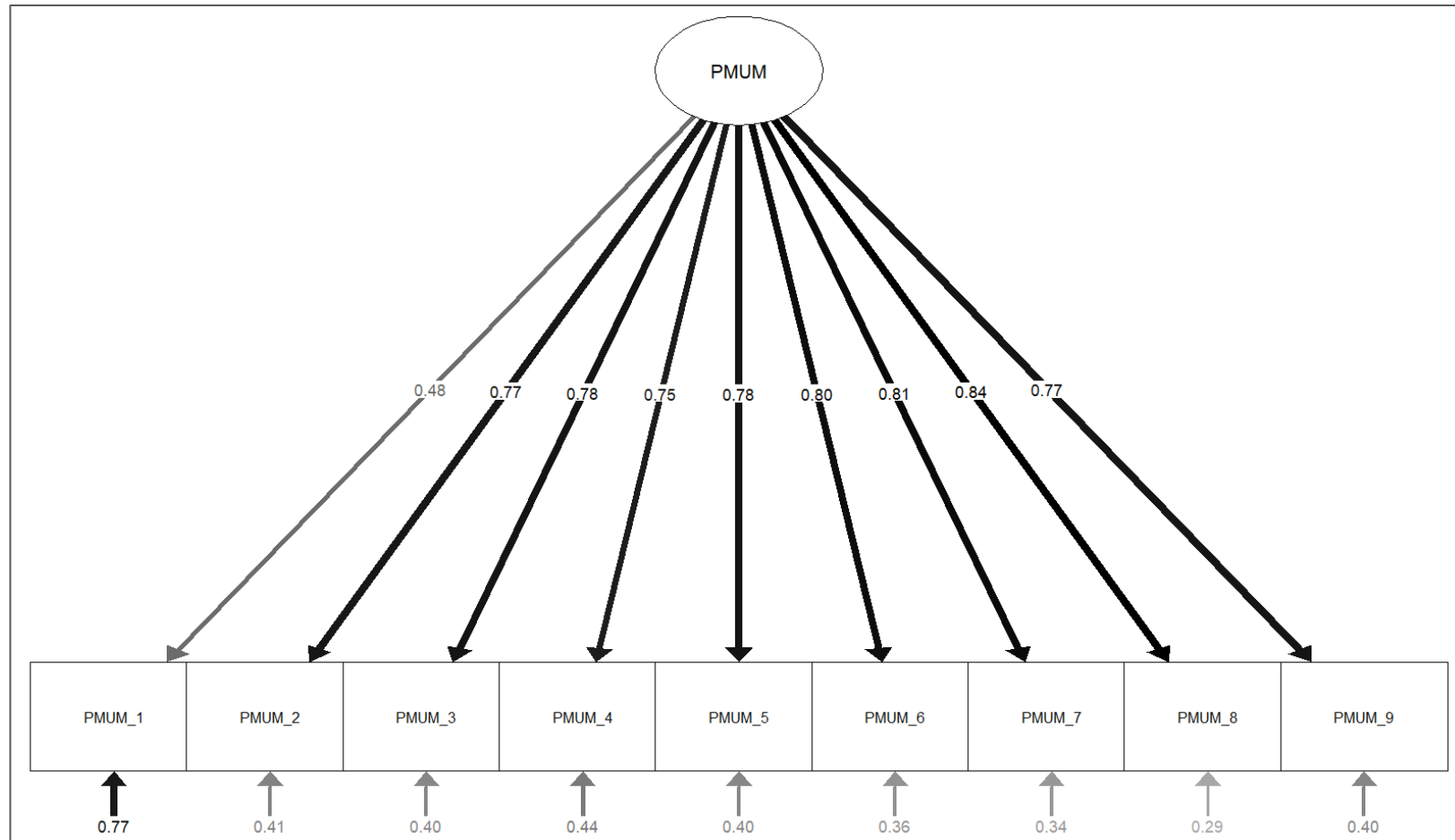


Figure 3.3. The factorial structure of the Italian version of the PMUM (short form, 9 items) and its factor loadings



3.3.3. Concurrent validity

Table 3.2. shows the bivariate Pearson's correlations between the children's age, PMUM, and the subscales of conflicts and closeness; in line with the literature, conflicts and closeness subscales are highly inversely proportioned. Moreover, these data indicate that higher scores on the PMUM are associated with higher levels of reported conflict ($r = .609$, $p < 0.01$, long form; $r = .619$, $p < 0.01$, short form), and with lower levels of reported closeness in the child–parent relationship ($r = -.378$, $p < 0.01$, long form; $r = -.380$, $p < 0.01$, short form). Furthermore, results show with a small effect size that the older the child, the more the parental perception of problematic screen media use increases, as well as the parental perception of conflict in the parent–child relationship. Conversely, the younger the child, the greater the parental perception of closeness in the parent–child relationship, despite reporting a small effect size.

Table 3.2. Bivariate Pearson's correlations for evaluating concurrent validity

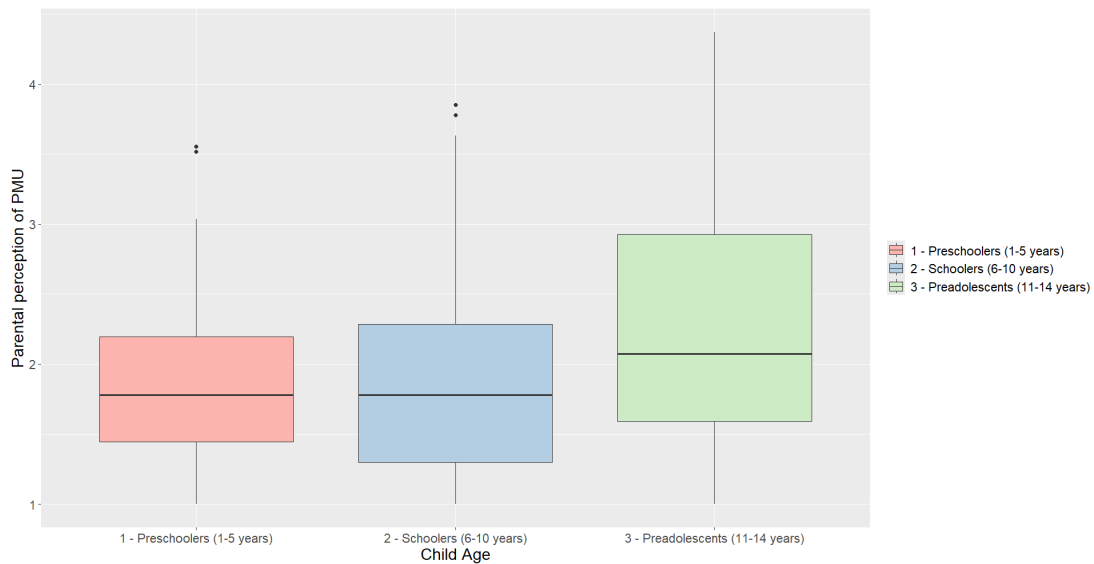
	Children age	PMUM long/short form	Conflicts (CPRS)
Children age	1		
PMUM long/short form	.224**/.230**	1	
Conflicts (CPRS)	.133**	.609**/.619**	1
Closeness (CPRS)	-.113*	-.378**/-.380**	-.481**

Note. $N = 403$; * $p < 0.05$, ** $p < 0.01$; PMUM = Problematic Screen Media Use Measure long (27 items) and short form (9 items); CPRS = Child-Parent Relationship Scale

3.3.4. Parental perceptions of PMU across preschoolers, schoolers, and preadolescents, and across child gender

As displayed in Figure 3.4., the Kruskal-Wallis' rank sum test revealed a significant overall difference in parental perceptions of PMU across the three age groups ($\chi^2 = 22.347$, $df = 2$, $p < .001$). Subsequent pairwise comparisons, adjusted for multiple testing, were performed to identify specific differences between the groups. In particular, no significant differences were observed between parents of preschoolers and schoolers ($Z = 0.21$, $p_{\text{adjusted}} = 0.835$) or between parents of preschoolers and preadolescents ($Z = -2.32$, $p_{\text{adjusted}} = 0.06$). However, a significant difference was found between parents of schoolers and preadolescents ($Z = -4.64$, $p < .001$), indicating that older children are perceived to present more issues with screen media use. As regards the parental perception of PMU between children's gender (females vs. males), the Mann-Whitney test did not show any statistical significance ($U = 22238$, $p\text{-value} = 0.051$), indicating no difference based on gender.

Figure 3.4. Kruskal-Wallis rank sum test



3.4. Discussions

This study demonstrates that the PMUM can be a valid and reliable parent-report screening tool to assess PMU in children aged between 1 and 14 years in the Italian context. The Italian version of the PMUM showed optimal psychometric properties and a highly satisfactory internal consistency both in the long form ($\alpha = .97$) and short form ($\alpha = .93$). Furthermore, consistent with the original version of the measure (Domoff al., 2019), all 27 items in the long form and all the 9 items in the short form were retained, confirming that the measure provides a comprehensive, valid, and reliable assessment of parental perception of children's and preadolescents' PMU. Overall, these findings also attest to the robustness of the Italian version of the PMUM in capturing this construct within the Italian context.

The observed significant correlations emerged between parental perception of children's PMU and the two dimensions of the parent-child relationship, namely conflict and closeness, support the concurrent validity of the Italian version of the PMUM. Consistent with previous validation studies of the tool (Domoff et al., 2019; Dwairej et al., 2022), and in line with expectations, the results of the present study revealed that higher scores on the PMUM were associated with increased levels of conflict and decreased levels of closeness in the parent-child relationship. Hence, these findings suggest that the children's PMU may be related to interpersonal conflicts within the family system and, thus, in the parent-child relationship. Conversely, a parent-child relationship characterized by warmth, affection, and open communication, may be potentially linked to lower PMU in children. Furthermore, our analysis revealed a statistically significant difference in parental perceptions of PMU based on the child's age. Specifically, parental perceptions of their children's PMU and

parent–child conflict tend to increase as children grow older, while perceptions of closeness in the parent–child relationship decrease with age. In line with previous findings (Takahashi et al., 2018; Rega et al., 2023), the association between children’s PMUM and children’s age suggests that, during the transition from childhood to adolescence, parents tend to perceive their children as more involved in PMU. Likely, preadolescents seek greater independence and may therefore resist parents’ attempts to limit and restrict their autonomy (Miltuze et al., 2021). As a result, controlling and restrictive parental mediation strategies can lead to a harmful ‘psychological reactance’ in their older children (White et al., 2015), which in turn can cause increased conflict and diminished closeness in the parent–child relationship (Beyens & Valkenburg, 2019). Moreover, our results did not reveal any significant differences in parental perception of PMU between male and female children. This suggests that, within this sample, parental concerns regarding PMU are equally prevalent among parents of both children’s genders, unlike recent studies (Abdullah et al., 2022; Eales et al., 2021; Rega et al., 2023; Takahashi et al., 2018) that found higher PMU among parents of males’ children compared to parents of females’ children.

Overall, these findings demonstrated that a parent-report measure for assessing their perceptions related to the children’s PMU within the Italian context can be useful for several reasons. First, parents live in close contact with their children, hence they can observe and grasp any alterations in a child’s daily behavior from the parents’ point of view. Second, parents’ perceptions of their child’s PMU can differ significantly from those of the child. This discrepancy may arise as younger children are less capable of recognizing the negative impact of PMU on their emotional, cognitive, and social well-being. As a result, they might be less likely to report and reflect on whether such

behavior interferes with carrying out their daily activities (Domoff et al., 2019). Third, the use of parent-report scales can encourage parents to be more reflective, sensitive, and aware of both the child's media use habits and the strategies to prevent PMU in their children (Domoff et al., 2019). The results of this study have clinical and research implications. The Italian version of the PMUM can be adopted in clinical assessment in order to screen problematic areas related to younger children's PMU and guide therapeutic interventions focused on the parent, thereby supporting them in their parental competencies to ultimately improve the parent–child relationship and prevent or reduce the child's PMU. Moreover, this scale can promote research in understanding the trend of this phenomenon in the specific Italian context and the factors that may influence it.

Some limitations of this study and future directions need to be addressed. First, the PMUM relies on parents' perceptions of their children's problematic behavior regarding screen media use, which can be subject to bias in the parents' reporting on their children's PMU. Second, although this study identified significant correlations between parent's perception of children's PMU and the quality of the parent–child relationship, it did not examine the causality of these associations. It would be useful to conduct further longitudinal studies to better understand whether parent–child conflict may contribute to the development of PMU in childhood, and conversely, whether such PMU affects the quality of the parent–child relationship.

