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## The Mediating Role of Mother-Child Relationship and The Relationship Between Mother Phubbing and Children's Mobile Phone Addiction in Kuala Lumpur

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### ABSTRACT

**Purpose:** This study aimed to explore the mediating role of the mother-child relationship in the relationship between mother phubbing and children's mobile phone addiction in Kuala Lumpur, Malaysia.

**Methods and Materials:** A quantitative research design was utilized, involving 214 adolescents aged 13-17 in Kuala Lumpur. Data was collected using the Mother Phubbing Scale, Parent-Child Relationship Survey, and Smartphone Addiction Scale - Short Version. The mediating effects were analyzed using the Process Macro by Hayes, focusing on the relationship between mother phubbing, the mother-child relationship, and children's mobile phone addiction.

**Findings:** The results revealed a significant positive correlation between mother phubbing and children's mobile phone addiction. Additionally, a significant negative correlation was found between mother phubbing and the mother-child relationship. The mother-child relationship was negatively associated with children's mobile phone addiction. The mother-child relationship partially mediated the relationship between mother phubbing and children's mobile phone addiction.

**Conclusion:** This study underscores the impact of mother phubbing on children's mobile phone addiction, mediated by the mother-child relationship. These findings highlight the need for targeted interventions focusing on enhancing parent-child relationships to mitigate mobile phone addiction in children.

**Keywords:** Mother Phubbing, Mobile Phone Addiction, Mother-Child Relationship, Children, Mental Health

## 1. Introduction

Mobile phone use has increased dramatically since the information era began and has become an important part of people's daily lives. According to the Malaysian Communications and Multimedia Commission (2021), mobile phone ownership grew significantly from 75.9% (2017) to 94.8% (2021). Despite the fact that mobile devices have made life more convenient, overuse of them can result in addiction (Xie et al., 2019). Based on a systematic review (Sohn et al., 2019), the prevalence of mobile phone addiction among children and young people ranged from 14.0% to 31.2%. Specifically, individuals in their adolescence stage with an age range between 13 and 17 years old (Obeid et al., 2019) experience rapid social, emotional, and psychological changes, and due to insufficient self-control, these adolescents may be at risk for addiction (Park et al., 2019). A study conducted in Malaysia revealed 56.4% of adolescents were affected by internet addiction (Ooi et al., 2020).

Chotpitayasunondh & Douglas (2016) noted that as more individuals get attracted to the Internet, more people become problematic smartphone users, increasing worries about mobile phone addiction (Chotpitayasunondh & Douglas, 2018). Children easily form attachments to their phones, wanting to be close to them and being distressed when separated from them (Liu et al., 2017). Children's mobile phone addiction potentially has negative impacts on psychological development, learning, and health, which have attracted enhancing social attention (Bae & Nam, 2023). Regarding physical health, continuously reading from a mobile device is more likely to exacerbate asthenopic symptoms than reading from a hard copy (Antona et al., 2018). According to Demirci et al. (2015) and Tian & Wang (2023), excessive usage of mobile devices may also contribute to poor sleep quality (Demirci et al., 2015; Tian & Wang, 2023). These phenomena lead to the beginning of investigating the association between psychological factors and addiction to mobile phones (Demirci et al., 2015; Pearson & Hussain, 2016; Yifei & Motevalli, 2023) and then the association between family factors and addiction to mobile phones (Li & Hao, 2019; Liu et al., 2019; Pan et al., 2024). Recent studies showed one of the family factors for children's mobile addiction was parental phubbing (Xie et al., 2019; Zhang et al., 2021).

