The Effect of Academic Stress on Smartphone Addiction on Students in Medan

Fikri Azriel Akbar Siregar, Nurussakinah Daulay
Universitas Islam Negeri Sumatera Utara Medan, Indonesia
fikriazrielsir@gmail.com

ABSTRACT
This research article discusses academic stress that occurs in the lives of students during the pandemic and the alleged role of smartphones as the impact of stress they face. The purpose of this study was to determine the effect of academic stress on smartphone addiction in MTs NII students in Medan City. Quantitative is the method used in this research. A total of 170 students were selected as subjects with quota sampling technique. Data were collected using the academic stress scale and the smartphone addiction scale. The data that has been collected is then analyzed using a linear regression analysis test. The results of this study found that there was a significant influence between academic stress on smartphone addiction. Data calculation analysis was performed using the SPSS 25 statistical program for Windows. The results prove that there is a significant relationship between Academic Stress and Smartphone Addiction, then from the analysis carried out there is a value (R: 0.602 and P: 0.000 <0.050). The contribution of the influence of academic stress on smartphone addiction in MTs NII students in Medan is 60.2 percent.

Keywords: teenager, academic stress, smartphone addiction

ABSTRAK
Artikel penelitian ini membahas tentang stres akademik yang terjadi pada kehidupan peserta didik di masa pandemi dan dugaan peran smartphone sebagai dampak stres yang dihadapinya. Tujuan penelitian ini adalah untuk mengetahui pengaruh stress academic terhadap smartphone addiction pada siswa MTs NII Kota Medan. Kuantitatif merupakan metode yang digunakan dalam penelitian ini. Sebanyak 170 siswa dipilih sebagai subjek dengan teknik quota sampling. Data dikumpulkan menggunakan skala stress academic dan skala smartphone addiction. Data yang telah terkumpulkan kemudian dianalisis menggunakan uji analisis linear regresi. Hasil penelitian ini mendapatkan adanya pengaruh signifikan antara stress academic terhadap smartphone addiction. Analisis perhitungan data dilakukan menggunakan program statistik SPSS 25 for Windows. Hasilnya membuktikan jika ada hubungan signifikan antara Stress Academic terhadap Smartphone Addiction, kemudian dari analisis yang dilaksanakan terdapat nilai (R: 0.602 dan P: 0.000<0.050). Kontribusi pengaruh Stres Akademik terhadap Adiksi Smartphone pada siswa MTs NII Kota Medan adalah sebesar 60,2 persen.

Kata Kunci: kecanduan smartphone, remaja, stres akademik
A. INTRODUCTION

Smartphone is a form (tool) of technological sophistication that has an impact on the lives of teenagers in the era of globalization. The impacts in question consist of positive and negative impacts (implications). This can be seen from the behavior of teenagers who like to collect 2 to 3 personal smartphones, tend to want to be active in cyberspace, and explore various trend updates-viral in the community.

According to Roberts, et.al. (2014), smartphones as a sophisticated communication tool have a strong appeal to teenagers. This is based on the ease of use of various smartphone application features, connecting individuals to socially interact remotely, the ease of sharing renewable information, and being an alternative learning media in the technology era. Furthermore, through smartphones, teenagers will easily access the internet in various situations and conditions.

Regarding the impact of smartphone use, Park & Lee (2014) informed the results of a pre-survey which showed that the reasons why teenagers like to use smartphones are from the aspect of completeness of application features that can be downloaded on the Playstore and facilitate finding information about school assignments. In addition, smartphones also have a negative impact on the development and learning activities of adolescents, according to Zencirci, et.al. (2018), this is triggered by various game, video, and music applications on smartphones. Salehan & Negahban (2013) termed it as a trigger for cellphone addiction or smartphone addiction.

Smartphone addiction has become a new “dangerous virus” that is rapidly spreading among teenagers. How come? Teenage students can enjoy playing online games all day without neglecting the task of studying. On this basis, Juraman (2014) emphasized the need to balance the education of scientific reference sites for adolescent students.

In line with this, Yosepha (2020) predicts that smartphone use will continue to increase in Indonesia. This is based on his research findings which show that in 2015, 28.6% of the Indonesian population used these sophisticated tools. As time goes on, this smartphone becomes more and more affordable, which results in more users. In 2018, 56.2% of Indonesian individuals or half of Indonesia's population have used this smartphone. A year later, 63.3% of Indonesians use smartphones. It is calculated that by 2025, at least 89.2% of the population in Indonesia will already use smartphones. Since 2019 in a period of 6 years, the percentage of smartphone use in Indonesia has grown by 25.9%. This data shows that the majority of smartphone users are teenagers and adults.

