



UNIVERSITY OF PADOVA

Department of General Psychology

Bachelor's Degree Course in Psychological Science

Final dissertation

**The effect of parental "phubbing" on Problematic Mobile
Phone Use (PMPU) among adolescents**

Supervisor
Professor Giulia Buodo

Candidate: **Veronika Ivačič**
Student ID number: **2071224**

Academic Year 2024/2025

Table of Contents

Introduction.....	4
Chapter 1: Problematic Mobile Phone Use.....	5
<i>1.1 PMPU Definition and Characteristics</i>	<i>6</i>
<i>1.2 PMPU Measurement and Terminology.....</i>	<i>7</i>
<i>1.3 PMPU and Mental Wellbeing.....</i>	<i>7</i>
Chapter 2: Phubbing	10
<i>2.1 Parental Phubbing and PMPU in Adolescents</i>	<i>11</i>
<i>2.2 Is Parental Phubbing Positively Linked to Adolescents' PMPU?.....</i>	<i>13</i>
Chapter 3: Mediating and Moderating Processes.....	16
<i>3.1 Parent-Child Relationship as a Mediator.....</i>	<i>16</i>
<i>3.2 Self-esteem as a Mediator</i>	<i>18</i>
<i>3.3 Self-control as a Moderator.....</i>	<i>19</i>
Conclusions.....	20
References	23

Introduction

“Phubbing” is a social phenomenon that has been defined as a type of social exclusion and interpersonal neglect, where an individual pays attention to their mobile phone essentially ignoring their social environment. The present dissertation examines work on the effect of parental phubbing on adolescents’ Problematic Mobile Phone Use (PMPU). Several studies have shown PMPU to negatively impact the individual’s physical and psychological functioning; this dissertation further provides an account of the effect of this type of mobile phone use on the physical and mental well-being of adolescents. Moreover, it explores the possible mediating and moderating variables linking parental phubbing and PMPU, including parent-child relationships, self-control and self-esteem.

Due to the relative novelty of the phenomenon and the paucity of empirical data regarding its impact, this is a topic that would benefit from further research. Highlighting the effects of parental phubbing on their children’s behavior with regard to mobile phone use and the mechanisms of such an influence has the potential to contribute to developing targeted interventions to prevent and/or reduce PMPU symptoms.

The first chapter aims to present a comprehensive literature review on PMPU its possible consequences. The second chapter is dedicated to the phenomenon of “phubbing”, and the link between adolescents’ PMPU and parental phubbing. The third chapter examines some of the potential mediating and moderating variables involved in the association.

Chapter 1: Problematic Mobile Phone Use

In recent years, problematic internet use has increasingly become an issue that cannot be ignored. As early as 1999, Greenfield described the internet as easily overused and possibly addictive. He called it a psychoactive experience due to the nature of its content and its accessibility. In his view, the psychoactive quality of the internet lies in its ability to alter mood and likely influence behavior (Greenfield, 1999). A variety of terms have since been used to describe problematic engagement with the internet. However, despite a large body of studies indicating the negative effects of “internet addiction”, there are still scattered definitions and a lack of unified methodology to assess this condition. Questions have in addition been raised about considering problematic use of the internet (PUI) as a behavioral addiction, in particular with regard to key aspects of addiction such as craving, withdrawal and tolerance, and about whether or not problematic internet-related behaviors should in fact be included in the DSM among behavioral addictions (Moretta et al., 2022).

Despite the disparities in opinions, it is clear to even lay observers that problematic engagement with the internet through accessible technology has become a global problem, especially among adolescents (Niu et al., 2020). Adolescence marks the period when an individual is developing from a child into an adult. In that period individuals are particularly receptive to social influences (Knoll et al., 2017) and have weaker self-control (Liu et al., 2024). Therefore, peers’ internet and social media use likely has potential to influence one’s conduct and attitudes.

Mobile phones are currently one of, if not the most, used technological devices for accessing the internet, and the number of users is constantly rising (Hong et al., 2019). In the United States, around 95% of adolescents between ages 13 and 17 have access to a cell phone. Over 90% of them state that the reason for using their mobile phone is to pass their free time and to connect with others (84%) (Richter et al., 2022). Specifically looking into problematic

use of mobile phones seems particularly relevant in this age group. There are many terms used for this phenomenon, including but not limited to Problematic Mobile Phone Use (PMPU), Problematic Smartphone Use (PSU), Addictive Phone Use, and Problematic Cellular Phone Use (CPU). In the present dissertation, the term Problematic Mobile Phone Use or PMPU will be used, as it is a term that has relatively recently become more prevalent in the literature. It has been considered as a possible subtype of the Problematic Use of Internet (PUI), but on the other hand it has characteristics that are its own and not solely related to internet use (Elhai et al., 2017). The nature of the mobile phone itself is engaging, because it is portable and equipped with all kinds of elements that provide an opportunity for entertainment within a single, small, and affordable device. The questions of measurement and clinical description of PMPU will be considered hereinbelow.