"Phubbing" is a combination of the word "phone" and "snubbing," and it refers to a form of social exclusion and interpersonal neglect that is brought on by using a mobile

phone (Xie et al., 2019). Most research focuses on the interaction between phubbing and the one who was being phubbed and suggests phubbing impacts other people around them negatively. By way of example, the phubbing behavior of one partner might decrease the other partner's level of relationship satisfaction, and that, in turn, can be detrimental to that person's mental health (Wang et al., 2017). In the family context, parental phubbing is linked to a high level of insecure attachment between parent and child (Xie et al., 2019). This is because the children will feel neglected and devalued, leading to weak parent-child relationships, and as a consequence, they tend to have internalizing and externalizing problems, including children's mobile phone addiction (Zhang et al., 2021). Numerous studies have evaluated the consequences of partner phubbing, but there is a lack of studies focusing on the effect of phubbing on parent-child relationships. On the other hand, the parent-child relationship is critical for development in late childhood and adolescence within the family system (Lam et al., 2012). Hence, instead of focusing on partner phubbing, this present study is looking to determine whether parental phubbing affects the relationship between parents and children.

A cross-sectional study done by Niu et al. (2022) suggested that the parent-child relationship mediated the positive relationship between parental phubbing and adolescent problematic mobile phone use (Niu et al., 2020). However, research on these factors in Malaysia is still in progress. The data gathered in past research cannot be generalized to children in other countries (Hong et al., 2019). Additionally, contemporary studies examine the phubbing behaviour of parents as a whole (Liu et al., 2019; Niu et al., 2020). According to Bai et al. (2020), it appears that mothers have distinct responsibilities than fathers when it comes to parenting children. As a result, it is vital to investigate their respective influences. Hence, Mphubbing was concentrated in this study because the quality of the mother-child relationship has a significant consequence on adolescent personal behaviour and well-being (Wang et al., 2021).

The current study aimed to examine the mediating role of the mother-child relationship in the relationship between mothers' phubbing and children's mobile phone addiction in Kuala Lumpur, Malaysia, by using parental acceptance-rejection theory. The independent variable, mother phubbing, is behavior exhibited by mothers who get distracted with their mobile phones, resulting in ignoring their children (Bai et al., 2020). The dependent variable, children's mobile phone addiction, will be defined as high

dependence on mobile phones that is accompanied by uncontrollable behavior that has a detrimental influence on children (Yuwanto, 2010), and the mediating variable, the mother-child relationship will be defined as a unique and influential bond formed through the interaction between the children and their mothers (Shao & Kang, 2022).

Moreover, the current study is significant because it will contribute to the existing literature by investigating the mediating factor that may influence the relationship between mother phubbing and children's behavioral outcomes. Understanding how parents' phubbing give impacts children is crucial because children usually are influenced by their families and surrounding. This, in turn, may make children prone to develop bad habits because they do not understand the risks and effects of their actions (Zhou et al., 2022). This research analysis will generate fresh concepts that will be useful for future research on parental phubbing and could contribute to a more comprehensive evaluation. Furthermore, children are reliant on the affection and care of their mothers. Having that said, children who grow up in nurturing environments have a better chance of achieving their full potential (McDaniel & Wesselmann, 2021). Such assistance includes the attention of the parents. Children who are being phubbed tend to feel neglected by their own mothers. In this regard, this research will serve to raise society's knowledge of phubbing as a form of parental neglect.

As children who are being phubbed will feel like they are socially excluded, so they will turn to the internet and social media to compensate for their needs (Xie et al., 2019). They use a variety of social media platforms to interact with their peers. These applications make the ability to connect with people worldwide and access news and information possible. Still, they can also result in problematic and excessive mobile phone use, cyberbullying, sexting, and depression. This research shed light on the possible risks of using mobile phones excessively for their children and helped create evidence-based guidelines for encouraging mothers to use mobile phones in a healthy way. In addition, the findings of this study will provide advocates with important information to use in their ongoing efforts to raise awareness about how to cope with mobile phone addiction and how to stop phubbing.

#### *1.0 Mother Phubbing and Children's Mobile Phone Addiction*

A study by Geng et al. (2022) revealed that the phubbing behavior of mothers (phubbing) and fathers (phubbing) predicted adolescents' problematic smartphone use (Geng et

al., 2021). This is aligned with previous research (Zhang et al., 2021) which found there was a positive correlation observed between parental phubbing and adolescent mobile phone addiction. Another study found that parental phubbing behaviors promoted adolescent mobile phone-dependent behaviors (Liu et al., 2022). They further elaborated that if the parents are unaware of the harmful impacts of phubbing, the phubbing setting may be continuously reinforced for dependency intention, increasing the likelihood that teenagers would become mobile phone dependent. As the mother plays a significant role in adolescent development, maternal sensitivity and communication between adolescent and mother are vital, which affect adolescent behavioral and emotional conditions (Wang et al., 2021). Thus, this study assumed that mother phubbing would be positively associated with children's mobile phone addiction (Hypothesis 1).

