

## The Effect of Parenting Style and Self-Regulation on Smartphone Addiction Through Students' Anxiety

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### Abstract

Vocational high school students are vulnerable to getting addicted to smartphones at a high rate. Therefore, the present study examined the effect of parental styles and self-regulation on smartphone addiction through anxiety. It was correlational research which used an expo facto design with the samples of 329 students. In collecting the data, the instruments of Smartphone Addiction Scale (SAS), Hamilton Anxiety Rating Scale (HARS), EMBU (Swedish acronym for Eгна Minnen Beträffande Uppfostran [My memories of upbringing], and the Short Self-Regulation Questionnaire (SSRQ) were used following the results of validity and reliability tests. Once the students' data was collected, the multiple regression analysis with two sub-structural models was carried out. It showed that parenting styles and self-regulation had a partial effect on anxiety, and anxiety influenced smartphone addiction. In addition, anxiety mediated the effect of parenting styles on smartphone addiction and the effect of self-regulation on smartphone addiction.

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## INTRODUCTION

Smartphone use is not segmented to particular ages, including adolescents. It becomes the most liked stuff due to ease of access to the internet (Demirci, et al., 2015), information collection, social connectivity, and boredom elimination (Brand, et al., 2019). All these facilities make adolescents reluctant to be away from a smartphone (Mok, et al., 2014).

Even though smartphones bring tons of benefit, the excessive smartphones use are correlated to negative consequences, such as decrease in well-being and productivity, sleep disturbances, loneliness, and other dangerous things (when using smartphones during riding or crossing the streets) (Elhai, et al., 2017; Yang, et al., 2020). Smartphone addiction is defined as excessive dependence and abuse accompanied by psychological and behavioral disorders (Kwon, Lee, et al., 2013; H. Lee et al., 2014).

The prevalence level of Asian students smartphone addiction was estimated to be around 41.93% in 2019 (Zhong et al., 2022). In Indonesia, 48.6% of students in Aceh province suffered from a high level of smartphone addiction (Fathya et al., 2020). In Jakarta, the majority (70.8%) of the sample admitted using a smartphone when they felt bored (Mariyanti et al., 2021).

Similar phenomenon also happened to vocational school students in Pematang Regency. It was based on a report explaining that students averagely spent 7 up to 8 hours to use smartphones, even when they were in the restroom and eating. Those who could not estimate their smartphone time argued not using the phones when they slept, studied at school, and rode a motorbike for quite long distance.

Some studies found anxiety can predict smartphone addiction (Chiu, 2014; Elhai et al., 2017; E. Kim & Koh, 2018). People with negative emotions, such as anxiety tend to access internet to hide their low self-esteem, fear of rejection, and lack of social interactions. A study has proven that using smartphones to access the internet or social media uncontrollably can divert a person's attention

from emotional problems, including anxiety (E. Kim & Koh, 2018). In other words, anxious individuals will use smartphones to relieve their anxiety.

A meta-analysis study which investigated the correlation between anxiety and parenting styles indicates parental control is strongly related to children anxiety (McLeod et al., 2007). Their study analyzed the kind of parenting styles that can emerge anxiety to children. Considering the fact that depression can cause anxiety, the researchers attempted to observe the way positive self-regulation negatively interacted with anxiety. Actually, a meta-analysis has explored the effects of self-regulation on achievement levels, interpersonal behavior, mental health, and healthy life. A study states self-regulation positively affects academic achievement and is negatively related to externalization issues, such as anxiety in the school years (Robson, et al., 2020).

Parenting styles happened to be considered to significantly affect smartphone addiction (Lian, et al. 2016). It is because parenting styles have been a part of family environments which can reflect the essence of parent-child interactions (Matejevic et al., 2014; Serna et al., 2023). A positive parenting style is characterized by parental warmth (for example, emotional support and acceptance), whereas parents who apply a negative parenting style express rejection or are overprotective, which causes children to receive punishment more often (Lian et al., 2016). As a result, teenagers more often use smartphones excessively to eliminate unpleasant emotional experiences.

Regarding the above findings, the present study aimed at examining any mediating effect of anxiety on the relationship between parental styles and self-regulation on smartphone addiction. Of the findings, school counselors can attain information about the proper parenting styles, self-regulation and anxiety to prevent smartphone addiction in students, so there can be alternatives to alleviate the addiction based on the situations and needs of counselees.

## METHODS

The population of this study was vocational school students in Pemalang subdistrict in the 2023/2024 academic year, totaling 6,019, studied at 9 vocational schools. The sample was estimated using the Isaac and Michale formula (5%) and collected using a proportional sampling technique. Since the number of students at each school was not even, the sample was taken from three schools whose students' combinations were different. Then, there obtained 200 students at SMK N 1 Pemalang, 90 students at SMKS Muhammadiyah 1 Pemalang, and 39 students at SMKS Amanah Husada.