1.1 PMPU Definition and Characteristics

Problematic Mobile Phone Use (PMPU) is an umbrella term for mobile phone use with negative effects on the user's well-being (Lopez-Fernandez et al., 2018). Billieux et al. (2012) outlined it as a loss of control over usage which causes interference in daily life. The condition includes physiological and psychological distress upon removal of access (Jiang & Zhao, 2016; Foerster & Roser, 2015), including anxiety, nervousness, restlessness, etc., possibly representing a manifestation of addiction-like withdrawal. Furthermore, tolerance develops as the individual feels the need to use the device for increasing amounts of time in order to feel the same perceived benefits as felt when the time spent using it was lower. Affected individuals may also have compulsions to check, or use the smartphone in inappropriate environments, like work, social, or banned settings (e.g., during driving; Elhai et al., 2019). However, consensus on the presence of withdrawal and tolerance has yet to be established. What has more commonly been agreed on is the presence of negative implications on everyday functioning and activities.

1.2 PMPU Measurement and Terminology

As a result of the excess of disparate vocabulary used in relation to the problematic use of mobile phones, the scales measuring it are likewise numerous. This creates a problem for the generalizability across studies using different scales to measure it. Harris and colleagues (2020) reviewed and evaluated 78 different scales relating to problematic smartphone use and concluded that many were lacking adequate internal consistency and test-retest reliability. They also noted that the terms “mobile phone” and “smartphone” were used interchangeably, but cautioned that these two types of technology are very different. In this dissertation, the distinction is in fact not made between the terms “mobile phone” and “smartphone”, since the studies relevant for this review used the terms as equivalent. This can be considered a limitation.

Here it is important to highlight another concern with the past and current methods of PMPU measurement, namely the fact that they are mostly all self-report questionnaires. The estimations of the time spent on the phone and on the internet are frequently inexact when people report them by themselves. Some advancements in this regard have been made with some of the newer studies taking advantage of phone logs and screen time reports built into the participants’ devices. These kinds of measures will hopefully offer more objectivity in assessing the time spent on mobile phones (Elhai et al., 2019).

1.3 PMPU and Mental Wellbeing

PMPU has consistently been associated with both negative physical and psychological consequences (Billieux et al., 2015; Dayapoğlu et al., 2016; Jiang & Zhao, 2016; Foerster & Roser, 2015; Augner & Hacker, 2012; Thomée et al., 2011). One of the most frequently reported symptoms is sleep disturbance, or lowered sleep quality, associated with increasing mobile phone use frequency (Jiang & Zhao, 2016; Billieux et al., 2015, Lopez-Fernandez et al., 2018). This can in turn be responsible for a variety of other serious issues, both short and

long-term. Consequences of disrupted sleep include: higher stress reactivity, memory and cognitive deficits, emotional distress, and lower quality of life. In adolescents, poor sleep quality can result in lower academic performance, poor psychosocial health and risk-taking conduct (Medic et al., 2017).

Academic performance is another factor that is negatively impacted, as achievement appears to decrease as the severity of problematic mobile phone use increases (Dayapoğlu et al., 2016; Liu et al., 2020; Domoff et al., 2019).

Face-to-face interactions and social relationships are perhaps the domains being most negatively influenced by PMPU (Jiang & Zhao, 2016). The plethora of apps and websites for online communication may suggest otherwise, but studies indicate that impaired relationships with friends might be the most significant adverse outcome of problematic mobile phone use among adolescents, even by subjective report (Yen et al., 2009).

Another aspect worth mentioning is traffic safety. The World Health Organization (2011) declared mobile phone use while driving to be a serious and growing problem. Using and being distracted by a mobile phone during driving presents a high risk for traffic accidents, possibly leading to injury or death (Nguyen-Phuoc et al., 2020).

Even more research is focusing on the effects of PMPU on mental wellbeing. In the literature, the severity of problematic phone use has been found to correlate with a variety of psychopathological symptoms. These include, but are not limited to, depression, anxiety, stress, and low self-esteem (Elhai et al., 2019). Depression is one of the most frequently researched disorders in relation to PMPU. Several studies have shown depression to be positively associated with PMPU in different age groups, including adolescents (Augner & Hacker, 2012; Xie et al., 2019). Additionally, life satisfaction and loneliness seem to be negatively and positively correlated, respectively, with PMPU severity (Dayapoğlu et al., 2016).

Despite the fact that directionality cannot be inferred from these associations, there are a few studies with longitudinal designs (Coyne et al., 2019; Thomée et al. 2011, Thomée et al.,

2007, Sohn et al., 2019) as well as studies controlling for several confounding variables (Coyne et al., 2019; Jiaxin et al., 2020) that report psychopathological symptoms emerging as a result of PMPU. Besides, the frequently reported associations and contrasting opinions highlight the necessity to give these links more attention. Taking as an example the data on depression, a longitudinal study (Coyne et al., 2019) showed that PMPU is a good predictor of depression, while some researchers believe PMPU to be the outcome of depression. The fact that problematic use and depression occur together is informative in itself. Regardless of whether adolescents with depression are more likely to develop problematic use, or problematic use is likely to result in depression, or both, clinicians should consider assessing one in the presence of the other. Different types of psychopathological symptoms and PMPU may in fact be connected to one another in a vicious cycle, whereby one factor is reinforcing the other. However, further research would be invaluable to provide a clearer picture.

Most studies done on the topic are correlational, limiting causal conclusions. As mentioned above, longitudinal studies have provided more insight. In addition, some experimental-like designs have been utilized. For example, in the study by Cheever et al. (2014) college students were split into two groups. One group kept their phones and the other was asked to hand them over. Measures of anxiety and physiological responses were taken afterwards to assess any impact of separation from the phone. Anxiety ratings were found to gradually increase in the group where phones had been taken compared to the other group who kept their devices. This was the case for those having moderate symptoms of problematic use, and even more for those having severe symptoms. In another study, anxiety, heart rate, and blood pressure were found to increase when the students detected an incoming phone call that was placed on their personal phone and they were not allowed to answer (Clayton et al., 2015). These types of study designs may facilitate more confident conclusions about the links between PMPU and psychopathology in the future.