##### *1.1 Mother Phubbing and Mother-child Relationship*

Mother phubbing may affect mother-child relationships. Specifically, the displacement hypothesis claims that mothers who use social media a lot will replace important interactions in the real world with interactions on social media, which will make children less socially involved and less happy with their relationships (Kraut et al., 1998). A study (Hong et al., 2019) indicated that the parent-child relationship mediated the relationship between parental phubbing and problematic smartphone use. They further elaborated that parents who prioritize their mobile phones over their interactions with their children may potentially contribute to the child's feelings of detachment, resulting in a perceived lack of quality in the parent-child relationship. Therefore, this study predicted that mother phubbing will be negatively correlated with the quality of the mother-child relationship (Hypothesis 2).

##### *1.2 Mother-child Relationship and Children's Mobile Phone Addiction*

Mother-child relationships may affect children's mobile phone addiction. Previous study revealed negative parent-child relationships make it harder for adolescents to satisfy their psychological needs, which increases the likelihood that they may develop a mobile phone addiction (Sun & Samp, 2021). This is supported by another study, which found parental phubbing is linked to poor parent-child relationships and lowers parent-child cohesiveness (Mi et al., 2023). Hence, it was assumed that the mother-child relationship will be negatively associated with mobile phone addiction among children (Hypothesis 3).

##### *1.3 The Mediating Role of Mother-Child Relationship*

According to Parental Acceptance-Rejection Theory, if children's social and emotional needs are not satisfied and they feel neglected in a family with a negative parent-child relationship, it is likely that they will respond emotionally and behaviourally in certain ways (Rohner, 1980). It was revealed that the relationship between mother phubbing and children's behavioral problems was mediated by the mother-child relationship (Lv et al., 2022). This is supported by a study (Gong et al., 2022) that shows the parent-child relationship and parental bonding negatively mediated the association between parents' smartphone addiction and adolescents' smartphone addiction. When looking into how the parent-child relationship acted as a protective factor against parental phubbing and children's behavioral problem of addiction (Niu et al., 2020), it can be inferred that the mother-child relationship will play a mediating role in the relationship between mother phubbing and children's mobile phone addiction (Hypothesis 2).

#### 1.4 The Present Study

The present study aimed to answer a few research questions as stated below:

1. Is there a relationship between mother phubbing and children's mobile phone addiction?
2. Is there a relationship between mother phubbing and mother-child relationship?
3. Is there a relationship between the mother-child relationship and children's mobile phone addiction?
4. Does the mother-child relationship play a mediating role in the relationship between mother phubbing and children's mobile phone addiction?

With this, the current research aims to investigate a few objectives below:

1. To determine the relationship between mother phubbing and children's mobile phone addiction.
2. To determine the relationship between mother phubbing and mother-child relationship.
3. To determine the relationship between mother-child relationship and children's mobile phone addiction.

To examine the mediating effects of the mother-child relationship on the relationship between mother phubbing and children's mobile phone addiction.

## 2. Methods and Materials

A quantitative research design is applied in the current study to test the research hypothesis. This study aimed to understand the mediating role of the mother-child relationship in the relationship between mother phubbing and children's mobile phone addiction in Kuala Lumpur. Participants were recruited using convenient sampling techniques. The data was collected through questionnaires using a survey design. It enables more precise results to be obtained across larger populations (Nardi, 2018). Apart from that, the survey was cross-sectional as this study involved gathering data from a population at a certain point in time (Wang & Cheng, 2020).