Chapter 4

Study 3.

Development and Validation of the Italian Parental Mediation Scale (I-PMS): A parent-report scale to assess how parents regulate children's screen media use

4.1. Introduction

The concept of 'parental mediation' has been introduced to better understand the variety of interpersonal communication strategies parents use to reduce the negative effects of their children's media consumption while maximizing the benefits (Clark, 2011, p. 325). Several literature reviews and meta-analyses have investigated how parental mediation strategies influence media-related behaviors in children and adolescents (Coyne et al., 2017; Nielsen et al., 2019; Chen & Shi, 2019; Lo Cricchio et al., 2022; Fam et al., 2023; Rega et al., 2022). However, studies have shown mixed findings as different types of parental mediation strategies can both reduce and increase the risk of children being involved in problematic behaviors depending on several factors, such as the child's age, the type of media-related behavior, and the cultural context (Nielsen et al., 2019; Chen & Shi, 2019; Rega et al., 2022; Kalmus et al., 2022; Fam et al., 2023).

There is evidence that parents may be more inclined to adopt certain strategies based on their childrearing culture and cultural values (Kirwil, 2009). Despite there are currently no studies in the Italian context aimed at exploring the influence of different parental mediation strategies on the development of risky and problematic

screen media use in children and adolescents, a recent report compared perceptions of parental mediation practices among Italian, Spanish, and Portuguese children aged 9 to 16 years, showing that Italian children perceive greater safety, family support, rules, communication, and fewer risky online experiences. Italian parents mainly use active mediation with their children, suggesting ways to use the Internet safely and discussing their children's online activities. However, compared to Spanish and Portuguese parents, Italian parents are less likely to encourage their children to proactively explore and learn new things online and report higher use of parental control software or apps (Ponte et al., 2023). Only one study has investigated the relationship between parental mediation about COVID-19 news and the emotional regulation of Italian children, finding that active mediation was associated with higher emotional regulation (Morelli et al., 2022). However, this study used a modified version of the Television Mediation Scale (Valkenburg et al., 1999), which was originally developed in the context of television media studies, thus confirming the lack of adequate measurement tools to detect the construct of parental mediation in relation to the use of digital screen media and the Internet within the Italian context.

Furthermore, inconsistencies in the results on the effectiveness of parental mediation may arise from various issues related to both the conceptualization and operationalization of the construct, as well as the measurement scales used across different studies, which have been thoroughly analyzed in a recent literature review (see Kuldass et al., 2021).

Since the conceptualization and effectiveness of parental mediation strategies may vary depending on the context in which they are used, and the currently most widespread measurement scales present several limitations, it is essential to develop a

screening tool capable of overcoming these methodological issues and accurately detecting the construct in the Italian context. Therefore, this study aims to fill the methodological gaps of existing scales through the development and validation of a new measure specifically adapted to the Italian context.

4.2. Methods

4.2.1. *Participants and procedure*

A total of 497 Italian parents (85.5% women) with children aged 6 to 13 years were recruited for this study using a snowball sampling method. Parents were asked to complete a web-based survey developed on Google Forms and distributed online via instant messaging and social networking groups by using their smartphones or computers. Before completing the survey, parents were given informed consent, which explained in detail the purpose of the research and the measures used to collect and analyze the data, that participation was voluntary, that confidentiality was guaranteed, and that all participants could withdraw from the study at any time. The study was approved by the University Research Ethics Committees of the Department of Humanities, University of Naples Federico II and carried out in compliance with the ethical guidelines for psychological research of the Italian Psychological Association.

4.2.2. *Development of the Italian Parental Mediation Scale (I-PMS)*

To create an initial pool of items reflecting the main parental mediation strategies identified in the literature, we adopted a combined theory-driven and data-driven approach. Initially, we relied on a recent literature review by Kuldas et al. (2021), which provided a detailed selection of the items used in the 10 most widely used parental mediation scales, and suggested a preliminary categorisation of them into six different strategies. We also based on evidence from previous studies on parental mediation strategies adopted by Italian parents, which indicate a preference

for restrictive mediation, particularly those involving the use of filters such as parental controls, and active mediation strategies (Ponte et al., 2023).

In parallel, 20 semi-structured interviews were conducted in January and February 2023 to explore the main mediation strategies adopted by parents of children aged 6–13 living in the Italian context. The interviews contained a set of questions developed from a comprehensive literature review on parental mediation and were conducted face-to-face in the participants' homes. The interviews conducted with Italian parents, along with the findings from the children's focus group reported in Study 1, revealed that Italian parents are more prone to use restrictive mediation strategies, especially those employing the use of filters, apps, and technical software, to regulate their children's screen media use and prevent their involvement in risky online activities. Moreover, Italian parents often combine setting specific rules with monitoring their children's screen activities, without a clear distinction or dominance of one practice over the other. Furthermore, Italian parents also tend to use active mediation strategies mainly aimed at preventing risks, although to a lesser extent than restrictive mediation. Finally, Italian children often rely on their parents and ask for their support when they encounter problems while surfing the Internet.

Therefore, a total of 20 items rated on a 5-point Likert scale (1=*never*, 2=*rarely*, 3=*sometimes*, 4=*often*, 5=*always*) were selected for inclusion in the I-PMS (see Appendix C for the full list of items of the I-PMS in both English and Italian). The selection of the 20 items was based on two main criteria. First, several items were chosen based on their frequency of use in existing parental mediation scales and their ability to effectively represent the main parental mediation strategies identified in previous studies (Kuldas et al., 2021; Ponte et al., 2023). In particular, some original

items derived from the review by Kuldass et al. were partially revised, modified, and adapted to the study's context. Second, new items were created based on the results gained from interviews with Italian parents and focus groups with children. The items from Kuldass et al.'s review were translated from English to Italian by a native English speaker who is also fluent in Italian. Subsequently, the 20 items were back-translated from Italian into English.

To assess the content validity of the scale, specifically, whether the items adequately captured the operationalization of the parental mediation construct, the initial pool of 20 items was reviewed by five experts in clinical psychology, developmental psychology, and problematic screen media use. Based on the experts' feedback and their revisions to both the content and wording of the parental mediation items, further modifications were made. Additionally, three additional scales were included in the questionnaire administered to parents to evaluate whether the I-PMS demonstrated good concurrent and convergent validity. Specifically, the Television Mediation Scale (Valkenburg et al., 1999) was used to assess convergent validity, while the Problematic Media Use Measure (Domoff et al., 2019) and the Child-Parent Relationship Scale (Driscoll & Pianta, 2011) were employed to assess concurrent validity.

4.2.3. Measures

Demographics. Participants were asked a series of questions aimed at collecting sociodemographic data. These questions explored information such as the gender and age of both parents and their children, the age at which the children first began using devices, the device most frequently used by the children, the amount of

time they spend on devices during the week and on weekends, and the parent's level of concern regarding their children's device usage.

Problematic Media Use Measure (PMUM; Domoff et al., 2019). The PMUM is a self-report scale consisting of 27 items rated on a 5-point Likert scale (from 1 = Never to 5 = Always) and assessing parents' perceptions of problematic screen media use in children aged 4 to 12. The items reflect the 9 criteria for Internet Gaming Disorder (APA, 2013). Examples of items include: "*It is hard for my child to stop using screen media,*" "*My child uses screen media to feel better,*" and "*My child becomes angry when he/she cannot use screen media*". In this study, Cronbach's alpha was 0.97, indicating excellent internal consistency.

Television Mediation Scale (Valkenburg et al., 1999). The Television Mediation Scale is a self-report scale consisting of 15 items rated on a 4-point Likert scale (from 1 = Never to 4 = Always), measuring three strategies parents use to mediate television use: restrictive (5 items), instructive (5 items), and social coviewing (5 items). Examples of items include: "*How often do you try to help your child understand what he/she sees on TV?*" (instructive mediation), "*How often do you tell your child to turn off the TV when they are watching an unsuitable program?*" (restrictive mediation), and "*How often do you watch together because you both like the program?*" (social coviewing). In this study, Cronbach's alpha was 0.83 for the total scale, 0.88 for instructive mediation, 0.75 for restrictive mediation, and 0.78 for social coviewing, indicating good internal consistency for the total scale and individual factors.

Child-Parent Relationship Scale – Short Form (CPRS-SF; Driscoll & Pianta, 2011). The CPRS-SF is a self-report scale consisting of 15 items rated on a 5-point

Likert scale ranging from 1 = ‘Definitely not’ to 5 = ‘Definitely yes.’ The scale includes two dimensions: Closeness (7 items) and Conflict (8 items), and it measures the quality of the parent-child relationship. Examples of items include: “*My child and I always seem to be struggling with each other*” (conflict), and “*If upset, my child will seek comfort from me*” (closeness). In this study, Cronbach’s alpha was 0.84 for both the Closeness and Conflict subscales, indicating good internal consistency.

4.2.4. Data analysis

All descriptive, correlation, and reliability analyses were performed using the Statistical Package for Social Sciences SPSS (Version 26 for Windows) (SPSS Inc., Chicago, IL), while factor analyses were performed with Mplus 8 (Muthén & Muthén, Los Angeles, CA). The suitability of the data for factor analysis was assessed using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s test of sphericity. The whole sample was split into two subsamples, consisting of 249 participants (Sample 1) and 248 participants (Sample 2), on which exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted, respectively. Initially, inter-item correlations were examined in Sample 1 to identify any items that had weak correlations with the rest of the scale. Following this, exploratory factor analyses (EFA) were carried out on the first group of 249 parents (Study 1) to reduce the items and establish the factor structure of the scale. Subsequently, the factor structure identified through the EFA was validated by performing confirmatory factor analysis (CFA) on the second group of 248 parents (Sample 2). Given that the Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) normality tests revealed deviations from a normal distribution for the items, the maximum likelihood

estimation method robust to non-normality (MLR) in Mplus 8 (Muthén & Muthén, 2012) was used. The overall model fit was evaluated using several indices: the Comparative Fit Index (CFI) and Tucker-Lewis Fit Index (TLI) (Bentler, 1990), with values greater than or equal to 0.90 considered satisfactory; the Root Mean Square Error of Approximation (RMSEA), where values below 0.08 are considered acceptable (Browne & Cudeck, 1993); and the Standardized Root Mean Square Residuals (SRMR), with values under 0.08 indicating good fit (Kline, 2015). To assess the internal consistency of the scale, Cronbach's α was calculated. The Mann-Whitney U test was conducted to explore potential differences in parental mediation strategies between the children's gender (males vs. females) and across two age groups: schoolers (6–10 years) and preadolescents (11–13 years).

4.3. Results

4.3.1. Descriptive statistics

The total sample includes 497 parents (85.5% females) with children between 6 and 13 years (53.1% males; Child $M_{age} = 9.52$, $SD = 1.88$). Of these, 74.4% are schoolers (6-10 years), while 25.6% are preadolescents (11-13 years). Most parents have two children (59.3%), are married (81.7%), and live in southern Italy (91.1%). Regarding parents' education level and occupation, the majority declare having a high school diploma (23.1%) and working in the public sector (24.2%), followed by having a master's degree (22.3%) and working as freelancers (23.2%). Concerning children's media use, the most frequently used device is mobile phone (46.3%), followed by television (18.8%). Children start using home devices at around the age of 4.72 years ($SD = 1.62$) and receive their first personal device at an average age of 8.15 years ($SD = 1.92$). Finally, children spend an average of 1.90 hours per day on screen media on weekdays, which increases to 2.24 hours per day on weekends, and 44.5% of parents report always worrying about their children's screen media use. More detailed demographic characteristics of the sample are shown in Table 4.1.