Four instruments were used in this study. First, it was the Short Smartphone Addiction Scale (SSAS) developed by (Kwon, Lee, et al., 2013) used to measure the level of smartphone addiction in the adolescent population. It is a self-report scale consisting of 33 items. This instrument uses a four-point Likert scale to measure its statement items (1 = very inappropriate; 4 = very suitable). In terms of reliability, this scale obtained an alpha coefficient of .93, while the validity was (range  $x, y = .27 - .73$ ) or all items were declared valid.

The second scale was Hamilton Anxiety Rating Scale. It was developed by Max Hamilton (Hamilton, 1959) and is used to measure one's anxiety level. This scale has 14 items, and each represents one indicator. Each item is measured using a five-point Likert scale (0 = none; 4 very severe). In terms of reliability, this scale gained the alpha coefficient scale of .85, while the validity was (range  $x, y = .27 - .83$ ) or all items were declared valid.

The Swedish acronym for Egnä Minnen Beträffande Uppfostran was the third scale used to measure parental parenting styles. It has 23 items (Arrindell et al., 2005) with three subscales, namely rejection, emotional warmth, and overprotectiveness. In this scale, the subjects were asked to choose a four-point Likert scale (1 = never; 4 = almost always). In terms of reliability, this scale gained the alpha coefficient scale of .95, while the validity was (range  $x, y = .52 - .95$ ) or all items were declared valid.

The fourth scale used in this study was the Short Self-Regulation Questionnaire developed by J. Neal and Kate B. Carey (Neal & Carey, 2005). It was used to measure student's self-regulation. SSRQ is a short form scale of the Self-Regulation Questionnaire (SRQ) which is highly correlated with the original Self-Regulation Questionnaire (SRQ). It consists of 22 items with a five-point scale (1 = strongly disagree; 5 = strongly agree). In terms of reliability, this scale gained the alpha coefficient scale of .96, while the validity was (range  $x, y = .52 - .95$ ) or all items were declared valid.

In analyzing the data, the multiple regression-based analysis with two sub-structural models assisted by IBM SPSS Statistics 26 and the Sobel test were used.

## RESULTS AND DISCUSSION

Based on the analysis of pretest data, the smartphone addiction mean and standard deviation (SD) was 97.45 (17.31) in the medium category by 70% while the other 30% was in the high category, anxiety was 28.68 (8.54), parenting style was 23.68 (3.35), and self-regulation was 73.62 (12.67). These results indicated a good data distribution since the mean value was higher than the standard deviation.

**Table 1.** Data Description

|                      | N   | M     | SD    |
|----------------------|-----|-------|-------|
| Smartphone addiction | 329 | 97.45 | 17.31 |
| Anxiety              | 329 | 28.68 | 8.54  |
| Parenting styles     | 329 | 23.89 | 3.35  |
| Self-regulation      | 329 | 73.62 | 12.67 |

Both sub-structural models 1 and 2 used a multiple regression analysis. In details, the sub-structural model 1 tested the effect of parenting styles and self-regulation on anxiety, while sub-structural model 2 tested the influence of parenting styles, self-regulation, and anxiety on smartphone addiction.

According to the results of multiple regression analysis on sub-structural 1 and 2, parenting styles influenced anxiety by ( $\beta = 1.10$   $p < 0.05$ ), self-regulation influenced anxiety by ( $\beta = .19$   $p < 0.05$ ), parenting style influenced smartphone addiction ( $\beta = .19$   $p < 0.05$ ), self-regulation influenced smartphone addiction ( $\beta = .12$   $p < 0.05$ ), and anxiety influenced smartphone addiction ( $\beta = .21$   $p < 0.05$ ).

Further result was that anxiety mediated the influence of parenting styles on smartphone addiction ( $\beta = .23$   $p < 0.05$ ), and anxiety mediated the influence of self-regulation on smartphone addiction ( $\beta = .04$   $p < 0.05$ ; see Table 2).

**Table 2.** The Results of Multiple Regression Analysis and Sobel Test

| Predictor  | $\beta$ | t     | p      | R    | R <sup>2</sup> | F      | p      |
|------------|---------|-------|--------|------|----------------|--------|--------|
| Criterion: |         |       |        | 0.74 | 0.55           | 202.96 | < 0.01 |
| GP         | 1.10    | 14.82 | < 0.01 |      |                |        |        |
| RD         | 0.19    | 6.36  | < 0.01 |      |                |        |        |
| Criterion: |         |       |        | 0.58 | 0.34           | 55.85  | < 0.01 |
| GP         | 0.19    | 2.41  | < 0.01 |      |                |        |        |
| RD         | 0.12    | 4.47  | < 0.01 |      |                |        |        |
| KC         | 0.21    | 4.52  | < 0.01 |      |                |        |        |
| Mediator   | $\beta$ | z     | p      |      |                |        |        |
| GP         | -0.18   | 4.32  | < 0.01 |      |                |        |        |
| KC         | -0.18   | 2.01  | < 0.01 |      |                |        |        |
| RD         | -0.04   | 3.7   | < 0.01 |      |                |        |        |

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Description: GP (Parenting Styles), RD (Self-Regulation), KC (Anxiety), and KS (Smartphone Addiction).