Adolescents from Malaysia are the focus population of the present research. Adolescents are digital natives with high internet exposure and are at risk of developing addictive behaviors (Ooi et al., 2020). Based on UNICEF (2018), the population of adolescents in Malaysia is 5.5 million. By using the g-power calculator with linear multiple regression, fixed model, single regression coefficient, two-tailed, and 95% confidence interval, 107 samples were identified to be used in this study. Those samples were doubled up, and 214 samples were obtained because a sample that is larger than required will more accurately reflect the population as a whole, leading to more reliable results (Andrade, 2020). In addition, 50 samples were used for the pilot study in this research. Participants eligible for this study are adolescents between the ages of 13 and 17 who are now living in Malaysia.

This study recruited adolescents living in Kuala Lumpur because the prevalence of gadget addiction, including mobile phones, tends to be higher in urban areas where it is more accessible to the internet (Hadi et al., 2023). According to Hadi et al. (2023), it showed Kuala Lumpur encompassed more urban areas (96.7%) than in Kuantan (83.2%), and the majority of participants had an internet connection, with more in Kuala Lumpur (92.3%) than in Kuantan (87.6%) (Hadi et al., 2023). Furthermore, the city of Kuala Lumpur exhibited a higher average 4G internet availability of 94.1% compared to Pahang (86.9%) (Mobile Network Experience, 2021).

Before data collection, the research proposal underwent a review process by UCSI Institutional Ethics. After ethics board approval, a form was created with two parts: an information letter of informed consent and a questionnaire with demographic information, the Mother Phubbing Scale, Parent-Child Relationship Survey, and Smartphone Addiction Scale - Short Version. Participants were briefed on informed consent and requested to sign the form before



responding to questionnaires. The questionnaire was distributed through an online survey called Google Forms. After all data was gathered, it was screened to exclude participants who did not fulfill inclusion or exclusion criteria, and the data was cleaned to remove missing and extreme values to ensure error-free raw data. Next, participants' demographic information was analyzed by employing descriptive analysis, then questionnaire items that needed reversed scoring were reversed, and all three instruments' mean and total scores were calculated. Process macro by Hayes was utilized to determine the mediating role of the mother-child relationship in the relationship between mother phubbing and children's mobile phone addiction.

### 3. Findings and Results

The total number of participants who completed all questionnaires is 214, and data analysis has been conducted. Table 1 demonstrates the demographic information of participants. The participants' ages were divided into three categories: below 14 years old, 15 to 16 years old, and above 17 years old. It is reported that 47 participants (22%) were

14 years old and below, 124 participants (57.9 %) were between 15 to 16 years old, and 43 participants (20.1%) were 17 years old and above. This study recruited 136 females (63.6%) and 78 males (36.4%). The results showed that 20.1% of the participants identified as Chinese ( $n = 43$ ), while 69.6% identified as Malay ( $n = 149$ ). Additionally, 5.6% of the participants identified as Indians ( $n = 12$ ), and 4.7% identified as belonging to other races ( $n = 10$ ), such as Dusun, Brunei, Kadazan, and Bajau.

In terms of fathers highest education level, the results indicated that 26 of the fathers' education (12.1%) is primary school; 54 of the father's education (25.2%) is secondary school; 55 father's education (25.7%) is STPM or Diploma, and 79 father's education (36.9%) is bachelor's degree and above. Moreover, mothers highest education revealed that 7.5% of the mothers had primary school ( $n=16$ ), 28.5% of the mothers had secondary school ( $n=61$ ), 31.8% of the mothers had STPM or diploma ( $n=68$ ), 32.2% of the mothers had bachelor degree and above ( $n=69$ ). In addition, the majority of the participants surveyed were from the income group of below RM4850 (46.7%).