Table 4.1. Sociodemographic characteristics of both parents and their children

Demographic variable	Mean $\pm$ SD or/and N (%)
Parents sex¹	
Female	424 (85.5)
Male	72 (14.5)
Parents age (years)²	43.44 $\pm$ 5.58
Child age (years)³	9.52 $\pm$ 1.88
Schoolers (from 6 to 10 years)	8.65 $\pm$ 1.27 and 367 (74.4)
Preadolescents (from 11 to 13 years)	12.02 $\pm$ 0.80 and 126 (25.6)
Child sex	
Female	233 (46.9)
Male	264 (53.1)

Children in the family¹	
Two children	294 (59.3)
One child	119 (24.0)
Three children	62 (12.5)
More than three children	21 (4.2)
Italian Geographic Origin	
South	453 (91.1)
Center	18 (3.6)
North	16 (3.2)
Islands	10 (2.0)
Education level	
High school	115 (23.1)
Master's degree	111 (22.3)
Specialization	110 (22.1)
Vocational high school	88 (17.7)
Bachelor's degree	41 (8.2)
Middle school	30 (6.0)
Primary school	2 (0.4)
Occupational level⁴	
Public employee	120 (24.2)
Freelancer	115 (23.2)
Housemaker	103 (20.8)
Private employee	77 (15.6)
Other	50 (10.1)
Unemployed	29 (5.9)
Student	1 (0.2)
Marital status¹	
Married	405 (81.7)
Cohabitant	51 (10.3)
Divorced	24 (4.8)
Single	13 (2.6)
Widower/Widow	3 (0.6)
Most commonly used screen media by the child⁵	
Mobile phone (smartphone, cellular phone)	224 (46.3)
TV	91 (18.8)
Tablet	73 (15.1)
Game console	42 (8.7)
Handheld video games	33 (6.8)
Computer/laptop	21 (4.3)
Child has his/her own device (e.g., mobile phone, computer/laptop, tablet, game console) (yes)	
	406 (81.7)
At what age did your child receive its own first device? (years)¹	
	8.16 ± 1.92
At what age did your child start using the devices available at home-excluding the TV?⁶	
	4.72 ± 1.62
Hours of daily device use on weekdays¹	
	1.90 ± 1.22
More than 1 hour	160 (32.3)
More than 2 hours	119 (24.0)
More than 4 hours	85 (17.1)
Less than 1 hour	68 (13.7)
More than 3 hours	56 (11.3)
0 hours	8 (1.6)
Hours of daily device use on weekends	
	2.24 ± 1.20
More than 2 hours	144 (29.0)
More than 3 hours	102 (20.5)
More than 1 hour	100 (20.1)
More than 4 hours	99 (19.9)
Less than 1 hour	44 (8.9)

0 hours	8 (1.6)
How often do you worry about your child's device usage?	
Always	221 (44.5)
Often	199 (40.0)
Sometimes	53 (10.7)
Rarely	14 (2.8)
Never	10 (2.0)

Note. $N = 497$ parents; ¹One parent did not provide the information; ²Seventeen parents did not provide the information; ³Four parents did not provide the information; ⁴Two parents did not provide the information; ⁵Thirteen parents did not provide the information; ⁶Eighty-nine parents did not provide the information.

4.3.2. Exploratory Factor Analysis (EFA)

Based on the KMO criterion, the sample adequacy was found to be very good (KMO = 0.892). Bartlett's test of sphericity confirmed that the correlation matrix was appropriate for conducting factor analysis ($\chi^2 = 2693.351$, $df = 190$, $p < 0.001$). Then, an exploratory factor analysis (EFA) was performed on the first sample ($N = 249$) using the MLR estimator and goemin oblique rotation to examine the factor structure of the 20 items. The acceptability of the factor solution was assessed using a combination of the goodness-of-fit index, interpretability of the factors, and factor loadings, with a threshold of 0.40. Based on the initial theoretical hypothesis, a four-factor model was tested, showing an adequate model fit $MLR\chi^2_{(116)} = 238.686$, $p < .01$; CFI = .94; TLI = .90; RMSEA = .065, 90% confidence interval (C.I.) [.053–.077]; SRMR = .038. However, two items (item 1 and item 5) did not load significantly on any factor, while one item (item 4) showed two cross-loading below .40. Therefore, items 1, 4, and 5 were removed from the original set of 20 items (see Table 4.2. for factor loadings and the three excluded items shown in italics). Subsequently, the four-factor solution was tested again with the remaining 17 items. The four-factor solution with 17 items

improved the model fit: $MLR\chi^2_{(74)} = 101.457$, $p < .05$; CFI = .98; TLI = .97; RMSEA = .039, 90% confidence interval (C.I.) [.016–.056]; SRMR = .024.

Table 4.2. Exploratory Factor Analysis of the I-PMS

	Factor 1	Factor 2	Factor 3	Factor 4
<i>Item 1</i>	<i>0.112</i>	<i>0.151</i>	<i>0.108</i>	<i>-0.039</i>
Item 2	0.038	0.043	0.003	0.708*
Item 3	0.066	0.008	0.205*	0.602*
<i>Item 4</i>	<i>-0.049</i>	<i>0.185</i>	<i>0.282*</i>	<i>0.220*</i>
<i>Item 5</i>	<i>-0.039</i>	<i>0.298</i>	<i>0.132</i>	<i>0.267</i>
Item 6	0.000	0.024	0.000	0.890*
Item 7	0.910*	0.083	-0.045	-0.041
Item 8	0.898*	0.015	0.024	0.021
Item 9	0.645*	-0.020	0.052	0.108
Item 10	0.584*	-0.035	0.018	0.292*
Item 11	-0.013	0.729*	0.027	-0.189
Item 12	0.087	0.568*	0.320*	-0.036
Item 13	0.052	0.815*	-0.068	0.030
Item 14	0.106	0.501*	0.011	0.138
Item 15	-0.077	0.595*	0.015	0.130
Item 16	0.011	0.442*	0.303*	0.126
Item 17	0.020	-0.159	0.971*	-0.005
Item 18	0.055	0.028	0.820*	-0.011
Item 19	-0.094	0.182*	0.603*	0.119
Item 20	-0.003	0.106	0.505*	0.021

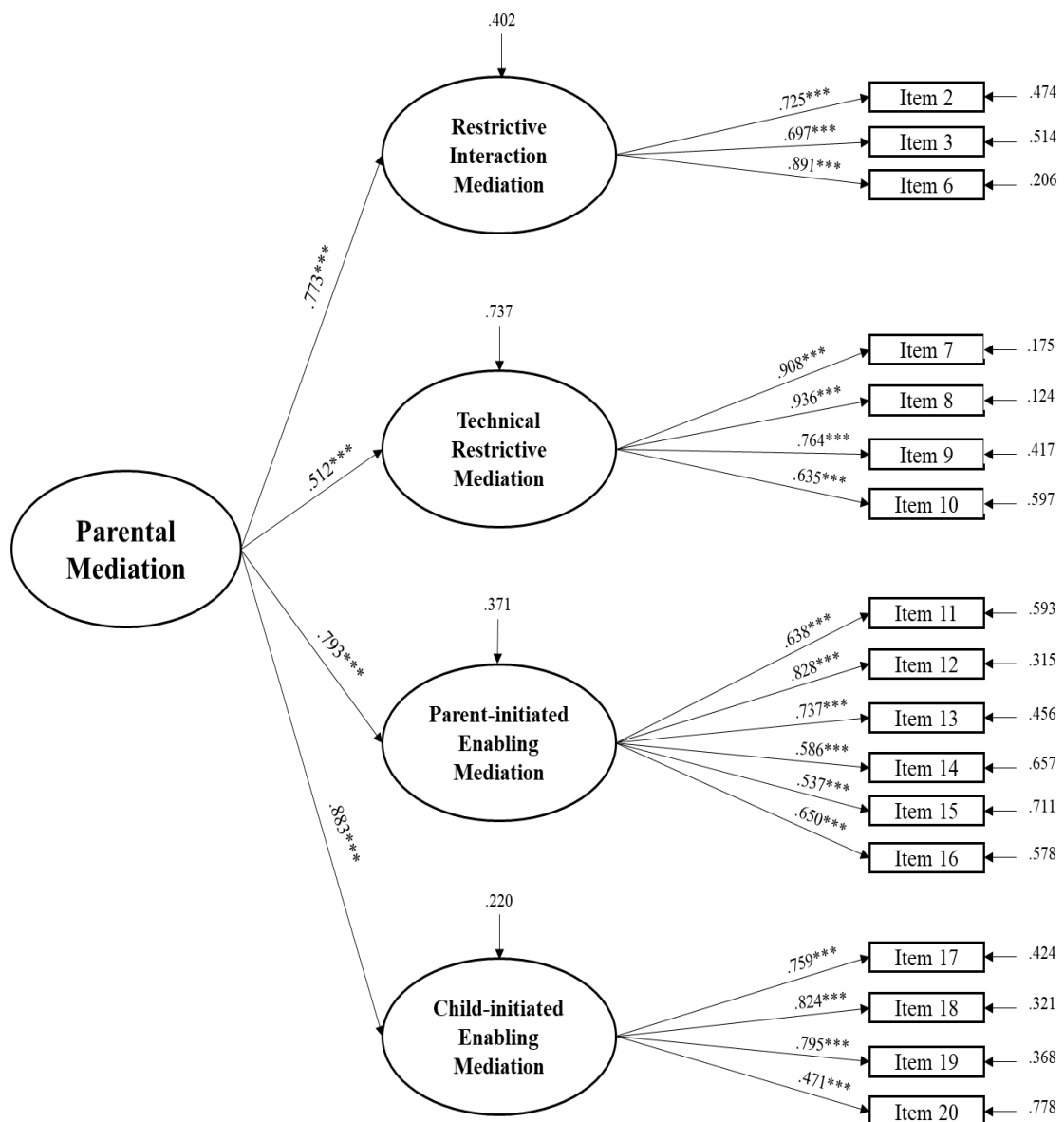
Excluded items (1, 4, 5) are in italic. Factor loadings > .40 are in bold. * $p < .05$. See Appendix C for the full list of items of the I-PMS in both English and Italian.

4.3.3. Confirmatory Factor Analysis (CFA)

The four-factor solution of the previous EFA was confirmed through confirmatory factor analysis (CFA) on the second sample (N = 248). This model demonstrated a good fit to the data ($\text{MLR}\chi^2_{(113)} = 215.604$, $p < .01$; CFI = .93; TLI = .92; RMSEA = .061, 90% C.I. [.048–.073]; SRMR = .067). The first factor was labelled *restrictive interaction mediation* and included three items related to monitoring or setting rules about who the child can interact with online and requiring the child to show the parent personal information, photos, or videos before sharing them online. The second factor, defined as *technical restrictive mediation*, included four items concerning the use of filters and software, such as parental controls, to block or monitor websites, limit the amount of device usage time, and block unwanted ads, spam, viruses, and in-app purchases. The third factor was defined as *parent-initiated enabling mediation* and comprised six items concerning parents showing and explaining the risks and opportunities associated with using devices and how to use them safely. The fourth factor was defined as *child-initiated enabling mediation* and consisted of four items regarding children's willingness to talk to parents about problems and experiences they encounter online and to seek advice on how to use or solve problems with digital media. Subsequently, a second-order CFA was tested, with a second-order dimension named parental mediation, which loaded on the four first-order dimensions. This model showed a good fit ($\text{MLR}\chi^2_{(115)} = 222.929$, $p < .01$; CFI = .93; TLI = .92; RMSEA = .062, 90% C.I. [.049–.074]; SRMR = .070). The loadings of the second-order dimension on the first-order dimensions ranged between .51 and .88. Finally, the I-PMS showed good internal consistency, with a Cronbach's α value of .90. The Cronbach's α values for I-PMS subscales were .80 (restrictive interaction

mediation), .88 (technical restrictive mediation), .82 (parent-initiated enabling mediation), and .80 (child-initiated enabling mediation) (see Figure 4.1).

Figure 4.1. Confirmatory Factor Analysis (CFA) of the I-PMS with first order four-factors model and second order factor



4.3.4. *Convergent and concurrent validity*

To evaluate the convergent and concurrent validity of the Italian Parental Mediation Scale (I-PMS), Pearson's correlations were calculated between the I-PMS (total score and subscales) and the following measures: the Child-Parent Relationship Scale-Short Form (CPRS-SF) subscales (Conflict and Closeness), the Television Mediation Scale (TMS) (total score and two subscales - Restrictive and Instructive mediation), and the Problematic Media Use Measure (PMUM) (see Table 4.3). The results demonstrated good convergent validity, showing that higher parental mediation is associated with higher television mediation ($r = .494^{**}$). Specifically, the restrictive television mediation subscale of the TMS was positively associated only with rule-setting and technical restrictive mediation subscales of the I-PMS, with the higher correlation observed for the technical restrictive mediation subscale ($r = .240^{**}$). Instructive television mediation was positively correlated with all I-PMS subscales, with stronger coefficients for both parent-initiated ($r = .517^{**}$) and child-initiated enabling mediation ($r = .409^{**}$) subscales. Furthermore, higher scores on the I-PMS and its subscales were associated with lower levels of both PMUM and conflict in the parent-child relationship, and higher levels of closeness in the parent-child relationship. Overall, the correlations between I-PMS, PMUM, and CPRS-SF demonstrated good concurrent validity.