Chapter 2: Phubbing

Imagine a bus full of people. On the seat opposite of yours there is a young mother. One of her hands is gripping the handle of a stroller with a baby girl, the other, a smartphone. She is looking at the screen, immersed in the content of whatever she is watching. The baby is awake, she is waving her hands and babbling, trying to get her mother's attention. At first, she is smiling and laughing, calling her caretaker, but she slowly gets frustrated, starts to fuss and sob lightly. The mother ignores her, her attention fixed completely onto her device.

The mother's behavior towards her daughter in this anecdote is called "phubbing". The word was introduced in 2012 and was coined with the collaboration of a group of language experts recruited by Australia's Macquarie Dictionary and the McCann advertising agency. The word is a portmanteau of the words "snubbing" and "phone", intended to define the act of ignoring someone by diverting attention to one's mobile phone. The term was later popularized through a campaign created by the McCann agency, named "Stop Phubbing" (Garrido et al., 2021). Phubbing has additionally been described as a form of interpersonal neglect and social exclusion (Xie et al., 2019). Research has mostly focused on the role phubbing plays in romantic relationships – the so-called "Pphubbing" (partner phubbing) – and found it to be damaging for relationship satisfaction, including marital quality perception, as well as the mental health of both partners (Xie et al., 2019). Moreover, phubbing has been found to be linked indirectly to depression by interfering with relationship satisfaction (Roberts & David, 2016).

Phubbing in the context of parent-child relationships has been given less attention. However, a parallel may be drawn between the impact of phubbing in romantic relationships

and in the parent-child context, since in both cases the intimacy of the interpersonal connection appears to be interrupted by mobile phone distraction. Bowlby's attachment theory (Bowlby, 1973) proposes that the relationship between children and their parents shapes the psychological functioning of children throughout their lifetime (Popov & Ilesanmi, 2015). Parental exclusion and neglect contribute to poor parent-child relationships, and have both been consistently associated with poor behavioral outcomes in children as well as poor mental health and psychological maladjustment (Hildyard & Wolfe, 2002). Phubbing, as a form of interpersonal neglect, is therefore likely to have a negative effect on children's functioning. In fact, some studies have begun to show that parental phubbing may play a part in the development of adolescents' behavioral problems (Liu et al., 2024). This suggests that problematic mobile phone use in adolescents is likely also influenced by parental phubbing. The basis for the assumption of this connection may lie in Bandura's social learning theory. According to Bandura (1971), we learn most of our behavioral responses through the process of observational learning, that is by observing a model perform an example of the behavior. This appears to be the case especially for family members. In fact, a variety of behaviors seem to be passed on from parents to their children (Niu et al., 2020). Lam and Wong (2015) found a significant association between parental problematic internet use and problematic use in their children. It seems reasonable to assume, then, that children being "phubbed" by their parents might adopt a similar pattern of behavior, by giving priority to and spending increasing amounts of time engaged with their mobile phones, possibly resulting in the development of problematic use.

2.1 Parental Phubbing and PMPU in Adolescents

Hong and colleagues (2019) reported that 35% of the parents that were inquired about their mobile phone use while spending time with their children used their devices with high frequency. Considering that this is not necessarily a fact that a parent might want to admit to,

the numbers are likely higher. This stresses the importance of looking into the consequences of phubbing.

A group of six studies carried out in China between 2019 and 2023 was focused precisely on examining the interaction between PMPU and parental phubbing as well as the mediating and moderating processes involved. These studies, whose findings will be reported below, used different scales to evaluate PMPU in participants:

- Mobile Phone Addiction Index (MPAI; Leung, 2008)
- Mobile Phone Addiction Scale (MPAS; Hong et al., 2012)
- Smartphone Addiction Scale (SAS; Kwon et al., 2013)
- Smartphone Addiction Scale for College Students (SAS-C; Su et al., 2014)
- Mobile Phone Problem Use Scale - Short version (MPPUS-10; Foerster et al., 2015; Chinese version by Hong et al., 2019)
- Mobile Phone Addiction Tendency Scale (MPATS; Xiong et al., 2012)

Some examples of the items from the questionnaires are: “I feel lost when I do not have my smartphone with me” (SAS), “You find yourself occupied on your mobile phone when you should be doing other things, and it causes a problem” (MPAI), “I have tried to decrease mobile phone usage time, but I have failed” (MPAS).

The SAS is one of the most frequently used scales in this research area, and it has a high internal consistency ($\alpha=0.97$). The MPAI (Leung, 2008), the MPAS (Hong et al., 2012), the MPPUS-10 (Foerster et al., 2015), and the MPATS (Xiong et al., 2012) all have satisfactory internal consistencies. On the other hand, temporal stability is an issue that has not been addressed for most scales; information on temporal stability was not provided for the MPAI, the MPAS, and the SAS. The MPPUS-10 has a relatively low (0.40) test-retest reliability, and the information on the Chinese version of the tool was not available in English. The SAS-C and the MPATS have good test-retest reliability (0.93 and 0.91, respectively). The use of SAS-

C in the study on parental phubbing may not be fully adequate, as the scale was developed for college students, but has been used on adolescents. No revision for the use in different age groups has been reported.