440 The Effect Of Academic Stress on...
According to Kibona & Mgaya (2015), teenagers use smartphones as part of changing their lifestyle and influencing character formation. In line with this, Park & Lee (2014) explain that the use of smartphones among teenagers makes them prefer to be alone, think simply (don't want to be complicated), not too concerned with social life, even addicted to these communication tools (advanced technology). In fact, not infrequently teenagers who are already addicted to smartphones will often feel anxious, sleep disturbances (insomnia), and even depression (Demirci, et.al., 2015).

Regarding the phenomenon of smartphone addiction among teenagers, Listyo (2010) explains that excessive use of these communication tools can trigger academic stress. Teenagers who are still at the learning age do not accept something that they perceive is difficult, because various information is easily obtained by searching on google. Thus, various study problems are considered to be learning pressures that make it difficult for students to achieve satisfactory academic and non-academic achievements (Waskitha, 2017).

Indeed, studies on academic stress in adolescent students have been studied from various aspects (points of view) by previous researchers. Among them are discussing aspects of learning outcomes (Barseli, et.al., 2018: 40-47; Gatari, 2020: 79-89), the concept of student academic stress (Barseli, et.al., 2017: 143-148; Taufik, et.al., 2013: 143-150), academic procrastination (Sagita, et.al., 2017: 43-52), self-instruction techniques (Nurmaliyah, 2013), student cognitive restructuring (Rahmawati, 2016: 15-21; Nurmalasari, et.al., 2016), symptoms of academic stress (Azmy, et.al., 2017: 197-208; Harahap, et.al., 2020: 10-14), factors that cause academic stress (Barseli, et.al., 2020: 95-99; Oktavia, et.al., 2019: 142-149), parental social support (Ernawati & Rusmawati, 2015: 26-31), student coping strategies (Masitoh, 2020: 185-198).

Observing the description above, it is understood that studies of academic stress so far have focused on aspects of concepts, symptoms, learning outcomes, and the impacts caused. Of course, this study needs a special study related to how academic stress affects smartphone addiction among students, including teenagers. On this basis, the researchers attempted to examine the emptiness of the theme as an effort to obtain a research gap analysis, with the title, "The Effect of Academic Stress on Smartphone Addiction on Students in Medan".
B. METHOD

1. Participants

There were 170 Madrasah Tsanawiyah students who took part in this research. With the number of students as many as 103 female students and 67 male students who are the same age as junior high school students or at least 13 years old and they are active smartphone users. The reason this teenager is used in the research sample is because of the urgency of today's teenagers who are very much addicted to smartphones.

2. Instrument

a. Academic Stress Scale

Student academic stress is measured using a scale that has been adapted from Fathiyah (2019), with four aspects of academic stress, namely: physiological aspects (4 items), cognitive aspects (4 items), affective aspects (8 items), and conative aspects (4 items). The total number is 20 items, and the answer choices range from 1 (never) to 5 (always), with a reliability coefficient level of 0.904.

b. Smartphone Addiction Scale

Students’ smartphone addiction was measured using the smartphone addiction scale, which was measured using the SAS-VI (Smartphone Addiction Scale) which contained 25 items with a reliability coefficient of 0.930.

3. Research Procedure

This research was conducted in one of the Madrasah Tsanawiyah in Medan, namely Madrasah Tsanawiyah Swasta Nurul Islam Indonesia. In the early stages, instruments such as research permits were prepared from the faculty to be given to Madrasahs, where the research scale consisted of the academic stress scale and the smartphone addiction scale. Next, a visit to Madrasahs was carried out in February 2022, where schools had returned to normal and all students had entered by conducting offline learning methods. Therefore, researchers can meet with school principals and teachers to explain about the research to be carried out. The teacher who will assist the researcher for this research activity is a BK teacher from the school. After permission was obtained to collect data from schools, the researcher shared the research scale online via this link:

https://forms.gle/G4ZkHN85anBwr2vq5.

For almost three weeks as many as 170 respondents were willing to fill out this online questionnaire. The next phase is to analyze the data by assigning a value to each answer.
The data is then processed using the assistance of a computer application program, namely SPSS version 25 (Statistical Program for Social Science) for Windows.