Table 4.3. Means and bivariate Pearson's correlations for evaluating convergent and concurrent validity

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Restrictive interaction med.	3,8185	1,32920	1	-	-	-	-	-	-	-	-	-	-
2. Technical restrictive med.	3,2117	1,50120	,395**	1	-	-	-	-	-	-	-	-	-
3. Parent-initiated enabling med.	3,8681	0,92285	,501**	,434**	1	-	-	-	-	-	-	-	-
4. Child-initiated enabling med.	3,6767	1,09438	,651**	,362**	,586**	1	-	-	-	-	-	-	-
5. Parental mediation	3,6600	0,91424	,770**	,743**	,818**	,796**	1	-	-	-	-	-	-
6. Instructive television med.	3,3773	0,63537	,377**	,257**	,517**	,409**	,494**	1	-	-	-	-	-
7. Restrictive television med.	3,4472	0,56308	,153*	,240**	0,112	0,085	,195**	,250**	1	-	-	-	-
8. Television mediation	3,3179	0,43459	,365**	,349**	,459**	,369**	,494**	,780**	,654**	1	-	-	-
9. Closeness	4,4735	0,62107	,160*	,153*	,207**	,345**	,271**	,251**	0,111	,257**	1	-	-
10. Conflict	2,0142	0,82014	-,243**	-,203**	-,338**	-,356**	-,361**	-,251**	-,159*	-,289**	-,459**	1	-
11. Problematic media use	1,8054	0,78965	-,171**	-,251**	-,361**	-,327**	-,361**	-,249**	-,218**	-,334**	-,343**	,543**	1

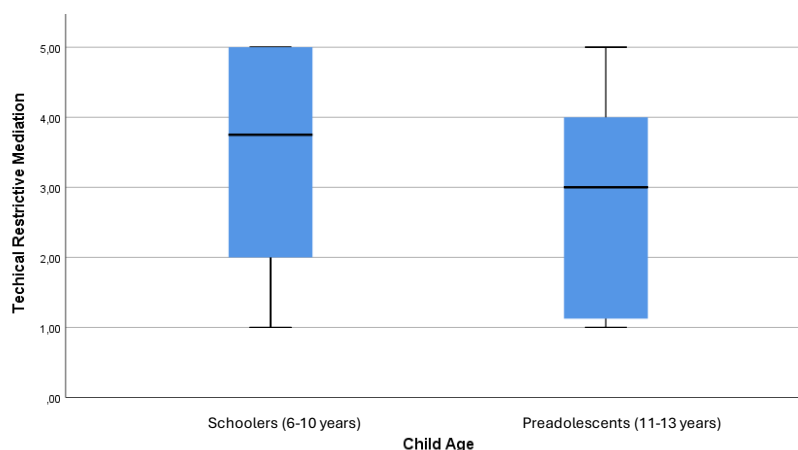
** . The correlation is significant at the 0.01 level (two-tailed).

* . The correlation is significant at the 0.05 level (two-tailed).

4.3.5. *Parents' perceptions of PMS across schoolers and preadolescents, and child gender*

As displayed in Figure 4.2., the Mann–Whitney test revealed a statistically significant difference only in parental perceptions of technical restrictive mediation across the two age groups ($U = 4525$, $Z = -2.730$, $p < 0.01$). In contrast, no significant differences were found in parental perceptions of restrictive interaction mediation ($U = 5186.5$, $Z = -1.393$, $p = 0.164$), parent-initiated enabling mediation ($U = 5819.0$, $Z = -0.075$, $p = 0.200$), or child-initiated enabling mediation ($U = 5015.0$, $Z = -1.282$, $p = 0.087$). These results suggest that parents engage in more technical restrictive mediation with younger children (aged 6 to 10 years) and less with preadolescents. Regarding parental perceptions of mediation strategies based on children's gender (females vs. males), the Mann–Whitney test did not reveal any statistically significant differences for restrictive interaction mediation ($U = 7628.0$, $Z = -0.076$, $p = 0.939$), technical restrictive mediation ($U = 6881.5$, $Z = -1.410$, $p = 0.159$), parent-initiated enabling mediation ($U = 6892.5$, $Z = -1.382$, $p = 0.167$), or child-initiated enabling mediation ($U = 7583.5$, $Z = -0.054$, $p = 0.887$).

Figure 4.2. Mann–Whitney test



4.4. Discussions

This study shows that the I-PMS is a valid and reliable tool for assessing parental mediation strategies used by Italian parents to regulate their children's screen media use between the ages of 6 and 13. Specifically, the I-PMS is a culturally sensitive instrument designed to capture mediation strategies within the specific Italian context.

The results of the statistical analyses confirmed that the scale consists of a structure with four first-order factors and one second-order factor. However, during the exploratory and confirmatory factor analysis, the original 20-item scale was refined, and the final version of the I-PMS retained 17 items. More specifically, four factors emerged: *restrictive interaction mediation*, which involves monitoring and setting rules about online interactions and the sharing of personal content and information online; *technical restrictive mediation*, which refers to the use of filters to limit time spent on screen media or block access to certain websites and apps; *parent-initiated enabling mediation*, which entails parents actively showing and explaining to children the risks and opportunities associated with digital media use; and finally, *child-initiated enabling mediation*, which reflects children's willingness to talk to their parents about the problems and experiences they encounter online. Overall, the I-PMS showed good psychometric properties and highly satisfactory internal consistency ($\alpha = .90$).

The four parental mediation strategies identified in this study partly reflect those outlined by Kuldass et al. (2021) and are consistent with previous findings showing that Italian parents tend to adopt restrictive rules, technical tools such as parental control, and active mediation strategies (Ponte et al., 2023). In particular, the factor 'child-initiated enabling mediation' highlights the importance in the Italian

context of the child's active role in seeking parental support, which means that mediation is seen as the result of a dynamic and reciprocal parent-child process (Clark, 2011; Livingstone et al., 2017). Furthermore, the restrictive mediation focused on online interactions is a novel aspect. This probably reflects the specific concerns of Italian parents, which mainly relate to the regulation of online relationships and the sharing of personal information.

The results of the correlational analysis showed that greater parental mediation related to screen media is associated with increased television mediation, thus supporting the convergent validity of the I-PMS. Furthermore, higher levels of parental mediation are also associated with a reduction in children's problematic screen media use and parent-child conflict, namely tensions, misunderstandings, and difficulties in communication and mutual interaction, with parent- and child-initiated enabling mediation strategies showing slightly higher coefficients than restrictive interaction mediation and technical restrictive mediation. Conversely, higher levels of parental mediation are associated with greater closeness, namely a stronger emotional bond between parent and child. This further confirms the good concurrent validity of the I-PMS. These results seem to support previous studies that have shown a significant association between parental mediation strategies, especially active (or enabling) strategies, and problematic screen media use (Fam et al., 2023; Nielsen et al., 2019). A possible explanation for the slightly higher correlation between problematic media use and enabling strategies could be that Italian parents tend to favour this type of mediation over others, as highlighted by a previous study (Ponte et al., 2023). Furthermore, this result also appears to be in line with the study by Ren & Zu (2022), which showed that parents who provide their children with adequate support and

warmth tend to have a better relationship with their children, who in turn are more inclined to listen to their parents' suggestions and advice regarding screen media use.

Regarding the role of children's age, the results showed a statistically significant difference in the use of technical restrictive strategies between parents of younger children (aged 6–10 years) and parents of pre-adolescents (aged 11–13 years). Specifically, it emerged that parents tend to use more filters and applications aimed at limiting media use time or blocking access to specific content or websites, particularly with younger children. This result aligns with previous studies, which have highlighted that parents tend to adopt less restrictive mediation as their children grow older (Iqbal et al., 2021; Sciacca et al., 2022; Rudnova et al., 2023; Wang, Lwin, et al., 2023). Likely, parents recognize that technical restrictive strategies may be perceived as intrusive, especially by pre-adolescents, who, in the transition from childhood to adolescence, seek greater independence and personal autonomy compared to younger children (Sasson & Mesch, 2014; Miltuze et al., 2021).

It is necessary to evaluate both the strengths and limitations of the present study. First, these results demonstrate that the I-PMS is a reliable and valid measure to assess the strategies Italian parents use most frequently to regulate their children's use of digital media. The use of the I-PMS in the Italian context can therefore help pave the way for new studies exploring how these strategies can reduce involvement in specific problems related to screen media in childhood and adolescence. Furthermore, the I-PMS is a psychometrically valid instrument since it aims to overcome the main methodological problems found in other parental mediation measurement scales in the literature (Kuldas et al., 2021). Furthermore, its use may also have useful implications for clinical intervention and prevention, since it can help parents become more aware

of the communication strategies they adopt, more or less frequently, when guiding their children's use of digital media. Consequently, this awareness may help prevent problematic behaviors associated with screen media.

Regarding limitations, the I-PMS is a self-report instrument that relies solely on the parents' perspective, which may differ from that of the child. Furthermore, as a self-report measure, the I-PMS is susceptible to social desirability bias. Therefore, future studies should aim to integrate results from studies based on both parent-report and child-report instruments to gain a more comprehensive understanding of parental mediation strategies and their influence on children's problematic and risky screen media use. Finally, the sample sizes used for the EFA and CFA are relatively small, so larger samples are needed in future studies to assess gender and age invariance in multigroup analyses.

Chapter 5

Study 4.

Factors influencing parental mediation strategies: Preliminary findings from two structural equation models

5.1. Introduction

Studies investigating the effectiveness of parental mediation strategies in protecting children and preadolescents from problematic and risky screen use often show conflicting results, as various variables can influence their effects, including cultural context (Kirwil, 2009), child's age (Chen & Shi, 2019; Fam et al., 2023), and the specific type of problematic screen-related behavior assessed (Collier et al., 2016; Chen & Shi, 2019). In addition, other variables specifically related to the family environment and the parent-child relationship can also influence parental mediation strategies.

Kalmus et al. (2022) highlighted that parental mediation strategies can be influenced by the quality of parent-child relationship, as well as by the style of communication that parents generally employ in raising their children (Warren & Aloia, 2019), which in turn shapes their parenting styles. Studies have shown that a supportive parenting style significantly moderates the effect of active mediation on Internet use (Ren & Zhu, 2022). Moreover, an authoritarian parenting style is related to restrictive parenting mediation (Boniel-Nissim et al., 2020), while the authoritative style is related both to restrictive and active mediation (Hwang et al., 2017).

The authoritative parenting style may be associated with a well-developed parental reflective functioning, as studies have found that this ability can promote sensitive and responsive caregiving, more positive parenting behaviors and higher quality in parent-child interactions (Camoirano, 2017; Huynh et al., 2024). Moreover, extensive evidence demonstrated that parenting practices significantly influence children's ability to regulate their emotions (Morris et al., 2007, 2017). For example, results have shown that authoritative parenting is associated with more adaptive emotion regulation strategies, particularly cognitive reappraisal, while authoritarian parenting is associated with less adaptive emotion regulation strategies, such as expressive suppression (Karim et al., 2013; Haslam et al., 2020; Qiu & Shum, 2022). Furthermore, one study observed that an active mediation style is positively correlated to a better emotional regulation in children, while a restrictive style was correlated to a greater emotional lability/negativity (Morelli et al., 2022).

Other variables that more specifically concern the relationship between parents, children and digital screens may also influence parental mediation strategies. For example, parents with greater digital skills tend to engage in more active mediation (Dedkova & Smahel, 2020; Iqbal et al., 2021), while parents with lower digital skills are more likely to adopt restrictive and technical mediation to regulate their children's media use (Sciacca et al., 2022). In addition, parents who believe their children are addicted to social media (Rudnova et al., 2023) are more likely to adopt active mediation and less restrictive mediation. However, this finding contrasts with a study suggesting that parents who perceive high levels of children's Internet addiction tend to adopt more restrictive mediation (Iqbal et al., 2021). Finally, parents who express greater worries about children's screen media use were more prone to adopt restrictive

and technical mediation (Sciacca et al., 2022), as well as active mediation (Sciacca et al., 2022; Iqbal et al., 2021).