The scales relating to phubbing are still in the early stages of development. Up to 2020, no scales assessing parental phubbing specifically had been created. Pancani et al. (2020) were the first to develop one, but it has not been used in any of the studies examining the relationship between parental phubbing and adolescent PMPU. Five out of the six studies considered here used the well-known Partner Phubbing Scale (Roberts & David, 2016) and revised it to be used in the parent-child context by changing “partner” to “parents”. The resulting items were for example, “My parents glance at their mobile phone when talking to me” (Hong et al., 2019), “During a typical mealtime that my parents and I spend together, my parents pull out and check their cell phones” (Niu et al., 2020), or “My parents place their cell phone where they can see it when we are together” (Zhang et al., 2021). The participants then rate the frequency of behaviour on a 5-point Likert scale, ranging from “Never” (1) to “Always” (5). All studies reported relatively good internal validity for the revised scales. The sixth study used a revision of the Generic Scale of Being Phubbed by Chotpitayasunondh & Douglas (2018) which has been shown to have satisfactory internal consistency as well as test-retest reliability.

2.2 Is Parental Phubbing Positively Linked to Adolescents’ PMPU?

The overall answer seems to be a definite yes, but it does appear to be a multifaceted process. The results of the studies showed parental phubbing to be significantly linked to problematic mobile phone use (Xie et al., 2019; Niu et al. 2020; Zhang et al., 2021, Mi et al., 2023). Parents’ phubbing also positively predicted adolescents’ PMPU after age and gender were controlled for (Hong et al., 2019; Mi et al., 2023). The direct effect found does seem to be consistent with the social learning theory, where the parental pattern of use of the mobile phone would give rise to a similar pattern of behavior in the children, resulting in PMPU (Xie

et al., 2019). Hong and colleagues (2019) also suggested that in a home where phubbing regularly occurs, children may perceive such behavior as an accepted social norm. Thus, inappropriate or exaggerated mobile phone use might be viewed as normal rather than as something negative, despite resulting in maladaptive use.

One of the six studies analysed the correlations between parental phubbing and PMPU in adolescents separately, depending on the gender of the phubbing parent (Geng et al., 2021). They therefore differentiated between fathers' phubbing and mothers' phubbing, naming them "FPhubbing" and "MPhubbing". Considering them independently did make a difference, as FPhubbing was found to significantly predict PMPU through a direct effect, whereas MPhubbing predicted it, but only through the mediating effects of other variables, namely loneliness and fear of missing out. Interestingly, this study was the only one of the six with a longitudinal design. Participants filled out the parental phubbing questionnaires and one year later they were asked to complete a scale assessing loneliness, fear of missing out, and the Smartphone Addiction Scale. The results were comparable to the studies with cross-sectional designs, whereby the adolescent PMPU was predicted directly and indirectly by parental phubbing, with the exception of MPhubbing, as described above. The question of why this difference based on parental gender occurred is not a clear one. The authors of the study made a rather strong statement proposing that this difference demonstrates adolescents' tendency to learn specifically from fathers' phubbing behaviors and even that the father alone may be the role model for the learning of adolescents in general (Geng et al., 2021). The last statement may be interpreted as relating only to the sample examined in the study, with questionable generalizability. They also stated that children will imitate fathers' behaviors, but seek emotional support from mothers. There does not seem to be any evidence to support such a clear distinction between parents' roles in learning depending on their gender.

Overall, parental phubbing seems to be related to adolescent problematic mobile phone use. There is evidence of a direct relationship, but the studies reported indirect effects in

addition to the direct one. If the direct effect may be interpreted through the framework of social learning theory, the indirect effects show how parental phubbing interacts with several other variables to affect PMPU (Xie et al., 2019) and some of them will be discussed in the next section.

Chapter 3: Mediating and Moderating Processes

There are multiple factors that could exacerbate PMPU in adolescents through the pathway of parental phubbing. For instance, these factors could be related to the characteristics of the children and parents themselves, or to the nature of the relationship established between them and other aspects of the family environment. Not much is known about these complex interactions, but understanding them could help highlight the risk factors that contribute to maladaptive phone use in children in the presence of parents' phubbing. For example, through knowledge that parental phubbing worsens the parent-child relationship which in turn affects PMPU, interventions can be focused on improving the parent-child cohesion in addition to dealing with PMPU or/and parental phubbing individually.

3.1 Parent-Child Relationship as a Mediator

The relationship with their parents is crucial for children's development and psychological adjustment. It has been shown that the quality of the parent-child relationship is negatively linked with adolescents' internalizing and externalizing problems (Niu et al., 2020). According to empirical research, insecure attachments with parents may result in a variety of behavioral problems including substance use and gambling (Xie et al., 2019). In fact, there is evidence suggesting that adolescents experiencing a poor parent-child relationship are more likely to use their mobile phones in a maladaptive way (Hong et al., 2019). Attachment theory proposes that children's basic psychological needs are satisfied in a relationship where parents are showing understanding and warmth. In such circumstances, children might feel less compelled to seek the fulfillment of their needs on their phone or on the internet (Hong et al., 2019).

