

## RELATIONSHIP OF SMART PHONE ADDICTION WITH COGNITIVE AND EMOTIONS REGULATION: AN ANALYSIS AMONG PRE-SCHOOL CHILDREN

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### ABSTRACT

*The current study sought to investigate the relationship between smartphone addiction and preschoolers' ability to regulate their emotions and cognition. A sample of N=110 preschoolers was selected using the purposive sampling method from the general community of Bahawalpur, Pakistan. The current study employed a cross-sectional research approach. Data was gathered using the Korean Smartphone Addiction Proneness Scale for Young Children by Kim and Lee (2014) and the cognitive Emotion Regulation Questionnaire (CERQ) kid's version by Garnefski et al. Version 21 of SPSS was used to evaluate the data. The study's hypotheses were tested using frequency distribution, descriptive statistics, bivariate correlation, and regression analysis. The findings indicated that smartphone addiction among preschoolers was high. It was shown that there was a substantial correlation between cognitive emotion management techniques and smartphone addiction. Rumination, positive reappraisal, perspective-taking, refocusing on planning, and positive refocusing were discovered to have a significant negative correlation with cognitive emotion regulation strategies, whereas self-blame, acceptance, catastrophizing, and other blame were discovered to have a significant positive correlation with smartphone addiction. Additionally, especially among preschoolers, smartphone addiction has a considerable impact on cognitive emotion management skills.*

**Keywords:** Smartphone Addiction, Cognitive Emotion Regulation Strategies, Preschool children.

### INTRODUCTION

According to Goodman (1990), addiction is a disease characterized by repeated inability to regulate unwanted behavior and persistence in the habit despite extremely detrimental effects. Mood swings, level of tolerance, salience, withdrawal symptoms, conflict, and relapse are a few of the indications of addiction that are often recognized (Griffiths, 1995).

Preschool children use a range of mobile devices more regularly, and their global use of cell phones is rapidly increasing. 12.0% of children used a smartphone every day, compared to 39.3% of 390 toddlers who watched TV almost every day. On weekends, 63.1% of the children watched TV for longer than an hour. On the weekends, 23.4% of children use their smartphones for longer than an hour. According to Chang et al.'s 2018 study, 31.3% of young children under the age of 2 reported using a smartphone. Children between the ages of 5 and 6 were found to spend much more time watching media on weekends than they did on weekdays in the UK.

There was evidence that mother exclusively for dads on weekends, and father computer use during the week was strongly connected with children's computer use throughout the week (Jago et al., 2014).

### Gender and Age in Smartphone Addiction

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Gender and age differences exist in smartphone addiction, with younger children and women being more susceptible. By the time they are 11 or 12 years old, 72.2% of South Korean children have smartphones, use them for 5.4 hours every day, and 25.5% are addicted to them. Children are increasingly using smartphones, which is raising concerns about smartphone addiction. However, compared to families with TV or Internet game usage rules, there are comparatively fewer homes with smartphone usage guidelines (Lee & Ogbolu, 2018).

According to the study, youngsters used screens an average of 1.46 hours each day (from 0 to 12 hours). Boys frequently used screens for a little bit longer (1.62 vs. 1.29 hours daily) than girls. Age-related increases in smartphone usage were also seen; children aged 5, 6, 7, and 8 reported daily usage of 1.18, 0.8, 1.72, and 1.99 hours, respectively. Before kids became 24 months old, 28.9% of all participants started using cellphones for the first time, with homes being the most common locations (Kim et al., 2020).

## **REVIEW OF LITERATURE**

According to a study, early media exposure causes violent behavior that lasts a lifetime. A delay in language development in 2-year-old children has been linked to a daily average of more than 2 hours spent watching television (TV). Children between the ages of 2 and 5 are advised by the American Academy of Pediatrics to limit their daily screen use to no more than 1 hour (Kim et al., 2020).

Researchers have started to examine the affective aspects that may contribute to smartphone misuse and harmful behaviors because adolescents may use smartphones excessively and addictively in response to unfavorable emotional states. Emotion regulation is thought to become a critical cognitive process during childhood and adolescence for successfully controlling mood states following stressful situations or negative feelings (Garnefski et al., 2001).

Among emotion control techniques, suppression is not just restricted to feelings; it can also be a coping mechanism for smartphone addictions. By stifling their own thoughts, addicts try to restrain their cravings (Mauss et al., 2007). A study found that children with high degrees of smartphone addiction had trouble controlling their emotions (Hormes et al., 2014). According to Caplan's (2010) study, there is a bad correlation between effective emotion control and smartphone addiction. A research indicated that rumination, catastrophizing, self-blame, and other blame are emotion regulation techniques that modulate the link between inappropriate smartphone use as well as social networking sites. Also significant was the direct correlation between problematic social networking use and smartphone use (Zsido et al., 2021).