In summary, studies suggest that an authoritative parenting style and a better child's emotional regulation are associated with greater use of active parental mediation strategies. Furthermore, an authoritative parenting style, which requires an adequate parental reflective functioning, contributes to a better child's emotional regulation. Therefore, the first aim of this study is to examine the influence of parental reflective functioning (specifically, the interest and curiosity for the child's mental states), and authoritative parenting style on the child's emotional regulation through a structural equation model. Additionally, the study investigates how the child's emotional regulation, in turn, affects parents' adoption of the four different parental mediation strategies pointed out as result of study 3. It is hypothesized that:

- (i) parents' greater interest and curiosity about child's mental states will be associated with an authoritative parenting style, which in turn will influence parents' perception of a better child's emotional regulation, which ultimately will lead both parent and child to engage in parental mediation strategies.

Furthermore, studies indicate that parents' digital skills, their perception of their children's problematic media use, and their perception of online risks influence the adoption of specific parental mediation strategies. Therefore, the second aim of this study is to test the effect of parents' digital skills, parents' perception of their children's problematic media use, and parents' perception of online risks on the four different parental mediation strategies through a structural equation model.

- (ii) Based on previous studies which observed that parents with lower digital skills tend to adopt more restrictive and technical mediation strategies (Sciacca et al., 2022), whereas those with higher digital skills are more inclined to use active mediation (Dedkova & Smahel, 2020; Iqbal et al., 2021), it is hypothesized that:
- Parents' digital skills will be negatively associated with restrictive interaction mediation and technical restrictive mediation,
 - and greater digital skills will be positively associated with both parent-initiated and child-initiated enabling mediation.
- (iii) Previous studies observed that parents who believe their children are addicted to social media are more inclined to adopt active mediation (Rudnova et al., 2023). However, parental perception of children's addiction to the Internet and social media has been both positively and negatively associated with restrictive mediation strategies (Rudnova et al., 2023; Iqbal et al., 2021). Furthermore, although there are no studies on this, it is assumed that children who engage in problematic media use are less likely to seek parental support or initiate conversations about their online experiences. It is hypothesized that:
- Parents' perception of higher levels of problematic media use in their children will be positively associated with restrictive interaction mediation, technical restrictive mediation, and parent-initiated enabling mediation,
 - and negatively associated with child-initiated enabling mediation.

- (iv) Based on findings that parents who perceive higher online risks for their children tend to adopt both more restrictive and active mediation (Sciacca et al., 2022; Iqbal et al., 2021), it is hypothesized that:
- Parents' perception of greater online risks for their children will be positively associated with the four parental mediation strategies.

5.2. Methods

5.2.1. *Participants and procedure*

A total of 248 Italian parents (83.1% women) with children aged 6 to 13 years were recruited for this study using a snowball sampling method. Parents were asked to complete a web-based survey developed on Google Forms and distributed online via instant messaging and social networking groups by using their smartphones or computers. Before completing the survey, parents were given informed consent, which explained in detail the purpose of the research and the measures used to collect and analyze the data, that participation was voluntary, that confidentiality was guaranteed, and that all participants could withdraw from the study at any time. The study was approved by the University Research Ethics Committees of the Department of Humanities, University of Naples Federico II and carried out in compliance with the ethical guidelines for psychological research of the Italian Psychological Association.

5.2.2. *Measures*

Demographics. Participants were asked a series of questions aimed at collecting sociodemographic data. These questions explored information such as the gender and age of both parents and their children, the age at which the children received the first personal device, the amount of time they spend on devices during the week and on weekends, and the parents' level of concern regarding their children's device usage.

Parental Mediation. The Italian Parental Mediation Scale (I-PMS) is a self-report measure consisting of 17 items rated on a 5-point Likert scale (from 1 = 'Never'

to 5 = ‘Always’), assessing the communication strategies Italian parents adopt to regulate their children’s screen media use. It comprises four subscales representing four distinct parental mediation strategies: restrictive interaction mediation (3 items) (e.g., “*Do you set rules about who he/she can play with online?*”), technical restrictive mediation (4 items) (e.g., “*Do you use services or tools such as parental control to track Websites or Apps that your child visits?*”), parent-initiated enabling mediation (6 items) (e.g., “*Do you show your child how to use the Internet safely?*”), and child-initiated enabling mediation (4 items) (e.g., “*Does he/she ask you for help with situations that he/she cannot handle online - e.g, when he/she surfs the Internet or plays video games?*”). In the present study, Cronbach’s alphas and McDonald’s Omegas are 0.92 and 0.95 for I-PMS total score, 0.70 and 0.71 for restrictive interaction mediation, 0.93 and 0.93 for technical restrictive mediation, 0.87 and 0.87 for parent-initiated enabling mediation, and 0.86 and 0.87 for child-initiated enabling mediation, respectively.

Parental Interest and Curiosity in Mental States. The Interest and Curiosity subscale of the Italian version of the Parental Reflective Functioning Questionnaire (PRFQ; original English version: Luyten et al., 2017; Italian version: Pazzagli et al., 2018) is a self-report measure consisting of 6 items scored on a 7-point Likert scale (from 1 = ‘Strongly disagree’ to 7 = ‘Strongly agree’). The interest and curiosity in mental states (IC) evaluates parent’s ability to think about their child’s internal experiences and adopt their child’s perspective (e.g., “*I am often curious to find out how my child feels?*”). In the present study, Cronbach’s alpha of the Interest and Curiosity subscale is 0.73, and McDonald’s Omega is 0.82.

Authoritative Parenting Style. The Authoritative Parenting Style subscale of the Italian version of the Parenting Styles and Dimensions Questionnaire (PSDQ) (original English version: Robinson et al., 2001; Italian version: Confalonieri et al., 2009) is a self-report measure consisting of 6 items rated on a 6-point Likert scale (from 1 = ‘Never’ to 5 = ‘Always’). It assesses two stylistic dimensions of authoritative parenting style: Regulation-reasoning/Induction (e.g., “*When my child misbehaves, I talk and reason with him/her*”) and Autonomy granting/Democratic participation (e.g., “*I take my child’s desires into account before asking him/her to do something*”). In the present study, Cronbach’s alpha of the Authoritative Parenting Style subscale is 0.82, and McDonald’s Omega is 0.91.

Child’s Emotion Regulation. The Emotion Regulation subscale of the Italian version of the Emotion Regulation Check-list (ERC; original English version: Shields & Cicchetti, 1997; Italian version: Molina et al., 2014) is a self-report measure consisting of 8 items rated on a 4-point Likert scale (from 1 = ‘Almost never’ to 5 = ‘Almost always’) and assessing parents’ perception of their children’s emotion regulation ability. Examples of items include: “*(He/She) Responds positively to neutral or friendly overtures by adults*” and “*(He/She) Can say when s/he feels sad, angry or mad, fearful or afraid*”. In this study, Cronbach’s alpha of the Emotion Regulation subscale is 0.63, and McDonald’s Omega is 0.73.

Child’s Problematic Media Use. The Problematic Media Use Measure (PMUM; original English version: Domoff et al., 2019) is a self-report scale consisting of 27 items rated on a 5-point Likert scale (from 1 = ‘Never’ to 5 = ‘Always’) and assessing parents’ perceptions of problematic screen media use in children aged 4 to 12. The items reflect the 9 criteria for Internet Gaming Disorder (APA, 2013).

Examples of items include: “*It is hard for my child to stop using screen media,*” “*My child uses screen media to feel better,*” and “*My child becomes angry when he/she cannot use screen media*”. In this study, Cronbach’s alpha and McDonald’s Omega of PMUM is 0.97 and 0.98, indicating excellent internal consistency.

Parental Digital Skills. The short form of the Internet Skills Scale (ISS; Van Deursen et al., 2016) is a self-report measure consisting of 23 items on a 5-point Likert scale (from 1 = ‘Not at all true of me’ to 5 = ‘Very true of me’) and assessing Internet skills in the general population. The measure comprises five subscales representing five Internet skills: Operational skills (5 items) (e.g., “*I know how to open downloaded files*”), Information Navigation skills (5 items) (e.g., “*I find it hard to find a website I visited before*”), Social skills (5 items) (e.g., “*I know which information I should and shouldn’t share online*”), Creative skills (5 items) (e.g., “*I know how to create something new from existing online images, music or video*”), and Mobile skills (3 items) (e.g., “*I know how to install apps on a mobile device*”). In this study, Cronbach’s alpha of the ISS total score is 0.90, and McDonald’s Omega is 0.92, indicating optimal internal consistency.

Parental Perception of Screen Media Risks. The Parental Perception of Screen Media Risks is a self-report instrument created *ad hoc* for the present study, consisting of 15 items rated on a 5-point Likert scale (from 1 = ‘Never’ to 5 = ‘Always’). The items were adapted from existing measures used in previous studies, specifically from Nikken & Jansz (2014) and Livingstone et al. (2011), and further integrated with themes that emerged from the interviews with parents conducted in Study 3. The items assess how often parents think their child can encounter risks while using screen media or surfing the Internet. Examples of items include: “*I think my child may become*

addicted to technology”, “*I think my child may be contacted by strangers with bad intentions*”, and “*I think frequent use of digital devices (smartphones/tablets/consoles) may interfere with his/her social relationships, reducing the time he/she spends with family and friends*”. In this study, Cronbach’s alpha of the Parental Perception of Screen Media Risks scale is 0.93, and McDonald’s Omega is 0.95, indicating excellent internal consistency.

5.2.3. Data analysis

All descriptive and correlational analyses were conducted using the Statistical Package for Social Sciences SPSS (Version 26 for Windows) (SPSS Inc., Chicago, IL). Structural Equation Modeling (SEM) was performed using the *lavaan* package (Rosseel, 2012) in RStudio (version 4.2.1) (R Core Team, 2019) to test the theoretical hypotheses. Before running the analyses, data were checked for normality and multicollinearity. Multicollinearity was checked by examining variance inflation factors (VIF; < 10) and tolerance (> 0.1) values. There was no indication of multicollinearity as tolerance statistics were above .60 and variance influence factors were well below 10 (Bowerman & O’Connell, 1990). Given that the Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) normality tests revealed deviations from a normal distribution for the items, the maximum likelihood estimation method robust to non-normality (MLR) was used in all structural equation modelling analyses. Item parcelling was used to reduce the number of parameters to be estimated within the SEM using an empirically equivalent method (Landis et al., 2000), whereby items were assigned to parcels so that they had equal means, variances, and reliabilities. The overall model fit was evaluated using several indices: the Comparative Fit Index (CFI)

and Tucker-Lewis Fit Index (TLI) (Bentler, 1990), with values greater than or equal to 0.90 considered satisfactory; the Root Mean Square Error of Approximation (RMSEA), where values below 0.08 are considered acceptable (Browne & Cudeck, 1993); and the Standardized Root Mean Square Residuals (SRMR), with values under 0.08 indicating good fit (Kline, 2015). To assess the internal consistency of the scales, Cronbach's α and McDonald's ω were calculated using the *psych* package in RStudio (version 4.2.1).

5.3. Results

5.3.1. *Descriptive statistics and correlational analyses*

The total sample includes 248 Italian parents (83.1% females) with children between 6 and 13 years (48% males; Child $M_{\text{age}} = 10.33$, $SD = 1.96$). Of these, 47.2% are schoolers (6-10 years), while 52.8% are preadolescents (11-13 years). Regarding children's media use, 84.7% of parents reported that their children own a personal device and received it at an average age of 8.66 years ($SD = 1.81$). Children spend an average of 1.97 hours per day on screen media on weekdays, which increases to 2.31 hours per day on weekends, in parents' opinion. Finally, 49.6% of parents report being always concerned about their children's screen media use, and 83.1% of parents say they share this concern and the rules regarding their children's screen media use with their partner. Means, standard deviations, and bivariate correlations among variables are shown in Table 5.1.