As discussed, phubbing affects relationship satisfaction and quality in a variety of contexts. Multiple studies found relationship satisfaction to be decreased in cases of partner

phubbing or boss phubbing in a work environment. Just the presence of a phone in a personal face-to-face communication has been shown to negatively impact the satisfaction and interpersonal connection during the conversation (Xie et al., 2019). In one study (Radesky et al., 2014), parents absorbed in their mobile phones tended to ignore their children's behavior, gave them a sharp response, scolded them, or even responded physically when the children tried to get their attention (e.g., pushing their hands away, and even kicking the child in one case). Many of the children showed more problematic behaviors while their parents were distracted with their devices. These kinds of interactions contribute to the children's feeling of being neglected, and parental neglect has a damaging effect on the parent-child relationship. When parents are distracted by their device, they are physically present, but are exhibiting a psychological distance, so the child may perceive them as absent, resulting in a feeling of neglect (Hong et al., 2019). The assumption is therefore that parental phubbing damages the parent-child relationship and the poor or unstable attachment then leads to problematic behaviors, including PMPU (Xie et al., 2019).

The studies found parental phubbing to correlate positively with PMPU in adolescents, and negatively with parent-child relationship quality. In addition, they found parent-child relationship quality to be negatively correlated with PMPU (Xie et al., 2019; Niu et al., 2020). The mediating effect of the parent-adolescent relationship in the link between parental phubbing and PMPU was significant (Hong et al., 2019; Xie et al., 2019; Niu et al., 2020; Mi et al., 2023). Thus, in line with the discussed theory, this indirect effect indicates that the PMPU among adolescents is linked to parental phubbing through its damaging effects on parent-child attachment (Xie et al., 2019).

3.2 Self-esteem as a Mediator

The American Psychological Association dictionary defines self-esteem as “the degree to which the qualities and characteristics contained in one’s self-concept are perceived to be positive” (APA Dictionary, 2023). Social relationships have been linked to the development of self-esteem by many theorists. Longitudinal research supports the conclusion that significant social relationships are pivotal in shaping an individual’s self-esteem throughout the life span (Harris & Orth, 2019).

The assumption made by Hong et al. (2019) was that adolescents’ self-esteem is a mediating factor in the link between parent-child relationship and PMPU. Since the parent-child relationship is one of the most influential personal relationships throughout life, and likely the most important particularly during adolescence, the development of self-esteem is closely connected to this relationship’s quality (Hong et al., 2019). Moreover, studies have shown that children’s self-esteem serves as a kind of protective factor against maladaptive behaviors, such as PMPU. Additionally, low self-esteem is associated with negative self-views. Individuals may resort to alleviating negative feelings that result from low self-views by passing their time online, where they can interact anonymously or by engaging in any absorbing activities on their phones which may serve as a distraction from the self-perceived negative reality. The proposed hypothesis therefore predicted an indirect effect of parent-child relationship on adolescents’ PMPU through self-esteem (Hong et al., 2019).

The indirect effect was indeed found to be significant, i.e., the parent-child relationship was indirectly correlated with adolescents’ PMPU through the mediation of adolescents’ self-esteem (Hong et al., 2019). Considering that the parent-child relationship was also found to be affected by parental phubbing (Hong et al., 2019; Xie et al., 2019; Niu et al., 2020; Mi et al., 2023), this could potentially be viewed as a mediation with multiple interactions: phubbing negatively affects the parent-child attachment, which in turn results in lower self-esteem in

adolescents, and that finally increases the likelihood of problematic mobile phone use. This offers a glimpse into the multifaceted processes involved in this association and calls for attention to the importance of understanding them in order to be able to intervene effectively.

3.3 Self-control as a Moderator

Self-control is the ability to be in command of one's behavior and to prioritize long-term outcomes over temporary, short-term goals (APA Dictionary, 2018). Adolescents with lower self-control were found to be more likely than the ones with higher self-control to be diagnosed with 9 out of the 10 examined health outcomes (e.g., depression, ADHD, high blood pressure) in early adulthood (Miller et al., 2011). Self-control was also found to be predictive of health-related behaviors, such as impulsive eating, impulsive drinking, exercise avoidance, watching diet, alcohol consumption, and physical activity participation (Hagger et al., 2019). Moreover, self-control appears to be negatively correlated to a variety of addictive or maladaptive behaviors such as substance abuse and problematic mobile phone use. In addition, elevated self-control has been shown to serve as a buffer against negative experiences, rendering problematic behavioral consequences less likely (Niu et al., 2020). The assumption can therefore be made that self-control could, as a protective factor, diminish the negative effects of parental phubbing on adolescents' PMPU.

The moderating effect of self-control on the association between parental phubbing and adolescent PMPU was found to be significant. Self-control also moderated the effect of the parent-child relationship on adolescents' PMPU (Niu et al., 2020). There was a difference in the strength of the relationship between parental phubbing and PMPU and between parent-child relationship and PMPU depending on adolescents' level of self-control. Namely, for adolescents with lower self-control these associations were stronger, compared to the ones with higher levels of self-control (Niu et al., 2020). In other words, when self-control was higher, the direct impact of phubbing and the indirect impact of the parent-child relationship

on PMPU were weaker. This might fit the theoretical idea of self-control acting as a buffer for adverse experiences such as parental phubbing, which prevents them from exacerbating maladaptive behavior, in this case PMPU.