**Table 1**

*Participant's demographic information*

Variable	n	%
Age Group		
14 and below	47	22
15-16	124	57.9
17 and above	43	20.1
Sex		
Female	136	63.6
Male	78	36.4
Race		
Malay	149	69.6
Chinese	43	20.1
Indian	12	5.6
Others	10	4.7
Father's Highest Education Level		
Primary school	26	12.1
Secondary school	54	25.2
STPM/Diploma	55	25.7
Bachelor degree and above	79	36.9
Mother's Highest Education Level		
Primary school	16	7.5
Secondary school	61	28.5
STPM/Diploma	68	31.8
Bachelor degree and above	69	32.2
Family Monthly Income		
< RM4850	100	46.7

RM4850 – RM10959	78	36.4
>RM10959	36	16.8

### 3.1. Examination of the relationship between mother phubbing and children's mobile phone addiction

Pearson correlation analysis was applied for research objective one (RO1), which wants to focus on examining the relationship between mother phubbing and children's mobile phone addiction. The findings revealed that there is a significant positive correlation between a mother's phubbing score and children's mobile phone addiction ( $r = 0.502$ ,  $p < 0.001$ ). This showed that adolescents who experienced higher levels of mother phubbing have higher levels of mobile phone addiction. Thus, the hypothesis (Ha1) stating that there is a relationship between mother phubbing and children's mobile phone addiction is being accepted.

### 3.2. Examination of the relationship between mother phubbing and mother-child relationship

In order to find out the relationship between mother phubbing and the mother-child relationship, which aligned with research objective two (RO2), the Pearson correlation coefficient was employed. The results suggested that there is

a significant negative correlation between mother phubbing and the mother-child relationship ( $r = -0.500$ ,  $p < 0.001$ ). This indicated that higher levels of mother phubbing are related to lower quality of mother-child relationships. Therefore, the hypothesis (Ha2) stating that there is a relationship between mother phubbing and mother-child relationship is being accepted.

### 3.0 Examination of the relationship between mother-child relationship and children's mobile phone addiction

Pearson correlation test was used to examine the relationship between mother-child relationship and children's mobile phone addiction in research objective three (RQ3). According to the results, there is a significant negative correlation between the mother-child relationship and children's mobile phone addiction score ( $r = -0.463$ ,  $p < 0.001$ ). A decrease in mother-child relationship will increase levels of mobile phone addiction among children. Thus, the hypothesis (Ha3) stating that there is a relationship between the mother-child relationship and children's mobile phone addiction is being accepted. In addition, it can be seen that all the relationships between variables (0.40 to 0.60) are considered moderate.

**Table 2**

*Correlation among study variables*

Variables	1	2	3
1 Mother Phubbing	1.000		
2 Mother-child Relationship	-0.500***	1.000	
3 Children's Mobile Phone Addiction	0.502***	-0.463***	1.000

Note. \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

### 3.3. Examination of the mother-child relationship as the mediator

A bootstrapping regression analysis was conducted to address research objective four (RO4), which aims to investigate the mediating role of the mother-child relationship in the relationship between mother phubbing and children's mobile phone addiction in Kuala Lumpur. The results of regression analysis showed that mother phubbing is a significant predictor of mother-child relationship,  $B = -0.0661$ ,  $SE = 0.0079$ ,  $t = -8.3990$ ,  $p < 0.001$ , 95% CI [-0.0816, -0.0506], and that mother-child relationship was a significant predictor of children's mobile phone addiction,  $B = -0.8772$ ,  $SE = 0.2045$ ,  $t = -4.2889$ ,  $p <$

0.001, 95% CI [-1.2804, -0.4740]. The direct effect of mother phubbing on children's mobile phone addiction was significant, with  $B = 0.1476$ ,  $SE = 0.0270$ ,  $t = 5.5468$ ,  $p < 0.001$ , 95% CI [0.0943, 0.2009].

The adjusted R square indicated that the predictors can explain 30.5% of the variance in children's mobile phone addiction.

Using PROCESS Macro Version 4.2, the results of the indirect effect based on 5000 bootstrap samples showed that the indirect coefficient was significant,  $B = 0.0580$ ,  $SE = 0.0196$ , 95% CI [0.0244, 0.1010]. The findings also revealed that the mother-child relationship partially mediated the relationship between mother phubbing and children's

mobile phone addiction. Therefore, the hypothesis (H4) stating that there is a mediating effect of the mother-child relationship in the relationship between mother phubbing and children's mobile phone addiction is being accepted.