Table 5.1. Means and bivariate Pearson's correlations between study variables

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. PM_RIM	4,1116	1,02931	1	-	-	-	-	-	-	-	-	-	-
2. PM_TRM	3,5040	1,51910	,501**	1	-	-	-	-	-	-	-	-	-
3. PM_PEM	4,0302	0,96351	,588**	,485**	1	-	-	-	-	-	-	-	-
4. PM_CEM	3,9425	1,10733	,650**	,348**	,670**	1	-	-	-	-	-	-	-
5. PM_TOT	3,9001	0,91916	,794**	,766**	,865**	,795**	1	-	-	-	-	-	-
6. PRF_IC	5,3723	1,08720	,284**	,204**	,287**	,235**	,308**	1	-	-	-	-	-
7. PS_AUT	4,3555	0,65257	,368**	,208**	,486**	,371**	,439**	,510**	1	-	-	-	-
8. EM_REG	3,3579	0,40706	,274**	0,087	,302**	,310**	,287**	,265**	,388**	1	-	-	-
9. RISK	3,2264	1,02038	,208**	,295**	0,101	-0,035	,184**	,253**	,135*	-0,079	1	-	-
10. ISS	3,4204	0,54751	,187**	,223**	,221**	,188**	,259**	,188**	,275**	,189**	0,046	1	-
11. PMUM	1,6765	0,79323	-,164**	0,068	-,186**	-,279**	-,154*	0,049	-,171**	-,406**	,319**	-0,067	1

* The correlation is significant at the 0.05 level (two-tailed); ** The correlation is significant at the 0.01 level (two-tailed); PM_RIM = Restrictive Interactive Mediation; PM_TRM = Technical Restrictive Mediation; PM_PEM = Parent-initiated Enabling Mediation; PM_CEM = Child-initiated Enabling Mediation; PM_TOT = Parental Mediation Scale; PRF_IC = Interest and Curiosity in mental states; PS_AUT = Authoritative Parenting Style; EM_REG = Child's Emotion Regulation; RISK = Parental Perception of Screen Media Risks; ISS = Internet Skills Scale; PMUM = Problematic Media Use Measure.

5.3.2. *Structural Equation Modeling 1: The role of parental reflective functioning, parenting style, and child's emotion regulation on parental mediation strategies*

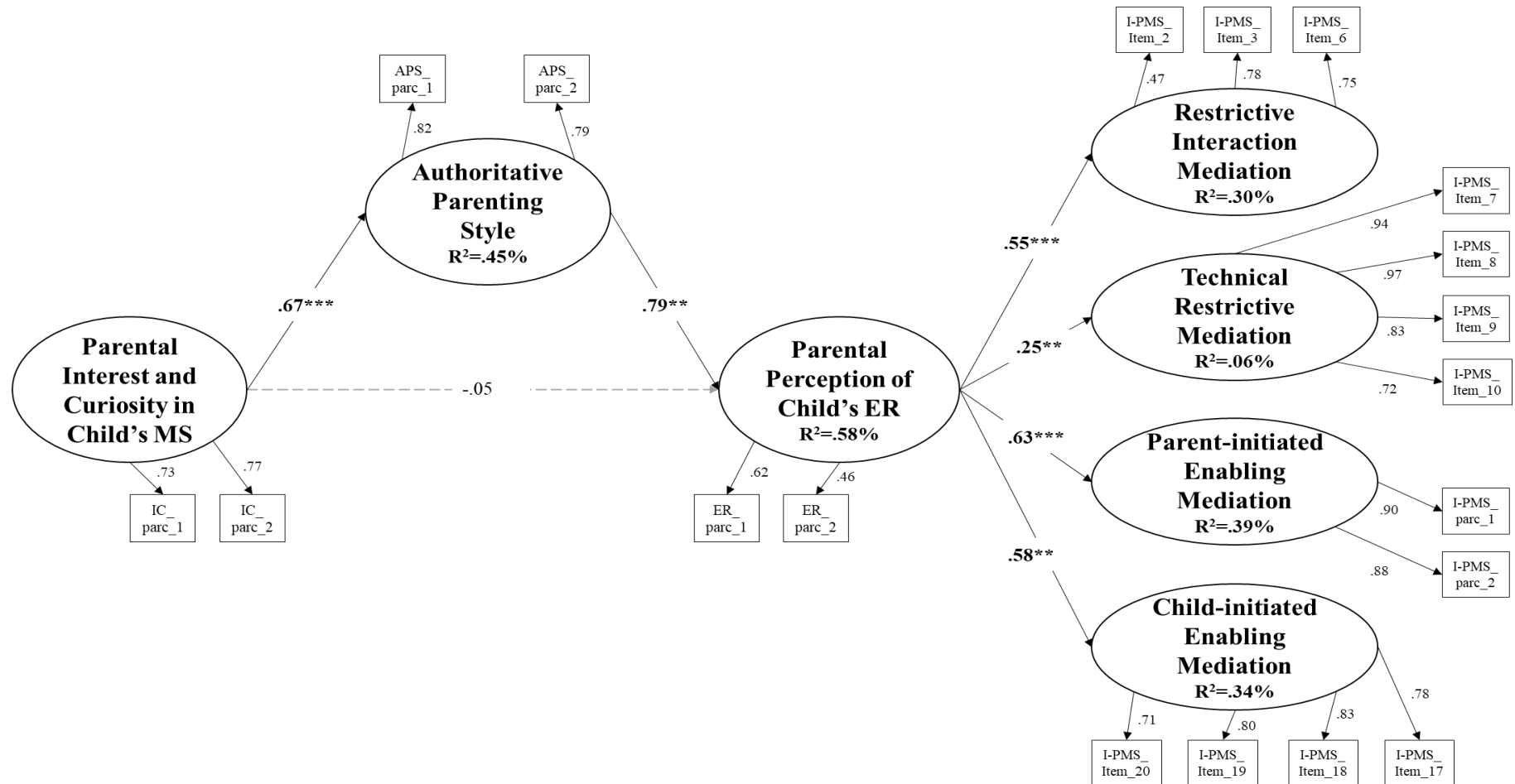
The first structural equation model demonstrated adequate fit indices: $MLR\chi^2 = 268.794$, $df = 139$, $p < .001$; $\chi^2/df = 1.93$; RMSEA [90 %CI] = 0.061 [0.051–.072]; CFI = 0.95; TLI = 0.93; SRMR = 0.065. The results indicated that parents' interest and curiosity in their child's mental states positively predicted restrictive interactive mediation, parent-initiated, and child-initiated enabling mediation indirectly through authoritative parenting style and parents' perception of their child's good emotion regulation. However, parents' interest and curiosity in their child's mental states did not predict technical restrictive mediation indirectly through authoritative parenting style and parents' perception of their child's good emotion regulation. Overall, the model explained 30.5% of the variance in restrictive interactive mediation, 39.7% of the variance in parent-initiated enabling mediation, and 34% of the variance in child-initiated enabling mediation. Standardized path estimates are shown in Figure 5.1, while indirect effects are presented in Table 5.2.

Table 5.2. Indirect effects of the SEM 1

Indirect Effect	Estimate	Std.Err	P	CI lower	CI upper
ICM → Child's ER → RIM	-0.033	0.097	0.729	-0.223	0.156
ICM → Child's ER → TRM	-0.013	0.037	0.724	-0.086	0.06
ICM → Child's ER → PEM	-0.041	0.118	0.729	-0.273	0.191
ICM → Child's ER → CEM	-0.036	0.105	0.731	-0.243	0.17
ICM → AUT → Child's ER → RIM	0.355	0.135	0.009	0.09	0.62
ICM → AUT → Child's ER → TRM	0.139	0.074	0.060	-0.006	0.285
ICM → AUT → Child's ER → PEM	0.434	0.184	0.019	0.073	0.796
ICM → AUT → Child's ER → CEM	0.384	0.122	0.002	0.144	0.623

RIM = Restrictive Interactive Mediation; TRM = Technical Restrictive Mediation; PEM = Parent-initiated Enabling Mediation; CEM = Child-initiated Enabling Mediation; ICM = Interest and Curiosity in mental states; AUT = Authoritative Parenting Style; Child's ER = Child's Emotion Regulation.

Figure 5.1. Results of the SEM 1

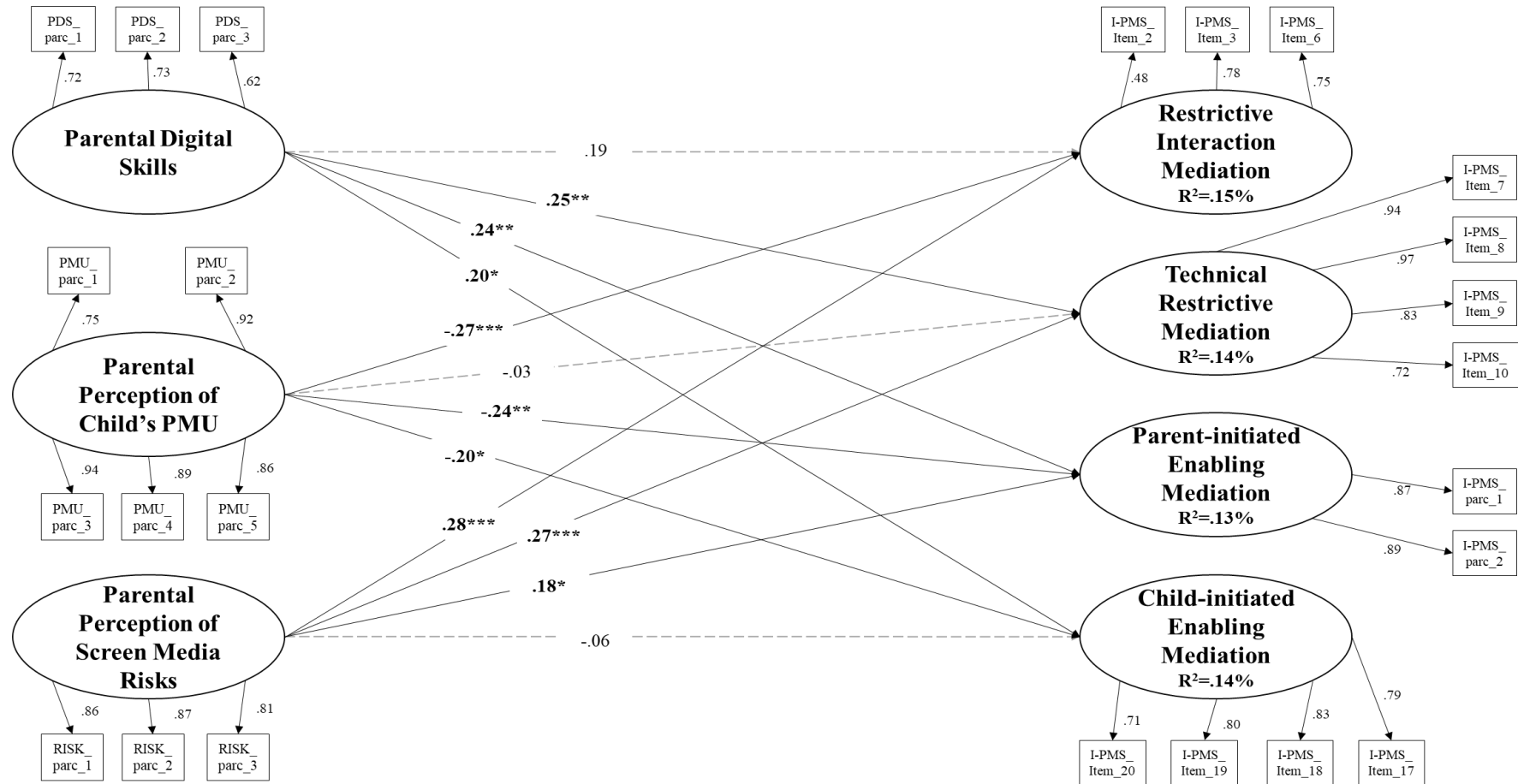


Errors associated to observed variables are not showed to improve figure readability.

5.3.3. *Structural Equation Modeling 2: The role of parental digital skills, parental perception of screen media risks, and child's problematic screen media use on parental mediation strategies*

The second structural equation model demonstrated adequate fit indices: $MLR\chi^2 = 420.638$, $df = 231$, $p < .001$; $\chi^2 / df = 1.82$; RMSEA [90 %CI] = 0.058 [0.049–0.066]; CFI = 0.95; TLI = 0.94; SRMR = 0.056. The results indicated that parents' digital skills positively predicted technical restrictive mediation and both parent- and child-initiated enabling mediation, but not restrictive interactive mediation. Moreover, parental perception of screen media risks positively predicted restrictive interactive mediation, technical restrictive mediation, and parent-initiated enabling mediation, but not child-initiated enabling mediation. Finally, parental perception of their child as having problematic screen media use negatively predicted restrictive interactive mediation and both parent- and child-initiated enabling mediation, but not technical restrictive mediation. Overall, the model explained 15.2% of the variance in restrictive interactive mediation, 14.7% of the variance in technical restrictive mediation, 13.7% of the variance in parent-initiated enabling mediation, and 14% of the variance in child-initiated enabling mediation. Standardized path estimates are presented in Figure 5.2.