In comparison to non-problematic users, users of dysfunctional smartphones reported significantly higher scores for maladaptive cognitive emotion regulation approaches, and problematic smartphone users reported significantly higher scores for these strategies, such as higher levels of self-blame, other-blame, and catastrophizing among young children (Extremera et al., 2019).

Due to the fact that frequent smartphone use can result in physical side effects including weariness, mobile dependency among kids and teenagers is harmful (Son et al., 2021). The level of mobile dependency was correlated with increasing use duration, increased impulsivity, and increased daily stress. These findings imply that young adolescents should receive more focus, and they could serve as the basis for intervention programs that aim to curb smartphone addiction (Kim, 2021). Children who use smartphones frequently have altered daily routines and activities. This is evident from the widespread occurrence of today's event. They frequently spend their time preoccupied with their daily activities and YouTube movies or television shows, as if their smartphones had mesmerized them and disregard the role of kids who should still play with their friends (Nasution, 2021).

The progression of emotion control during the preschool years is significantly affected by the maturation of cognitive skills. In the beginning, children's new skills are very basic, like covering their eyes with their hands or physically hiding the stimulus that is causing the emotion. However, as they progress through preschool, this area of competence expands to include skills involving more complex mental processes, like more sophisticated attention regulation (Thompson, 1994). It's crucial to be able to cognitively control emotional responses to unpleasant situations for both mental and physical health. The neural mechanisms underlying the cognitive control of emotion are, however, poorly understood. They examined the brain networks responsible for the dispassionate evaluation of severely painful experiences using functional magnetic resonance imaging. When extremely painful scenes were evaluated, the subjective impression of negative effect was diminished (Ochsner et al., 2002).

In contrast to adaptive coping strategies like problem-solving or social support, it has been argued that problematic smartphone users may use their phones as a maladaptive coping technique associated to avoidance and the repression of their unpleasant emotions (Elhai et al., 2018).

### **Rationale of Study**

Keeping in view the above factors, the current study was conducted to open up new information avenues and fill a research gap of usage of smart phone use and related cognitive problems among preschool children. In this fast-paced world, smartphone addiction is rife, especially among our youth and young children. Smartphone addiction is an illness that results in a person's inability to manage their smartphone use, which significantly impairs their capacity to function and further causes psychological anguish, problems with their social interactions, problems at school or at work. This addiction is also responsible for emotional, behavioral and psychological problems among children and adults. It significantly affects physical health, cognitive function, and sleep quality. Moreover, prolonged screen use is bad for children's eyes, but kids are more likely to suffer from more severe visual impairment. Long-term use of a smart phone while wearing headphones is also likely to have a harmful influence on hearing. So, it was necessary to investigate the relationships between important factors that are most frequently associated with toddlers and children facing emotional and cognitive problems due to smartphone addiction. In Pakistan, a number of researches is available to highlight the links of smartphone addiction and cognitive emotion regulation among preschool children. Up till now, no research specifically was conducted in Pakistan to check the link between smartphone addiction and cognitive emotion regulation among preschool children. So it was a dire need to conduct this study in Pakistan.

### **Objectives of the Study**

The objectives of this present research were to measure the relationship of smart phone addiction and cognitive emotion regulation among preschool children. In this connection the following objectives and hypothesis was generated.

#### **Objectives**

- To check the prevalence of Smartphone addiction among preschool children.
- To find out the links between Smartphone addiction and cognitive emotion regulation.
- To check the relationship of Smartphone addiction with different domains of cognitive emotion regulation.

#### **Hypothesis**

- Smartphone Addiction will be high among Preschool children
- There will be a significant correlation among all cognitive emotion regulation strategies and smartphone addiction.
- There will be a significant impact of Smartphone addiction on subscales of cognitive emotion regulation among pre-school children.

## **METHODOLOGY**

### **Research Design**

It was a quantitative correlational research study by using purposive sampling method.

### **Sample Population and Sample Size**

The general population was the source of the study's sample. Using the Danielsoper sample size calculator, the sample size was justified. With a minimum effect size of 0.15, a power level of 0.08, a probability level of 0.05, and two measurements (one dependent and one independent variable), a sample size of 110 was calculated. N= 110 participants in total, of whom 50 youngsters were female and 60 were male, were involved in the study.

### **Measures and Covariates**

#### **Demographic Information Sheet**

Participants completed a consent form and a demographic information form that contained their names, age, gender and no. of siblings. The age group was included only preschool children i.e. 3, 4 and 5 years.