4. Data Analysis Technique

The analysis carried out in this study to determine the contribution of academic stress to smartphone addiction was a linear regression analysis test.

C. RESULTS AND DISCUSSION

Descriptive Test

Table 1. Data Comparison Variables X and Y

<table>
<thead>
<tr>
<th>Variable</th>
<th>Empiric</th>
<th>Hypotetic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Sd</td>
</tr>
<tr>
<td>Smartphone Addiction</td>
<td>66.08</td>
<td>15.399</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Stress Academic</td>
<td>53.62</td>
<td>12.885</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td></td>
</tr>
</tbody>
</table>

Based on the data presented in table 1, the measurement results of the smartphone addiction scale that are filled in are obtained from the Empirical Mean of 66.08 which is lower than the Hypothetical Mean of 75 with a low category on status. This proves that the subject is in the low smartphone addiction category. The results obtained through the academic stress scale have obtained an Empirical Mean of 53.62 which is lower than the Hypothetical Mean of 60 with a low category on status. This certainly proves that the subject is at a low level of academic stress.

The minutes of the frequency of data on this scale are as follows:

Table 2. Smartphone Addiction Scale Score

<table>
<thead>
<tr>
<th>Tendency Level</th>
<th>Score</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M + 1.5 SD &lt; X</td>
<td>≥100</td>
<td>Very High</td>
<td>5</td>
<td>2.9</td>
</tr>
<tr>
<td>M + 0.5 SD ≤X ≤ M + 1.5 SD</td>
<td>83-100</td>
<td>High</td>
<td>18</td>
<td>10.6</td>
</tr>
<tr>
<td>M - 0.5 SD ≤X ≤ M - 0.5 SD</td>
<td>67-82</td>
<td>Medium</td>
<td>52</td>
<td>30.6</td>
</tr>
<tr>
<td>M - 1.5 SD ≤X ≤ M - 0.5 SD</td>
<td>50-56</td>
<td>Low</td>
<td>71</td>
<td>41.8</td>
</tr>
<tr>
<td>X ≤ M - 1.5 SD</td>
<td>≤50</td>
<td>Very Low</td>
<td>24</td>
<td>14.1</td>
</tr>
</tbody>
</table>
Based on table 2 data, the results obtained from 170 research subjects, with a very high category with a score range of more than 100 are 5 students with a percentage (2.9%), for the high category with a value of 83 to 100 are 18 students with a percentage (10.6%), for the medium category with scores from 67 to 82, there were 52 students with a percentage (30.6 %), for the low category with scores from 50 to 66, there were 71 students with a percentage (41.8 %), then for the very low category with a value of less than 50 there are 24 students with a percentage (14.1%).

**Table 3. Academic Stress Scale Score**

<table>
<thead>
<tr>
<th>Tendency Level</th>
<th>Score</th>
<th>Category</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M + 1.5 SD &lt; X</td>
<td>≥ 80</td>
<td>Very High</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>M + 0.5 SD ≤ X ≤ M + 1.5 SD</td>
<td>67-80</td>
<td>High</td>
<td>21</td>
<td>12.4</td>
</tr>
<tr>
<td>M - 0.5 SD ≤ X ≤ M - 0.5 SD</td>
<td>53-66</td>
<td>Medium</td>
<td>64</td>
<td>37.6</td>
</tr>
<tr>
<td>M - 1.5 SD ≤ X ≤ M - 0.5 SD</td>
<td>40-52</td>
<td>Low</td>
<td>61</td>
<td>35.9</td>
</tr>
<tr>
<td>X ≤ M - 1.5 SD</td>
<td>≤ 40</td>
<td>Very Low</td>
<td>21</td>
<td>12.4</td>
</tr>
</tbody>
</table>

Based on the presentation of the data in table 3, it was found that from 170 research subjects, with a very high category with a score range of more than 80, there were 3 students with a percentage (1.8 %), for the high category with a score of 67 to 80, there were 21 students with a score of 80. percentage (12.4% %), for the medium category with scores from 53 to 66 are as many as 64 students with a percentage (37.6% %), for the low category with a value of 40 to 52 are as many as 61 students with a percentage (35.9%) , then for the very low category with a score of less than 40, there were 21 students with a percentage (12.4%).