There are a few limitations regarding the studies that have investigated the relationship between parental phubbing and PMPU. Almost all used a cross-sectional design, which limits causal conclusions. One exception was the longitudinal study by Geng et al. (2021), where different measures were collected one year apart. The limitation with the study however was that they initially measured solely parental phubbing, while the information on PMPU, loneliness and fear of missing out was collected a year later. Each variable should have been measured at the two time points to infer any causality. Moreover, all studies were using self-reports. Social desirability bias is a common issue for self-report measures, meaning that mobile phone use may be more problematic than indicated, for example. Lastly, except for one study, they also did not differentiate between father and mother phubbing, which may have differential effects.

Conclusions

Firstly, parental phubbing was consistently found to be directly related to problematic mobile phone use in adolescents. Furthermore, this relationship appears to be influenced by a variety of factors such as self-esteem, self-control and the parent-child relationship. Many other variables could be examined in this connection, but it is clearly suggested that parental phubbing is a negative influence on the development of adolescents' behavior. If parents are persistent in ignoring their child while paying attention to their phone, the essential message they are sending is that their mobile phone is a priority, while the interaction with their child is of secondary importance. The children may receive this message with differing responses depending on their personality, but it is likely to have a negative impact. They can internalize the idea that prioritizing mobile phone engagement over interactions with one's close ones is

acceptable, so they can start using their devices with a similar pattern. As parental phubbing can be considered as a type of interpersonal neglect, it can have wide implications for the health and psychological development of children.

Secondly, PMPU has been consistently found to predict several negative physical and mental health outcomes. Despite the limitations in this research area, these issues are too important not to be acted upon. Since it is hard to establish clear estimates regarding the prevalence of PMPU, the assumption can be made that with the growing popularity and accessibility of technology, the numbers will be steadily increasing. Children and adolescents are most at risk, as they are in a sensitive stage of development, very easily influenced, and difficult to restrain. They are also less able to understand and less likely to think about the implications of problematic mobile phone use than adults. Thus, they are less likely to be motivated to be cautious of their patterns of use and set limits. We have yet to discover how problematic use, that has been defined as “addictive”, impacts the developing brain. We know that addictions, both behavioral and to substances, interfere with normal functioning and induce changes into brain circuitries. Even though PMPU is not or is not yet an established behavioral addiction, the idea that it may be or at least may be in certain aspects equated with other addictions should be taken into due consideration. This is especially important for parents deciding about their child’s mobile phone use.

One of the most important conclusions is that parents' behavior is crucial in relation to adolescents' problematic mobile phone use. Phubbing is a common behavior that should be discussed, because it is often taken for granted. It is very easy to start exhibiting phubbing behavior unintentionally, but it is not as easy to reverse the negative effects it can have. Caretakers are pivotal figures for children’s habits and psychological development. The childhood and adolescent years are a critical time when children require interaction and attention from their caretakers. Parental phubbing interferes with that, and children’s PMPU may be one among several adverse outcomes.

Further research should focus on developing interventions to deal with PMPU. Parents should be involved as much as possible, as it is indicated in this review - their actions and attitude matter.

References

- Alheneidi, H., AlSumait, L., AlSumait, D., & Smith, A. P. (2021). Loneliness and problematic internet use during COVID-19 lock-down. *Behavioral Sciences*, 11(1), 5. <https://doi.org/10.3390/bs11010005>
- American Psychological Association. (2018). *Apa Dictionary of Psychology*. American Psychological Association. <https://dictionary.apa.org/self-control>
- American Psychological Association. (2023). *Apa Dictionary of Psychology*. American Psychological Association. <https://dictionary.apa.org/self-esteem>
- Augner, C., & Hacker, G. W. (2011). Associations between problematic mobile phone use and psychological parameters in young adults. *International Journal of Public Health*, 57(2), 437–441. <https://doi.org/10.1007/s00038-011-0234-z>
- Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1, pp. 141-154). Englewood Cliffs, NJ: Prentice hall.
- Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? an update on current evidence and a comprehensive model for future research. *Current Addiction Reports*, 2(2), 156–162. <https://doi.org/10.1007/s40429-015-0054-y>
- Capilla Garrido, E., Issa, T., Gutiérrez Esteban, P., & Cubo Delgado, S. (2021). A descriptive literature review of phubbing behaviors. *Heliyon*, 7(5). <https://doi.org/10.1016/j.heliyon.2021.e07037>
- Cheever, N. A., Rosen, L. D., Carrier, L. M., & Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior*, 37, 290–297. <https://doi.org/10.1016/j.chb.2014.05.002>
- Clayton, R. B., Leshner, G., & Almond, A. (2015). The extended iself: The impact of iphone separation on cognition, emotion, and physiology. *Journal of Computer-Mediated Communication*, 20(2), 119–135. <https://doi.org/10.1111/jcc4.12109>
- Coyne, S. M., Stockdale, L., & Summers, K. (2019). Problematic cell phone use, depression,

anxiety, and self-regulation: Evidence from a three year longitudinal study from adolescence to emerging adulthood. *Computers in Human Behavior*, 96, 78–84.

<https://doi.org/10.1016/j.chb.2019.02.014>

Dayapoğlu, N., Kavurmaci, M., & Karaman, S. (2016). *International Journal of Caring Sciences*, 9(2), 647.

https://doi.org/https://www.internationaljournalofcaringsciences.org/docs/32_Sacide_original_9_2.pdf

Domoff, S. E., Foley, R. P., & Ferkel, R. (2019). Addictive phone use and academic performance in adolescents. *Human Behavior and Emerging Technologies*, 2(1), 33–38.