#### **Cognitive Emotion Regulation Questionnaire (CERQ) – Kids**

A self-report-like questionnaire called the Cognitive Emotion Regulation Questionnaire (CERQ-k) was created by Garnefski et al. in 2007. The CERQ-k measures four of the following nine cognitive coping mechanisms: catastrophizing, rumination, acceptance, planning, positive refocusing, self-blame, other

blame, and positive reappraisal. The response alternatives for the questions are graded on a five-point scale, from (almost) never to (almost) often. Internal consistency The scale's Cronbach coefficient Alpha values were 0.80.

#### Korean Smartphone Addiction Proneness Scale for Young Children

The Korean Smartphone Addiction Scale was developed by Kim and Lee in 2014. This scale has 15 items. The final scale contained four sub domains, each with four items: disturbance of adaptive functions, virtual life orientation, two withdrawals, four; and tolerance, four. The final scale showed outstanding reliability with a Cronbach's an of.880

#### Ethical Consideration

The following ethical issues were kept in mind when conducting the study. The researcher got prior approval for the usage of surveys from the authorities. The researcher also got the informed consent. The researcher took precautions to ensure that participant information would be kept confidential and not shared with anybody who was not an immediate study participant. The confidentiality and anonymity of the participants were protected.

## RESULTS

**Table No. 1 Frequency Distribution of Demographic Variables (n=110)**

| Respondent's Characteristics |        | f (%) N=110 |
|------------------------------|--------|-------------|
| Gender                       | Male   | 60 (54.5%)  |
|                              | Female | 50 (45.5%)  |
| Age                          | 3 year | 49 (44.4%)  |
|                              | 4 year | 51 (46.5%)  |
|                              | 5 year | 10 (9.1%)   |
|                              |        |             |

Note. In the above table the frequency distribution of all demographic variable e.g. gender and age group of study participants (n=110) has elaborated.

**Table No. 2 Correlation of Cognitive Emotion Regulation Strategies and Smartphone Addiction**

|                            | 1       | 2       | 3      | 4       | 5       | 6       | 7       | 8       | 9       | 10 |
|----------------------------|---------|---------|--------|---------|---------|---------|---------|---------|---------|----|
| 1.Self-blame               | 1       |         |        |         |         |         |         |         |         |    |
| 2.Acceptance               | .345**  | 1       |        |         |         |         |         |         |         |    |
| 3.Rumination               | -.378** | -.647** | 1      |         |         |         |         |         |         |    |
| 4.Positive Reappraisal     | -.617** | -.494** | .614** | 1       |         |         |         |         |         |    |
| 5.Putting into perspective | -.515** | -.492** | .644** | .858**  | 1       |         |         |         |         |    |
| 6.Refocus on planning      | .712**  | .579**  | .678*  | .865**  | .867*   | 1       |         |         |         |    |
| 7.Catastrophizing          | .682**  | .404**  | -.557* | -.487** | -.561*  | -.696** | 1       |         |         |    |
| 8.Other blame              | .689**  | .392**  | -.047  | -.241*  | -.461** | .627**  | .267*   | 1       |         |    |
| 9.Positive refocusing      | -.565** | -.255** | .496*  | .768**  | .877*   | .811**  | -.440** | -.283** | 1       |    |
| 10.Smartphone addiction    | .682**  | .534**  | -.523* | -.653** | -.447*  | -.655** | .493**  | .388**  | -.383** | 1  |

Table 2 shows correlation coefficient (r) value between among all cognitive emotion regulation strategies and smartphone addiction. The p value < 0.01 means the relationship is statistically significant.