**Assumption Test**

**Table 4. Normality Test**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Kolmogorov Smirnov Z</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone Addiction</td>
<td>0.200</td>
<td>(Normal)</td>
</tr>
<tr>
<td>Stress Academic</td>
<td>0.093</td>
<td>(Normal)</td>
</tr>
</tbody>
</table>
Based on the data presented in table 4, it can be concluded that the results of the normality assumption test that has been carried out on smartphone addiction is to produce a Kolmogorov-Smirnov Z value: $0.200 > 0.05$, then the test results carried out according to the rules show that academic stress items are normal. The results of the normality assumption test for the academic stress variable have a Kolmogorov-Smirnov Z value: $0.093 > 0.05$. The results of the tests carried out in accordance with the rules prove that the items of academic stress are normal.

Table 5. Linearity Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sig.</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Academic (X) - Smartphone Addiction (Y)</td>
<td>0.086</td>
<td>Linear</td>
</tr>
</tbody>
</table>

Based on the data presented in table 5, it can be concluded that the obtained analysis results for testing the assumption of linearity between the academic stress variable and smartphone addiction have a significant value of $0.086 > 0.050$. This shows that the relationship between the two variables is linear.

Table 6. Multicollinearity Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Tolerance Value</th>
<th>Variance Inflating Factor (VIF)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Academic - Smartphone Addiction</td>
<td>1.000</td>
<td>1.000</td>
<td>Not Multicollinear</td>
</tr>
</tbody>
</table>

Based on the data from table 6, it can be concluded that the multicollinearity test between academic stress and smartphone addiction has a tolerance coefficient value of $1,000 < 1$ and a VIF coefficient value of $1,000 < 10$, which means that the relationship is not multicollinear.
Table 7. Calculation of Regression Analysis (Full Model)

<table>
<thead>
<tr>
<th>Variabel</th>
<th>$F_{Hitung}$</th>
<th>$F_{Tabel}$</th>
<th>$R^2$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Academic (X) - Smartphone Addiction (Y)</td>
<td>256.897</td>
<td>3.90</td>
<td>0.602</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Based on the data from table 7, it can be concluded that the full model regression test results state that $F_{count}>F_{table}$ and $P<0.05$, which means academic stress on smartphone addiction has a significant relationship with the values obtained by $F$: 256.897, $R^2$: 0.602 and $P$: 0.000, p. This means that the hypothesis made, namely $H_1$ is accepted, $H_0$ is rejected in this study.

Table 8. Calculation of Regression Analysis (Stage Model)

<table>
<thead>
<tr>
<th>Variabel</th>
<th>$T_{Hitung}$</th>
<th>$T_{Tabel}$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Academic (X) - Smartphone Addiction (Y)</td>
<td>3.860</td>
<td>1.974</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Based on the data from table 8, it can be concluded that academic stress on smartphone addiction shows $T_{count}>T_{table}$, which means there is a positive and significant effect with $T_{count}$: $3.860>T_{table} 1.974$ and $P$: $0.000<0.05$. This proves that if $H_0$ is rejected and $H_1$ is accepted, it means that the hypothesis made in this study is answered, namely that there is a significant effect between academic stress on smartphone addiction.

After carrying out the calculations from the descriptive test analysis and the assumption test analysis calculations using the SPSS version 25 application program for windows, the results of the full regression analysis obtained the results if there was a significance between academic stress and smartphone addiction in MTs NII students in Medan City. This is proven by the value of $F$: 256.897 and $P$: 0.000. This shows that in...
this study the hypothesis that has been made is that $H_1$ is accepted and $H_0$ is rejected. $R^2$ (contribution) of academic stress on smartphone addiction is 0.602. These results explain that 60.2 percent of the causes of smartphone addiction are influenced by academic stress. The remaining 39.8 percent was disclosed from several other variables or other influences in this study that were not observed or investigated.

From the results of the descriptive test analysis that has been carried out, it explains the conditions that occur in MTs NII students in Medan City. It has been found that the results of the smartphone addiction scale measurement which contain a hypothetical mean that is higher than the empirical mean with a high category. Of course, this proves that students at MTs NII Medan City have smartphone addiction with a high status. If viewed from the direction of significance, it can be stated that if the results are in a positive direction, which means that the variable from the academic stress data increases, then the smartphone addiction variation data will automatically increase, on the contrary if the academic stress is low, the smartphone addiction will also be lower. This can be seen from the frequency of the stepwise regression analysis which has a positive value.