The total effect, direct effect, and indirect effect of the model are presented in Table 3. Additionally, Figure 1 displays the significance of each pathway in the mediation analysis.

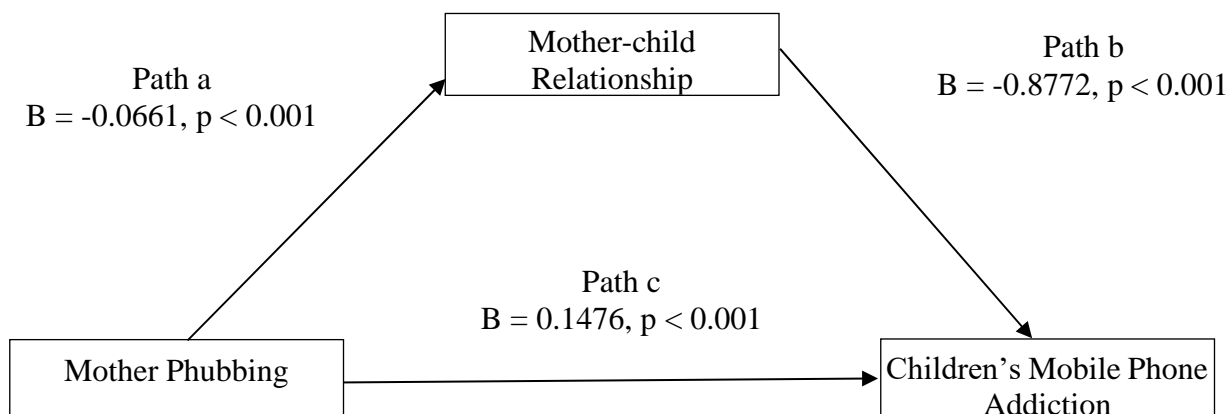
**Table 3**

*Total, direct, and indirect effect of mediation analysis.*

	Estimates	SE	t	p	95% CI	
					Lower	Upper
Total effect Mother PhubbingChildren's Mobile Phone Addiction	0.2055	0.0244	8.4344	0.0000	0.1575	0.2535
Direct effect Mother PhubbingChildren's Mobile PhoneAddiction	0.1476	0.0270	5.5468	0.0000	0.0943	0.2009
Indirect effect Mother Phubbing Mother-child Relationship Children's Mobile Phone Addiction	0.0580	0.0196			0.0244	0.1010

**Figure 1**

*Mother-child relationship as the mediator between mother phubbing and children's mobile phone addiction in Kuala Lumpur.*



#### 4. Discussion and Conclusion

Mobile phone addiction among children is harmful as it contributes to mental health problems, including anxiety and depression (Son et al., 2021), poor sleep quality (Tian & Wang, 2023), low academic performance, and social issues (Hyun et al., 2013). Hence, it is vital to explore the factors influencing mobile phone addiction. This study aimed to investigate the potential correlation between mother phubbing and mobile phone addiction among children, as well as the potential mediating roles of the mother-child relationship based on the parental acceptance-rejection

theory (Rohner, 1980). The findings acquired from this research are discussed in detail below.

##### 4.1. 4.1 Mother Phubbing and Children's Mobile Phone Addiction

The findings clearly support the hypothesis (Ha1), demonstrating a significant relationship between mother phubbing and children's mobile phone addiction. This finding is consistent with previous research that suggested children who were frequently exposed to parental phubbing were more likely to develop addictive behaviors towards their mobile devices (Xie et al., 2019; Zhang et al., 2021;

Zhou et al., 2022). The current study adds to this body of work by specifically examining the relationship between mother phubbing and children's mobile phone addiction. This can be explained through the presence of a family environment where parents consistently prioritize their mobile phones, and a child may perceive phubbing behaviors as socially acceptable and consequently imitate and adopt an unhealthy pattern of mobile phone use (Hong et al., 2019). This pattern may be more prevalent in adolescents who are particularly susceptible to the influence of their surroundings. Park et al. (2019) claimed adolescents, in particular, undergo significant social, emotional, and psychological changes, and these adolescents may be at risk for addiction due to a lack of self-control (Park et al., 2019).