**Table No. 3 Regression Coefficients of Smartphone Addiction and Cognitive emotion Regulation strategies**

| Dependent variable       | Independent    | B        | Beta | SE   |
|--------------------------|----------------|----------|------|------|
| Self-blame               | Constant       | .34***   |      | 1.60 |
|                          | Smartphone     | .35***   | .68  | .036 |
|                          | R <sup>2</sup> | .47      |      |      |
| Acceptance               | Constant       | 3.7***   |      | 1.53 |
|                          | Smartphone     | .22***   | .53  | .03  |
|                          | R <sup>2</sup> | .29      |      |      |
| Rumination               | Constant       | 21***    |      | 1.43 |
|                          | Smartphone     | -.20***  | -.52 | .032 |
|                          | R <sup>2</sup> | .27      |      |      |
| Positive reappraisal     | Constant       | 16.2***  |      | .83  |
|                          | Smartphone     | -.17***  | -.65 | .01  |
|                          | R <sup>2</sup> | .42      |      |      |
| Putting into Perspective | Constant       | 14.32*** |      | 1.09 |
|                          | Smartphone     | -.12***  | -.44 | .02  |
|                          | R <sup>2</sup> | .20      |      |      |
| Refocus Planning         | Constant       | 17.57*** |      | .98  |
|                          | Smartphone     | -.19***  |      | .022 |
|                          | R <sup>2</sup> | .43      | -.66 | .022 |
| Catastrophizing          | Constant       | 6.7***   |      | 1.1  |
|                          | Smartphone     | .15***   | .50  | .02  |
|                          | R <sup>2</sup> | .24      |      |      |
| Other blame              | Constant       | 8.9***   |      | 1.17 |
|                          | Smartphone     | .11***   |      | .02  |
|                          | R <sup>2</sup> | .15      | .39  |      |
| Positive Refocusing      | Constant       | 15.5***  |      | 1.2  |
|                          | Smartphone     | -.12***  | -.38 | .02  |
|                          | R <sup>2</sup> | .15      |      |      |

Table 3 shows the impact of smartphone addiction on all cognitive emotion regulation strategies among pre-school children. The R<sup>2</sup> value p<.001 revealed significant impact of smartphone addiction on all cognitive emotion regulation strategies.

## FINDINGS AND DISCUSSION

The primary goal of the current study was to investigate preschoolers' smartphone addiction and cognitive mood control. The Initial Hypothesis (HI) of the current study was to determine whether preschool-aged children will have a high level of smartphone addiction. This premise was accepted, and the findings are consistent with other studies, including the fact that the rate of smart device use is escalating and an increasing number of children and teenagers are using these devices. According to the paper Actual Situation of Infant and Toddler Smartphone Exposure and Protection Measures by the Child Raising Policy Institute from 2013, 53.1% of newborns and children were smartphone users. Toddlers have already used a smartphone before the age of three, with the average age of first use being 2.27 (Lee, 2013). Another study also supported the hypothesis that reveals 2 year old Korean toddlers

who used smartphone more than 2 hours of television per week but less than 3 hours per week had a 2.7 fold increased impairment in language development compared to children who watched television by one hour. Additionally, the amount of time toddlers used by smartphone rose proportionally with the risk of language delay (Byeon & Hong, 2015).

The H2 was created to examine the relationships between the study's factors. "There will be significant correlation between all cognitive emotion regulation strategies and smartphone addiction," it was predicted. This claim is corroborated by the research, which also supports it. For example, one study found that problematic smartphone users scored much higher on maladaptive CER tactics than non-problematic smartphone users, including higher levels of self-blame, rumination, blaming of others, and catastrophizing. These findings are consistent with past study, which claims that issues with emotion regulation and the use of debilitating emotion-control strategies may be a factor in problematic smartphone use as a coping mechanism for unpleasant feelings (Extremiera et al., 2019). A study revealed that kids start to distinguish between various emotional coping mechanisms at certain age. This might be as a result of their increased understanding of how emotional events work, which allows them to use techniques for altering situational antecedents to produce more preferable circumstances (Harris & Lipian, 1989).

The current study's hypothesis H3 stated that "smartphone addiction will have a major impact on pre-school children's cognitive emotion control strategies. The results of the hypothesis H3 shows that all the strategies of cognitive emotion regulation are effected by smartphone addiction among Pre-school children. The past research of Liang (2021) supported the hypothesis and claimed that addiction to smartphones negatively impacts expression suppression and cognitive reappraisal. Thornton et al. (2014) discovered that even the mere presence of the experimenter's cellphone had an adverse effect on children's cognitive performance these findings suggest that even the mere act of thinking about one's phone might lead to stress and reduce brain function.

Another research reported that it's crucial to be able to cognitively control emotional responses to unpleasant situations for both mental and physical health in young age. The neural mechanisms underlying the cognitive control of emotion are, however, poorly understood. They examined the brain networks responsible for the dispassionate evaluation of severely painful experiences using functional magnetic resonance imaging. When really painful scenes were reevaluated, the subjective perception of impact was lessened (Ochsner et al., 2002).

## **CONCLUSION**

In conclusion, this study found that preschoolers had a higher level of smartphone addiction than other age groups. Smartphone addiction and cognitive emotion management techniques were found to be substantially associated. Rumination, positive reappraisal, perspective-taking, refocusing on planning, and positive refocusing were found to be significantly negatively correlated with Smartphone addiction, whereas self-blame, acceptance, catastrophizing, and other blame were significantly positively correlated. Moreover, smartphone addiction has significant impact on all strategies of cognitive emotion regulation strategies. Hence, there is a need to address this phenomenon to rescue the cognitive emotion regulation among preschool children.

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