<https://doi.org/10.1002/hbe2.171>

Elhai, J. D. (2019). Problematic smartphone use and mental health problems: Current state of research and Future Directions. *Dusunen Adam: The Journal of Psychiatry and Neurological Sciences*. <https://doi.org/10.14744/dajpns.2019.00001>

Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251–259.

<https://doi.org/10.1016/j.jad.2016.08.030>

Geng, J., Lei, L., Ouyang, M., Nie, J., & Wang, P. (2021). The influence of perceived parental phubbing on adolescents' problematic smartphone use: A two-wave multiple mediation model. *Addictive Behaviors*, 121, 106995. <https://doi.org/10.1016/j.addbeh.2021.106995>

Greenfield, D. N. (1999). Psychological characteristics of compulsive internet use: A preliminary analysis. *CyberPsychology & Behavior*, 2(5), 403–412.

<https://doi.org/10.1089/cpb.1999.2.403>

Hagger, M. S., Gucciardi, D. F., Turrell, A. S., & Hamilton, K. (2019). Self-control and health-related behaviour: The role of implicit self-control, Trait Self-control, and lay beliefs in self-control. *British Journal of Health Psychology*, 24(4), 764–786.

<https://doi.org/10.1111/bjhp.12378>

Harris, B., Regan, T., Schueler, J., & Fields, S. A. (2020). Problematic mobile phone and smartphone use scales: A systematic review. *Frontiers in Psychology*, 11.

<https://doi.org/10.3389/fpsyg.2020.00672>

- Harris, M. A., & Orth, U. (2020). The link between self-esteem and social relationships: A meta-analysis of longitudinal studies. *Journal of Personality and Social Psychology*, 119(6), 1459–1477. <https://doi.org/10.1037/pspp0000265>
- Hildyard, K. L., & Wolfe, D. A. (2002). Child neglect: Developmental issues and outcomes☆. *Child Abuse & Neglect*, 26(6–7), 679–695. [https://doi.org/10.1016/s0145-2134\(02\)00341-1](https://doi.org/10.1016/s0145-2134(02)00341-1)
- Hong, W., Liu, R.-D., Ding, Y., Oei, T. P., Zhen, R., & Jiang, S. (2019). Parents’ phubbing and problematic mobile phone use: The roles of the parent–child relationship and children’s self-esteem. *Cyberpsychology, Behavior, and Social Networking*, 22(12), 779–786. <https://doi.org/10.1089/cyber.2019.0179>
- Jiang, Z., & Zhao, X. (2016). Self-control and problematic mobile phone use in Chinese college students: The mediating role of Mobile Phone Use Patterns. *BMC Psychiatry*, 16(1). <https://doi.org/10.1186/s12888-016-1131-z>
- Karadağ, E., Tosuntaş, Ş. B., Erzen, E., Duru, P., Bostan, N., Şahin, B. M., Çulha, İ., & Babadağ, B. (2015). Determinants of phubbing, which is the sum of many virtual addictions: A structural equation model. *Journal of Behavioral Addictions*, 4(2), 60–74. <https://doi.org/10.1556/2006.4.2015.005>
- Knoll, L. J., Leung, J. T., Foulkes, L., & Blakemore, S. (2017). Age-related differences in social influence on risk perception depend on the direction of influence. *Journal of Adolescence*, 60(1), 53–63. <https://doi.org/10.1016/j.adolescence.2017.07.002>
- Lam, L. T., & Wong, E. M. Y. (2015). Stress moderates the relationship between problematic internet use by parents and problematic internet use by adolescents. *Journal of Adolescent Health*, 56(3), 300–306. <https://doi.org/10.1016/j.jadohealth.2014.10.263>
- Liu, S., Wu, P., Han, X., Wang, M., Kan, Y., Qin, K., & Lan, J. (2024). Mom, Dad, put down your phone and talk to me: How parental phubbing influences problematic internet use among adolescents. *BMC Psychology*, 12(1). <https://doi.org/10.1186/s40359-024-01620-0>
- Liu, X., Luo, Y., Liu, Z.-Z., Yang, Y., Liu, J., & Jia, C.-X. (2020). Prolonged mobile phone use is associated with poor academic performance in adolescents. *Cyberpsychology, Behavior, and Social Networking*, 23(5), 303–311. <https://doi.org/10.1089/cyber.2019.0591>
- Lopez-Fernandez, O., Kuss, D. J., Pontes, H. M., Griffiths, M. D., Dawes, C., Justice, L. V.,