#### 4.2. Mother Phubbing and Mother-Child Relationship

Consistent with expectations, a negative correlation exists between mother phubbing and the mother-child relationship, supporting the Hypothesis (Ha2). This showed that children who have greater experience of being phubbed by their mothers are associated with poorer mother-child relationship quality. It was aligned with much past research that argues regular usage of mobile phones will result in less meaningful connections with people in the real world, as well as lower levels of pleasure in social involvement and relationships (McDaniel & Wesselmann, 2021; Wang et al., 2021). In a family context, high parental sensitivity and responsiveness levels characterize healthy parent-child interactions and relationships (Niu et al., 2020). This study confirms that mothers engage in phubbing behavior, which lacks responsiveness and attention, harming the relationship between the mother and the children. One possible explanation for this finding is that when mothers constantly check their phones instead of engaging with their children, even if the mother is physically present, the children may feel as though they are psychologically distant from them (Hong et al., 2019). With this, the mothers may miss important cues and opportunities for connection. A study conducted by Lv et al. (2022) described children as typically upset when their parents' attention is suddenly shifted to a mobile device in order to reply to a notification (Lv et al., 2022). Another study by Chotpitayasunondh & Douglas (2018) pointed out parental phubbing can lead to feelings of being ignored and rejected by the child, which contributes to relationship damage (Chotpitayasunondh & Douglas, 2018). The above evidence suggests a high level of mother

phubbing behavior causes low quality of mother-child relationship.

#### 4.3. Mother-Child Relationship and Children's Mobile Phone Addiction

The study findings confirmed the hypothesis (Ha3) that suggested a significant relationship between the mother-child relationship and children's mobile phone addiction. Results revealed a negative correlation between mother-child relationship and mobile phone addiction among children. This finding is supported by several previous studies that demonstrated children indicating lower levels of satisfaction in their relationship with their mothers were more inclined to display addictive behaviors concerning their mobile devices (Sahu et al., 2019; Sun & Samp, 2021). It may occur because adolescents with negative parental relationships reported a lack of emotional support from their families (Tiware & Verma, 2013). A similar study concluded that adolescents with negative parent-child relationships rarely get adequate emotional warmth or social support from their parents, which puts their psychological needs at risk and lowers their sense of satisfaction (Lin & Tsai, 2015). As a result of not being able to meet their psychological demands in real life, teenagers may have felt the need to participate in compensatory behaviors, such as turning to the online world on their mobile phones (Kwak et al., 2018). Sun et al. (2020) elaborated that online psychological needs satisfaction may make up for a lack of offline psychological needs satisfaction, and this would make teens use their phones more often, which could raise the risk of excessive use (Sun & Samp, 2021). They will fill their emptiness with online games, watching online videos, or chatting (Sheldon et al., 2011). Thus, it was evident that poor mother-child relationships can lead to addiction of mobile phones among children.

#### 4.4. The Mediating Role of Mother-child Relationship

The result found that the mother-child relationship partially mediated in the association between mother phubbing and children's mobile phone addiction, hence providing evidence to support the hypothesis (Ha4). This finding is consistent with a study (Lv et al., 2022) which discovered the quality of the mother-child relationship acts as a significant mediating factor in the link between maternal phubbing behavior and children's behavioral problems. The results confirmed that adolescents exposed to mother phubbing had negative mother-child relationships that



ultimately led to an increased risk of mobile phone addiction. The mother-child relationship refers to the unique and influential bond formed by interacting with the children and their mothers (Shao & Kang, 2022). Phubbing, as a form of rejection in mother-child interaction, influences teenagers' judgments of how accepting their mothers are (Qu et al., 2020). This aligns with parental acceptance-rejection theory, which posits that children have a fundamental need for acceptance from their parents (Rohner, 1980). Acceptance is characterized by various positive expressions of caring, including affection, love, nurturance, comfort, and support, that predict relationship quality (Brock et al., 1998).