Figure 5.2. Results of the SEM 2



Errors associated to observed variables are not showed to improve figure readability

5.4. Discussions

The present study aimed to understand the role of factors within the family context that can influence the adoption of specific parental mediation strategies by testing two separate structural equation models.

In line with the first (i) hypothesis, the results of the first model confirmed that interest and curiosity in children's mental states are associated with the adoption of a parenting style that takes into account the child's point of view and encourages reasoning, which consequently promotes a better child's emotional regulation. In turn, parents' perception of good child's emotional regulation promotes the adoption of both parent- and child-initiated enabling mediation, while it has no significant effect on technical restrictive mediation. Moreover, the perception of a good child's emotional regulation is also positively associated with restrictive interaction mediation. In line with previous literature (Camoirano, 2017; Huynh et al., 2024; Morris et al., 2007, 2017; Karim et al., 2013; Haslam et al., 2020; Qiu & Shum, 2022), these results confirm that an authoritative parenting style, which requires a good parental reflective functioning, tends to support parents' perception of a child with better emotional regulation skills. Furthermore, this study highlights that when parents perceive that their child is able to adequately regulate emotions, they are likely to feel more confident in establishing rules regarding online interactions, actively showing and explaining the risks and opportunities associated with digital media. Furthermore, if parents perceive that their child has adequate emotion regulation, they also tend to perceive that their child engages in open discussions with them about their online experiences. However, the perception that their child has good emotional regulation does not influence the tendency of parents to adopt technical restrictive mediation,

such as filters or tools designed to block access to devices, specific applications or websites.

In line with the second hypothesis (ii) and previous studies (Dedkova & Smahel, 2020), parents' digital skills promote enabling mediation initiated by both parents and children. This likely implies that parents with greater digital skills feel more confident in actively showing and explaining the risks and opportunities associated with screen media use to their children. At the same time, parents also perceive that their children are more inclined to seek their help when facing problematic experiences online. However, parents' digital skills have no significant effect on restrictive interactive mediation. Likely, parents with greater digital skills are aware of the importance of technology in everyday life, therefore, rather than imposing rigid rules and controls, they tend to adopt a more dialogue-oriented approach aimed at discussing both the risks and opportunities of the online world. Contrary to what was hypothesized in previous studies (Sciacca et al., 2022; Iqbal et al., 2021), this study found that higher digital skills in parents are associated with a greater use of technical restrictive mediation. Parents with higher levels of digital literacy likely feel more confident and therefore inclined to use filters and tools that limit access to devices and content.

In line with the third hypothesis (iii), parents' perception of a greater problematic media use in children is negatively associated with child-initiated enabling mediation. That is, when parents believe that their child engages with media in a problematic way (i.e. experiencing high levels of conflict, anger, and frustration due to difficulty disconnecting from screens), they also perceive their child as less likely to engage in open discussions or to seek their help in solving problems related

to online experiences. However, contrary to the third hypothesis and the findings of Iqbal et al. (2021), a greater parental perception of children's problematic media use is not associated with increasing restrictive interactive mediation. Instead, it shows a negative relationship, aligning with Rudnova et al. (2023). Similarly, it is also negatively linked to parent-initiated enabling mediation, while having no effect on technical restrictive mediation. It is therefore likely that when the child displays higher levels of problematic screen media use, parents counterintuitively feel disempowered by the conflictual relationship, and this leads them to disengage from both rule-based and dialogue-based strategies.

Finally, in line with the fourth hypothesis (iv) and previous studies (Sciacca et al., 2022; Iqbal et al., 2022), the results confirmed that parents' perception of greater risks for children when surfing online is positively associated with restrictive interaction mediation, technical restrictive mediation and parent-initiated enabling mediation, but not with child-initiated enabling mediation. This probably suggests that parents who are more aware of online risks are more likely to set rules for online interactions, use filters and tools to control or limit access to certain content, and actively explain the risks and opportunities of digital media. However, this parental awareness does not appear to directly influence their children's willingness to speak openly about problems they encounter online.

Some limitations of the present study need to be addressed. First, the study relies on self-report measures, which are known to have potential methodological biases. Second, the participants involved in the study come from a specific Italian context, which potentially limits the generalizability of the findings. Therefore, future studies could test the models in other countries to assess their applicability in other

cultural contexts. In addition, as a cross-sectional study, the study does not allow for establishing a causal direction between variables, so it would be necessary to test the model in longitudinal studies. Finally, the sample size composed of parents is relatively small, so it is necessary to have larger samples in future studies to assess gender and age invariance in multigroup analyses.

Overall, findings help to identify the dimensions influencing the adoption of specific parental mediation strategies, highlighting the important role of both variables related to the parent-child relationship (e.g., parental reflective functioning, parental style, and child emotional regulation) and those more specifically linked to the relationship between parent, child, and digital screens (e.g., parents' digital skills, parents' risk perception, and children's problematic screen media use). These findings may have important implications for clinical and preventive interventions aimed at supporting Italian parents in managing and regulating their children's screen media use.

Chapter 6

General discussion

The present dissertation contributes to filling the gaps in the literature on problematic and risky screen media use in childhood and pre-adolescence (Rega et al., 2023), as well as in the literature on Parental Mediation (Kuldas et al., 2021), which refers to the set of interpersonal communication strategies used by parents to mediate and regulate their children's screen media use (Clark, 2011). The research is set in the specific Italian context and rooted in the theoretical framework of the Interactional Theory of Childhood Problematic Media Use (IT-CPU) (Domoff et al., 2020), according to which media-specific parenting practices are among the ‘proximal’ factors that contribute more directly to the onset of problematic screen media use in childhood.

The aims of this research were, firstly, to understand the phenomenon of problematic and risky screen media use from the perspective of younger children, which is often underexplored in the literature; secondly, to explore parents’ representations of their children’s problematic screen media use and contribute to the Italian validation of the Problematic Media Use Measure (PMUM); and thirdly, to develop and validate the Italian Parental Mediation Scale (I-PMS), a culturally sensitive instrument designed to capture parental mediation strategies within the specific Italian context. Based on these findings, the general aim of the research project was to test two parental mediation models to understand the factors that may influence the strategies parents adopt to mediate their children's screen media use.

As most studies in the literature have investigated problematic screen media use among children based on quantitative data from parents' reports, Study 1 contributed to exploring primary school children's representations of their screen media use through a qualitative methodology based on focus groups. Results from the transcripts of 17 focus groups were analyzed using latent thematic analysis, revealing that children's motivations for using screen media ranged from the desire to make social connections, play and express creativity, to the need to escape from reality. Although children are aware of the characteristics of screen media addiction and are distressed by the dangers they encounter online, they are often unable to disconnect and instead actively seek out the strong sensations associated with risky online experiences. Although they value parental support in dealing with risks, the fear of being punished makes them reluctant to ask for help, preferring to deal with difficulties on their own, using their digital skills or self-soothing behaviors. In terms of parental mediation, children perceive that their parents tend to prefer the use of technical restrictive strategies, based on the use of filters and tools to limit access to applications and content, or sometimes they do not use any kind of mediation strategy at all. Overall, a potential confusion and overlap between the virtual and the real world has emerged, which requires particular attention. These initial findings have helped to guide subsequent studies of this research and, in particular, the development of the I-PMS and the model of factors that can influence parental mediation, highlighting the importance of improving parents' digital literacy and promoting more open communication within the family and the use of parental mediation strategies based on dialogue with children.

It was found that there are still few quantitative studies in the literature aimed at exploring problematic media use in childhood, also in the Italian context. This is probably also due to the lack of valid parent- and child-report measures aimed at detecting this phenomenon in this age group (Rega et al., 2023). Therefore, Study 2 contributed to the Italian validation of the parent-report measurement scale currently most used in the literature to measure PMU in children aged between 4 and 12 years, namely the Problematic Media Use Measure (PMUM) (Domoff et al., 2019). This study demonstrated the validity and reliability of both the long and short versions of the PMUM in assessing PMU in children between 1 and 14 years of age in the Italian context. The Italian version of the PMUM showed excellent psychometric properties and strong internal consistency, as well as good concurrent validity, supporting the unidimensional factorial structure in line with the original version of the measure (Domoff et al., 2019). The results of the correlational analysis and Kruskal-Wallis rank sum test indicated that parents' perceptions of their children's PMU are associated with greater conflict and less closeness within the parent-child relationship, and that parents' perceptions of their children's PMU tend to increase as the children grow.

Studies have shown conflicting results regarding the impact of parental mediation strategies on problematic media-related behaviours in children and adolescents (Coyne et al., 2017; Nielsen et al., 2019; Chen & Shi, 2019; Lo Cricchio et al., 2022; Fam et al., 2023; Rega et al., 2022). These discrepancies may be partly due to two main reasons. First, measurement instruments designed to capture the construct of parental mediation have methodological and content validity issues that need to be addressed (Kuldas et al., 2021). Second, the effectiveness of parental mediation may vary across cultural contexts, as parents may be more inclined to use

specific strategies based on their cultural background (Kirwil, 2009). Therefore, the aim of Study 3 was to develop and validate the Italian Parental Mediation Scale (I-PMS) to measure parental mediation strategies within the Italian context and overcome these methodological issues. A sample of 497 Italian parents (85.5% women) of children aged 6 to 13 years participated in the study. Factor analysis of the I-PMS revealed a four-factor solution, with factors labelled *restrictive interaction mediation*, *technical restrictive mediation*, *parent-initiated enabling mediation*, and *child-initiated enabling mediation*. Overall, the I-PMS showed good psychometric properties, highly satisfactory internal consistency, and good concurrent and convergent validity, proving to be a culturally sensitive instrument suitable for capturing mediation strategies within the specific Italian context. The results of the correlational analysis showed that parental mediation was associated with a reduction in parent-child conflict and problematic media use in children, as well as an increase in parent-child closeness. Furthermore, in line with previous studies showing less use of restrictive mediation with older children (Iqbal et al., 2021; Sciacca et al., 2022; Rudnova et al., 2023; Wang, Lwin, et al., 2023), the Mann-Whitney test showed that parents were more likely to use technical restrictive mediation with younger children.

Furthermore, the effectiveness of parental mediation strategies in protecting children and preadolescents from problematic and risky screen use may also depend on the interaction between variables present in the family context and those related to the parent-child relationship (Kalmus et al., 2022; Ren & Zhu, 2022; Hwang et al., 2017). Therefore, the aim of Study 4 was to test the role of parental reflective function, authoritative style, children's emotional regulation, parents' digital skills, and their perceptions of online risks and children's problematic media use in influencing the

adoption of different parental mediation strategies through two structural equation models (SEM). The results of the first model highlighted that interest and curiosity about the child's mental states promote the adoption of an authoritative style, which in turn encourages parents' perception that the child has good emotional regulation. Consequently, this perception makes parents more likely to establish enabling and restrictive interaction mediation. The perception that the child has good emotional regulation is also positively associated with the child's tendency to discuss their online experiences with parents, while it does not affect restrictive technical mediation. Findings of the second model confirm that parents with more digital skills are more confident in explaining the risks and opportunities of digital media use to their children, in using filters and tools to limit access to devices and content, and perceive that their children are more likely to seek their help with online problems. However, parents' digital skills do not significantly influence restrictive interactive mediation, probably because they recognise the importance of technology in everyday life and prefer a dialogue-based approach to rigid rules and controls. Moreover, parents who are aware of online risks are more likely to set rules for online interactions, use filters to control access to content, and actively explain the risks and opportunities of screen media use to their children. However, this awareness does not influence children's tendency to discuss their online problems openly with their parents. Finally, when parents believe their child has higher levels of problematic media use, they perceive their child as less likely to seek help or engage in open discussion. In addition, parents' perceptions of their child's problematic screen media use are negatively associated with both restrictive interactive mediation and parent-initiated enabling mediation, probably because parents may feel powerless and therefore disengage from both rule-

based and dialogue-based mediation strategies. Contrary to what might be expected, the results show that parents who perceive more problematic screen media use by their children tend to reduce rather than increase the use of mediation strategies. This finding seems to be consistent with the difficulties encountered in recruiting parents to this research project, despite their expressed concerns about the increasingly widespread and early use of digital media by their children. Resistance mechanisms are likely activated in these circumstances, such that the more parents are concerned and overwhelmed by media-related problem behaviours, the more they feel helpless and consequently prefer to disengage from parental mediation. Therefore, this study highlights the importance of promoting interventions aimed at supporting not only children, but also parents, to help them cope with the resistance mechanisms and feelings of helplessness they experience in dealing with such phenomena.