The above results indicated that smartphone addiction was experienced by most of the students. 30 percent of them reported high addiction, while the others were in the medium category. It adds to the list of reports of smartphone addiction among students, which have previously been reported in previous studies (Aljomaa et al., 2016; Panova & Carbonell, 2018; Yang et al., 2020). The current findings also support previous statements that the period which may arise problems using smartphones (including addiction) is adolescence or middle school (Ayar et al., 2017; Kalyani et al., n.d.; Nyamadi et al., 2020; Rozgonjuk et al., 2018).

An overprotective parenting style was found to cause anxiety. It supports the previous study finding that parental control has a strong relationship with anxiety (McLeod, et al., 2007). In the same way, their study agrees with the fact that an overprotective parenting style can lead to anxiety and worry due to the consequence of getting worse punishment. This negative emotion experience in turn results in students' anxiety, for an overprotective parenting style apparently can influence anxiety.

Furthermore, anxiety was found to influence smartphone addiction. This finding is in line with the previous study which reports that anxiety predicts smartphone addiction (Chiu, 2014; Elhai et al., 2017; E. Kim & Koh, 2018). Here, students were found to shift their interactions to the internet-based whenever they experienced a negative emotion, particularly anxiety, to suppress low self-esteem, fear, and improper social behavior (Huang, et al., 2017). Similarly, the uncontrolled social media access through smartphones somehow diverts a person attention from emotional problems, including anxiety (E. Kim & Koh, 2018). Thus, when individuals are anxious, they will use smartphones to relieve anxiety.

In line with the above findings, the present study reports that an overprotective parenting style was found to be a predictor that influences smartphone addiction. It is in accordance with a previous study that reports parenting style has a significant effect on smartphone addiction (Lian et al., 2016; Xin et al., 2022).

Previous and current studies have agreed that parenting style is an important family environmental factor, which can reflect the essence of parent-child interactions ((E. J. Lee & Kim, 2018; Matejevic et al., 2014). An overprotective parenting style causes children to seemingly often get punishment (Lian et al., 2016; Qiao & Liu, 2020). As a result, children more often use smartphones excessively to eliminate unpleasant emotional experiences. Thus, an overprotective parenting style becomes a very risky predictor of smartphone addiction in students.

The current finding indicated that anxiety mediated the influence of an overprotective parenting style on smartphone addiction. This becomes the novelty of this study. When students receive overprotective parenting, students will tend to feel depressed and anxious. These feelings of pressure cause psychological problems to arise. Students tend to feel anxious because an overprotective parenting style increases the risk of receiving punishment. These negative emotional experiences in turn trigger students to seek escape to suppress these negative emotional experiences by using smartphones irregularly, so the problem of smartphone addiction increases.

On the other hand, self-regulation is seen as having a negative influence on anxiety (Robson et al., 2020). It is in line with the present finding that self-regulation had a negative effect on anxiety. This means that when students have good self-regulation, they will be able to control their emotions and in turn reduce the risk of anxiety.

Apart from that, self-regulation is reported to have an influence on smartphone addiction. In other words, when students have good self-regulation, the risk of smartphone addiction they

experience may get reduced (Ko et al., 2015). It is in association with the theory that students with good self-regulation will be able to control themselves to allow what behavior they can carry out, one of which is controlling smartphone use (Robson et al., 2020; Semper et al., 2016). Thus, the current findings are able to provide an overview of how self-regulation negatively influences smartphone addiction.

The findings of the current study provide information to us that anxiety is a mediator of the influence of self-regulation on smartphone addiction. When students have good self-regulation, they will be able to control their emotions so that the risk of experiencing anxiety decreases. When the anxiety experienced is low, the needs to eliminate or suppress negative emotions and escape into using smartphones decrease, so does the risk of smartphone addiction.

Current findings have confirmed the influence of parenting style, anxiety, on smartphone addiction, and found the relationship between self-regulation on anxiety and smartphone addiction. Hence, efforts are needed to overcome these problems. Since an overprotective parenting style can lead to anxiety and smartphone addiction, parents need to review how they provide care to their children.

Another finding was self-regulation could reduce the risk of anxiety and smartphone addiction, so efforts are needed to increase students' self-regulation. By providing personal counseling services, it is expected that students will be able to improve their self-regulation and control negative emotions to counter anxiety.

## CONCLUSION

Students are pretty vulnerable to smartphone addiction. Based on the findings, this addiction is predicted by anxiety and an overprotective parenting style. Another thing is, self-regulation can lower anxiety and smartphone addiction. Therefore, school counsellors are suggested to provide reality counselling services that have been proven by

some studies to increase self-regulation and reduce anxiety as well as smartphone addiction in students. Further studies are recommended to add a gender variable in the model of parenting styles and self-regulation on smartphone addiction through anxiety. Besides, it is expected that the future studies can explain kinds of positive parenting styles which can influence the existing variables in the present study.

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