In this case, mother-child bonding is weakened because of the absence of those criteria, as parents spend too much time and energy on their phones rather than spending time with and supporting their children. For instance, it has been shown that mothers who use social media too much are less involved in their children's lives and are more likely to be distracted (McDaniel & Wesselmann, 2021). Mothers who fail to display affective involvement and fail to interact with their children could lead to neglect (Crittenden, 1993). Therefore, the act of phubbing is similar to social exclusion, resulting in a sense of neglect among adolescents who were being phubbed, and this feeling would break parent-child relationships (Xie et al., 2019). In accordance with this, Konrad et al. (2021) suggested the presence of mobile phones disrupts mother-child interaction and reduces parental responsiveness to their children's needs. Lack of mother responsiveness and attentiveness can be a major reason why mother phubbing could make children more likely to become addicted to mobile phones (Konrad et al., 2021). A study by Niu et al. (2022) proposed that if children do not receive sufficient emotional attachment from their parents, they may look for it in other places (Niu et al., 2020). Research has shown that adolescents frequently look to their mobile phones to feel appreciated and loved (Wei et al., 2021).

#### 4.5. Implications and Limitations

This study has both theoretical and practical implications. From a theoretical perspective, it contributes to the literature on the impact of family-related issues, specifically parental neglect, on adolescent mobile phone addiction by spotlighting maternal mobile phone use and behaviors. Additionally, it explains the mechanism linking mother phubbing to children's mobile phone addiction through an exploration of the mediating effects within the mother-child

relationship, providing direct evidence aligned with the parental acceptance-rejection theory. While prior studies extensively demonstrate the adverse effects of mother phubbing on adolescents, such as cyberbullying (Qu et al., 2020), loneliness (Wang et al., 2021), and academic burnout (Bai et al., 2020); this study uniquely addresses the relatively unexplored association between mother phubbing and mobile phone addiction, which is seen as problematic behavior.

From a practical standpoint, these findings hold crucial implications for parents and healthcare professionals since mother phubbing is considered a new form of parental neglect. Parents should prioritize face-to-face interactions and minimize distractions from mobile phones; mothers can help foster positive relationships with their children and reduce the risk of mobile phone addiction. Furthermore, healthcare professionals should focus on improving the quality of these relationships when assisting families with technology-related issues. Addressing underlying relationship issues may facilitate healthier technology use habits, which, in turn, reduce the likelihood of addiction. For instance, interventions promoting better communication, bonding activities, and dedicated quality time between mothers and children could effectively prevent addiction and repair strained relationships.

There were a few limitations to this current study. First, this study used a quantitative approach, which may limit respondents' ability to express their unique experiences and lead to overgeneralization of respondent answers. Future work could utilize mixed-methods approaches by incorporating qualitative methods such as interviews, focus groups, or open-ended survey questions to supplement quantitative data. Second, the data were dependent on the adolescent's self-report; this can result in social desirability bias. Therefore, it is recommended to consider various information sources, such as reports from parents or teachers, to support the self-reports provided by adolescents. Third, the identification of partial mediation in the relationship between mother phubbing and children's mobile phone addiction through the mother-child relationship quality implies that while there is mediation, it does not fully explain the association. Future research should aim for a more comprehensive mediation analysis by exploring additional potential mediators or considering multiple mediators simultaneously. In addition, convenience sampling can result in sampling bias, which occurs when the sample fails to represent the whole population of interest accurately. Other methods like simple random sampling,

stratified sampling, or cluster sampling should be adopted to ensure each member of the population has an equal chance of being selected. This minimizes selection bias and enhances the representativeness of the sample.

Overall, this study highlights the significant mediation role of the mother-child relationship in explaining the relationship between the mother phubbing and children's mobile phone addiction. Mother-child relationships must be focused on because they can serve as a protective factor against mobile phone addiction. These findings emphasize the need for targeted interventions addressing mother-child relationships to potentially modify or influence the relationship between mother phubbing behavior and mobile phone addiction among children

### Authors' Contributions

All authors significantly contributed to this study.

### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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### Declaration of Interest

The authors report no conflict of interest.

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### Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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