6.1. Limitations, implications, and future research

Some limitations of the present research need to be considered. First, the samples of all the four studies involved parents and children from Italy, particularly Southern Italy, therefore, the results may not be fully generalizable to other populations from different cultural and social contexts. Second, the studies in the present research rely on measures based on parental reports, which may be influenced by social desirability bias, so parents may have adjusted their responses to align with their social expectations. Third, parents' perceptions of parental mediation and their children's problematic digital media use do not always coincide with children's representations of these phenomena. Therefore, future studies should integrate both parent- and child-report instruments to gain a deeper understanding of parental mediation strategies and

their influence on children's problematic and risky screen media use. Furthermore, cross-sectional studies do not examine causality between variables, so it would be useful to test parental mediation models in longitudinal studies. Finally, sample sizes involving parents are often relatively small, which has prevented us from carrying out some analyses, such as assessing gender and age invariance in multigroup analyses. This limitation is due to the difficulty of involving parents in research. In fact, although many parents are aware and often concerned about their children's use of digital devices, they often proved unmotivated or too busy to participate in the research. It is possible that some resistance mechanisms are at work, so that despite their concerns, parents prefer to avoid active involvement in better understanding this phenomenon and, in particular, the key role they can play in reducing the risks associated with their children's misuse of the Internet and devices.

The present research may help to guide future research and prevention programmes aimed at supporting both parents and their children. First, qualitative analysis of children's focus groups has shed light on their unexpressed thoughts and emotional experiences related to digital media use and parental mediation, which can guide clinical and preventive interventions targeted at children. In addition, these findings may also serve as a preliminary step in the development of self-report scales specifically designed to assess children's perspectives on different levels of digital media engagement, including beneficial, risky, and problematic use. Second, the Italian validation of the PMUM, as well as the development and validation of the I-PMS may therefore pave the way for new studies aimed at understanding the impact of parental mediation on children's problematic media-related behaviours in the specific Italian context, as well as have important implications for clinical intervention

and prevention by making parents more aware of the communication strategies they can use to mediate and regulate their children's screen use. Third, findings from the two parental mediation models tested in Study 4 can help parents implement effective strategies that minimize the risks and maximize the opportunities associated with their children's screen media use. These findings shed light on the factors that may make parents more or less likely to adopt certain parental mediation strategies over others. Interestingly, the study highlights that having a child who displays higher levels of problematic screen media use, and who manifests frequent conflict, anger and frustration due to difficulties in disconnecting, can lead parents to feel overwhelmed and to withdraw from adopting any mediation strategies. Conversely, parental digital literacy and parental awareness of the risks that children may face online can promote greater involvement in various parental mediation strategies, and especially enabling mediation. Therefore, it is important for parents to develop adequate reflective functioning and to adopt an authoritative parenting style, as this promotes the perception of their child as having good emotional regulation, which in turn encourages parents to adopt mediation strategies and increases the likelihood that children will seek their guidance and support.

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Appendix

Appendix A - Instructions and Questions used in the Focus Group

Consegna introduttiva:

Adesso parleremo di alcuni temi che riguardano la tecnologia e il modo in cui voi la utilizzate. Per iniziare, vi faremo delle domande generali, e poi seguiremo quello che dite e i vostri racconti, perché ci interessa sapere cosa ne pensate. Quando parliamo di 'dispositivi o device digitali', sapete cosa intendiamo? Ci riferiamo allo smartphone, al tablet, alla console per i videogiochi, al computer o alla televisione. Useremo quindi l'espressione 'dispositivi/device digitali' per indicare tutti questi strumenti che di solito utilizzate.

1. Domanda di ricerca: Quali sono le principali motivazioni e i bisogni che guidano l'uso dei media da parte dei bambini?

Domande stimolo rivolte ai bambini:

- *Cosa potete fare grazie ai dispositivi digitali e alla rete?*
- *Per quali motivi vi piace utilizzare i dispositivi digitali e la rete?*
- *Come vi sentite quando utilizzate i dispositivi digitali e navigate online?*

2. Domanda di ricerca: Quali sono i principali rischi percepiti dai bambini durante l'uso dei media digitali e nella navigazione in Internet?

Domande stimolo rivolte ai bambini:

- *Secondo voi, ci sono cose pericolose o rischiose che possono succedere quando si utilizzano i dispositivi digitali e si naviga online?*
- *Vi è mai successo di vedere o fare qualcosa che vi ha fatto sentire a disagio mentre facevate uso dei dispositivi o della rete in generale?*
- *Navigando in rete o utilizzando i dispositivi, vi è mai successo di trovarvi in situazioni rischiose online, che vi hanno fatto sentire in pericolo?*

3. Domanda di ricerca: Quali strategie di protezione mettono in atto i bambini e i genitori di fronte ai rischi della rete?

Domande stimolo rivolte ai bambini:

- *Se succede qualcosa di brutto o di spiacevole quando usate i dispositivi digitali o navigate in rete, voi che cosa fate?*
- *A chi chiedete aiuto se qualcosa o qualcuno vi fa sentire a disagio online?*
- *Cosa dicono o fanno i vostri genitori rispetto all'uso che fate dei dispositivi digitali e della rete?*

4. Domanda di ricerca: Come viene concettualizzato dai bambini l'uso problematico o la dipendenza dai media digitali?

Domande stimolo rivolte ai bambini:

- *Se vi dico la parola 'dipendenza' in relazione alla tecnologia, cosa vi viene in mente?*
- *Cosa vuol dire per voi essere 'dipendenti' dai dispositivi digitali e dalla rete?*
- *Ma quindi cosa può accadere se si utilizzano 'troppo' la rete e i dispositivi digitali?*

Appendix B – Instructions and Items of the Italian version of Problematic Media Use Measure (PMUM) (Italian translation)

Con il termine “screen media” si intende qualsiasi tipo di supporto/dispositivo utilizzato da su figli* che dispone di uno schermo. Esempi di screen media sono: Televisione, Tablet, Smartphone, Computer/PC/Laptop, Videogiochi (Playstation, videogiochi portatili, ecc.). Il termine ‘screen media’ verrà utilizzato da qui in poi per fare riferimento a QUALSIASI tipo di dispositivo con schermo che utilizza su* figli*. Le seguenti affermazioni sono volte a comprendere come su* figli* utilizza gli screen media e quali sono le sue esperienze rispetto all'uso di questi strumenti da parte di su* figli*. Per ogni affermazione, selezioni l'opzione che ritiene meglio descriva su* figli* nell'ULTIMO MESE.*

1. Mi* figli* mente per usare gli screen media.
2. Mi* figli* usa gli screen media per sentirsi meglio.
3. Mi* figli* perde il sonno a causa dell'uso degli screen media.
4. Mi* figli* utilizza gli screen media per quantità di tempo sempre maggiori.
5. Mi* figli* usa di nascosto gli screen media.
6. Mi* figli* mente sul fare le faccende domestiche o i compiti scolastici per poter usare gli screen media.
7. Mi* figli* si sente meglio quando usa gli screen media.
8. Gli screen media sono tutto ciò a cui mi* figli* sembra pensare.
9. L'uso degli screen media da parte di mi* figli* influisce negativamente sulle sue amicizie.
10. Mi* figli* tenta di utilizzare gli screen media per quantità sempre maggiori di tempo.
11. È difficile per mi* figli* smettere di usare gli screen media.
12. Quando mi* figli* ha avuto una brutta giornata, gli screen media sembrano essere l'unica cosa che lo/la aiuta a sentirsi meglio.
13. Sembra che a mi* figli* piacciono solo gli screen media.
14. Mi* figli* pensa sempre ad utilizzare gli screen media.
15. L'uso degli screen media da parte di mi* figli* causa problemi alla famiglia.
16. La quantità di tempo in cui mi* figli* desidera utilizzare gli screen media continua ad aumentare.
17. La prima cosa che mi* figli* chiede di fare quando torna a casa da scuola è usare gli screen media.
18. Mi* figli* troverebbe la vita noiosa senza gli screen media.
19. Mi* figli* è sconvolt* quando non può usare gli screen media.
20. Sembra che gli screen media siano l'unica cosa che motivi mi* figli*.
21. In famiglia sorgono problemi quando mi* figli* non può utilizzare gli screen media.
22. È davvero difficile convincere mi* figli* a smettere di usare gli screen media.
23. Mi* figli* si arrabbia quando non può usare gli screen media.
24. La vita sarebbe più facile se mi* figli* non fosse così attaccat* agli screen media.
25. È sempre più difficile allontanare mi* figli* dagli screen media.
26. Mi* figli* si sente frustrato quando non può usare gli screen media.
27. L'uso degli screen media da parte di mi* figli* interferisce con le attività familiari.

Appendix C – Instructions and Items of the Italian Parental Mediation Scale (I-PMS) (English and Italian translation)

Thinking about your child, how often...

[Pensando a tu* figli*, quanto spesso ...]

1. *Do you set rules about the movies/TV series or videos (eg, on YouTube, Netflix) he/she can download and/or watch?*
[Stabilisci delle regole sui film/serie TV o video (ad es, su YouTube, Netflix) che può scaricare e/o guardare?]
2. **Do you set rules about who he/she can play with online?**
[Stabilisci delle regole riguardo alle persone con cui può giocare online?]
3. **Do you ask your child to show you personal information, photos, and videos before sharing them online?**
[Chiedi a tu* figli* di mostrarti le informazioni, le foto e i video personali prima che le condivida su Internet?]
4. *Do you monitor your child's screen while he/she use digital devices?*
[Controlli lo schermo di tu* figli* mentre usa i dispositivi digitali?]
5. *Do you monitor what video games he/she plays?*
[Controlli a quali videogiochi gioca?]
6. **Do you monitor who he/she plays online with?**
[Controlli con quali persone gioca online?]
7. **Do you use services or tools such as parental control to block or filter some types of websites?**
[Utilizzi servizi o strumenti tipo parental control per bloccare o filtrare alcuni tipi di siti Web?]
8. **Do you use services or tools such as parental control to track Websites or Apps that your child visits?**
[Utilizzi servizi o strumenti tipo parental control per tenere traccia dei siti Web o delle App visitate da tu* figli*?]
9. **Do you use services or tools such as parental control that limit the time your child spends online (eg, when he/she surfs the Internet or plays video games)?**
[Utilizzi servizi o strumenti tipo parental control che limita il tempo che tu* figli* trascorre online (ad esempio, quando naviga su Internet o quando videogioca?)]
10. **Do you use services or tools such as parental control that alert you when your child wants to buy content (in-app purchases)?**
[Utilizzi servizi o strumenti tipo parental control che ti avvisa quando tu* figli* desidera acquistare contenuti (acquisti in-app)?]
11. **Do you explain to your child how to search or do something on the Internet?**
[Spieghi a tuo figlio come cercare o fare qualcosa su Internet?]
12. **Do you show your child how to use the Internet safely?**
[Mostri a tu* figl* come usare Internet in maniera sicura?]
13. **Do you explain to your child what he/she could do thanks to the Internet?**
[Spieghi a tu* figl* cosa potrebbe fare grazie ad Internet?]
14. **Do you explain to your child that there is hidden advertising on the Internet aimed at making people desire new products?**
[Spieghi a tu* figl* che su Internet si può trovare pubblicità nascosta volta a far desiderare nuovi prodotti?]
15. **Do you search for information on the Internet with your child?**
[Cerchi insieme a tu* figli* informazioni in Internet?]

-
16. **Do you ask your child to share with you the information he/she learned on the Internet?**
[Chiedi a tu* figl* di condividere con te informazioni apprese in Internet?]
-
17. **Does he/she talk to you spontaneously about what he/she does online (eg, when he/she surfs the Internet or plays video games)?**
[Ti parla spontaneamente di ciò che fa online (per es, quando naviga in Internet o quando videogioca)?]
-
18. **Does he/she talk to you about things that bother him/her online (eg, when he/she surfs the Internet or plays video games)?**
[Ti parla delle cose che lo disturbano online (per es, quando naviga in Internet o quando videogioca)?]
-
19. **Does he/she ask you for help with situations that he/she cannot handle online (eg, when he/she surfs the Internet or plays video games)?**
[Ti chiede aiuto per situazioni che non riesce a gestire quando è online (per es, quando naviga in Internet o quando videogioca)?]
-
20. **Does he/she talks to you about his/her video games?**
[Ti parla dei suoi videogiochi?]
-

Items excluded from the I-PMS (1, 4, 5) are shown in italics.

Items included in the I-PMS are highlighted in bold.