- Männikkö, N., Kääriäinen, M., Rumpf, H.-J., Bischof, A., Gässler, A.-K., Romo, L., Kern, L., Morvan, Y., Rousseau, A., Graziani, P., Demetrovics, Z., Király, O., Schimmenti, A., ... Billieux, J. (2018). Measurement invariance of the short version of the Problematic Mobile Phone Use Questionnaire (PMPUQ-SV) across eight languages. *International Journal of Environmental Research and Public Health*, 15(6), 1213. <https://doi.org/10.3390/ijerph15061213>
- Medic, G., Wille, M., & Hemels, M. (2017). Short- and long-term health consequences of sleep disruption. *Nature and Science of Sleep*, Volume 9, 151–161. <https://doi.org/10.2147/nss.s134864>
- Mi, Z., Cao, W., Diao, W., Wu, M., & Fang, X. (2023). The relationship between parental phubbing and mobile phone addiction in Junior High School Students: A moderated mediation model. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1117221>
- Miller, H. (2011). Self-control and Health Outcomes in a nationally representative sample. *American Journal of Health Behavior*, 35(1). <https://doi.org/10.5993/ajhb.35.1.2>
- Moretta, T., Buodo, G., Demetrovics, Z., & Potenza, M. N. (2022). Tracing 20 years of research on problematic use of the internet and social media: Theoretical models, assessment tools, and an agenda for future work. *Comprehensive Psychiatry*, 112, 152286. <https://doi.org/10.1016/j.comppsy.2021.152286>
- Nguyen-Phuoc, D. Q., Oviedo-Trespalacios, O., Su, D. N., De Gruyter, C., & Nguyen, T. (2020). Mobile phone use among car drivers and motorcycle riders: The effect of problematic mobile phone use, attitudes, beliefs and perceived risk. *Accident Analysis & Prevention*, 143, 105592. <https://doi.org/10.1016/j.aap.2020.105592>
- Niu, G., Yao, L., Wu, L., Tian, Y., Xu, L., & Sun, X. (2020). Parental phubbing and adolescent problematic mobile phone use: The role of parent-child relationship and self-control. *Children and Youth Services Review*, 116, 105247. <https://doi.org/10.1016/j.childyouth.2020.105247>
- Pancani, L., Gerosa, T., Gui, M., & Riva, P. (2020). “mom, dad, look at me”: The development of the parental phubbing scale. *Journal of Social and Personal Relationships*, 38(2), 435–458. <https://doi.org/10.1177/0265407520964866>
- Popov, L. M., & Ilesanmi, R. A. (2015). Parent-child relationship: Peculiarities and outcome. *Review of European Studies*, 7(5). <https://doi.org/10.5539/res.v7n5p253>

Radesky, J. S., Kistin, C. J., Zuckerman, B., Nitzberg, K., Gross, J., Kaplan-Sanoff, M., Augustyn, M., & Silverstein, M. (2014). Patterns of mobile device use by caregivers and children during meals in fast food restaurants. *PEDIATRICS*, 133(4).

<https://doi.org/10.1542/peds.2013-3703d>

Richter, A., Adkins, V., & Selkie, E. (2022). Youth Perspectives on the recommended age of mobile phone adoption: Survey study. *JMIR Pediatrics and Parenting*, 5(4).

<https://doi.org/10.2196/40704>

Roberts, J. A., & David, M. E. (2016). My life has become a major distraction from my cell phone: Partner phubbing and relationship satisfaction among romantic partners. *Computers in Human Behavior*, 54, 134–141. <https://doi.org/10.1016/j.chb.2015.07.058>

Sbarra, D. A., Briskin, J. L., & Slatcher, R. B. (2019). Smartphones and close relationships: The case for an evolutionary mismatch. *Perspectives on Psychological Science*, 14(4), 596–618. <https://doi.org/10.1177/1745691619826535>

Sohn, S. Y., Rees, P., Wildridge, B., Kalk, N. J., & Carter, B. (2019). Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people: A systematic review, meta-analysis and grade of the evidence. *BMC Psychiatry*, 19(1). <https://doi.org/10.1186/s12888-019-2350-x>

Thomée, S., Härenstam, A., & Hagberg, M. (2011). Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults - a prospective cohort study. *BMC Public Health*, 11(1). <https://doi.org/10.1186/1471-2458-11-66>

Ugur, N. G., & Koc, T. (2015). Time for Digital Detox: Misuse of Mobile Technology and Phubbing. *Procedia - Social and Behavioral Sciences*, 195, 1022–1031.

<https://doi.org/10.1016/j.sbspro.2015.06.491>

World Health Organization. (2011). *Mobile phone use: A growing problem of driver distraction*. World Health Organization.

<https://www.who.int/publications/i/item/mobile-phone-use-a-growing-problem-of-driver-distraction>

Xie, H., Tao, S., Zhang, Y., Tao, F., & Wu, X. (2019). Impact of problematic mobile phone use and insufficient physical activity on depression symptoms: A college-based follow-up

study. *BMC Public Health*, 19(1). <https://doi.org/10.1186/s12889-019-7873-z>

Xie, X., Chen, W., Zhu, X., & He, D. (2019). Parents' phubbing increases adolescents' mobile phone addiction: Roles of parent-child attachment, deviant peers, and gender. *Children and Youth Services Review*, 105, 104426. <https://doi.org/10.1016/j.chilyouth.2019.104426>

Yang, J., Fu, X., Liao, X., & Li, Y. (2020). Association of problematic smartphone use with poor sleep quality, depression, and anxiety: A systematic review and meta-analysis. *Psychiatry Research*, 284, 112686. <https://doi.org/10.1016/j.psychres.2019.112686>

Yen, C., Tang, T., Yen, J., Lin, H., Huang, C., Liu, S., & Ko, C. (2008). Symptoms of problematic cellular phone use, functional impairment and its association with depression among adolescents in southern Taiwan. *Journal of Adolescence*, 32(4), 863–873. <https://doi.org/10.1016/j.adolescence.2008.10.006>

Zhang, Y., Ding, Q., & Wang, Z. (2021). Why parental phubbing is at risk for adolescent mobile phone addiction: A serial mediating model. *Children and Youth Services Review*, 121, 105873. <https://doi.org/10.1016/j.chilyouth.2020.105873>