The results of the research carried out are academic stress originating from stressors, which will require students to be more active in academics and inappropriate use of learning media due to pressure, as stated by Hick & Hestie (2008) that smartphones are a form of facility in learning activities, which is very effectively utilized now. As discussed in the introductory section, the use of smartphones will certainly not always provide benefits or positive things, when students use their smartphones only to cope with the academic stress they are currently facing, this can lead to uncontrolled smartphone use. aliases in excess. This is what makes smartphone users get smartphone addiction (Bian & Leung, 2015).

The results of the research that have been carried out have a significant relationship and influence between academic stress on smartphone addiction, agrees with research by Chiu (2014) where the results of his research found a positive relationship and then found a significant relationship between Stress Life and Smartphone Addiction. Furthermore, in a study conducted by Wirawan (2021) it was found that the intensity of smartphone use from a state of academic stress during the Covid-19 state was in the high category. This proves that students control smartphones too much so that it has a negative impact on the academic stress they experience which affects their academic achievement. Behaviors like these then make the use of this smartphone excessive and do not remember the time so that individuals will become addicted to this technology (aka victims of smartphone addiction).
The limitation in this study is that it only focuses on students of MTs NII Medan City from class VII to class IX, apart from that it would be better when this research sample is studied more broadly, in future research so that it can explore several samples. The perceived advantages of this research activity are the results of proving that the determined independent variable has an influence or relationship on the dependent variable, this shows that R2 gets a value of 60.2%. The number of these values reaches and even exceeds the value of 50% where this is an explanation if the formation of a variable that is dependent on an independent variable is formed.

**Stress Academic**

Academic stress is a phase in which a person (in this context students/students) experiences a high level of boredom and boredom towards something related to academics. This kind of emotional condition arises due to various experiences (events or activities) of students in the educational environment which are assumed by students as steps that are not in line with life orientation (career targets) in the future. Moreover, Desmita (2009) asserts that this emotional attitude arises as a result of students' concerns about the safety of their "self-esteem" so that they are followed up with behavior that can have an impact on student academic achievement.

Govaerst & Gregoire (2004) stated that academic stress conditions are very strongly related to the academic activities faced by each individual. Based on research conducted by Mulyadi, *et.al.* (2016) if academic stress is an understanding of the individual that appears and leads to a negative situation against the demands of various parties, be it parents or teachers in order to achieve high academic achievement. Then Wang & Liao (2011) stated that academic demands are what causes a condition called academic stress, a form of difficulty to compensate for an academic demand and ultimately fails to achieve an expected achievement.

**Smartphone Addiction**

Smartphone Addiction can be interpreted as the use of smart phones with a long enough period of use, which can damage the behavior of users' daily lives. In addition, if this smartphone is used uncontrollably or excessively it will cause problems in individual behavior and mentality. This incident will automatically interfere with academic achievement at school, interfere with work, reduce social interaction in daily life, neglect personal life, change in mood, and even cause mental disorders. Smartphone addiction is a
form of someone's inability to control the time they use their smartphone, which often spends too much time on smartphones alone, of course this will cause problems in their lives and cause excessive anxiety. Smartphone addiction occurs when the individual has absolutely no control or has the desire to carry a smartphone wherever and whenever it is, and they will also feel uncomfortable if the smartphone is not available, they will feel restless and will be disturbed when they are unable to use their smartphone (Kuss & Griffiths, 2011).

The Relationship between Smartphone Use in Adolescents Based on the Theory of Problematic Mobile Phone Use

Research conducted by Demirci, et.al. (2015) stated that if a smartphone is used or used continuously in excess, it will certainly cause anxiety, sleep disturbances and even depression for its users. This of course will lead to aggressive or deviant behavior in teenagers. Park & Lee (2014) said that teenagers at this age will be easily influenced by smartphones and result in low academic achievement, poor relationships with family members, and a sense of dissatisfaction in the school life they go through. This statement is in line with research conducted by Utami (2019: 1-14), where in his research he believes that the negative effects of smartphone addiction can affect various aspects of students' academics through their personalities, for example academic achievement will gradually begin to decline. To be clear about the negative effects of smartphone use, it can be seen from the following conceptual framework:
Figure 1. Conceptual Framework for Problematic Mobile Phone Use Theory.
Problematic Mobile Phone Use theory is associated with behavior that includes the inability to regulate a person's smartphone use, resulting in several negative consequences in their daily lives. This theory can explain the negative consequences of using mobile phones in everyday life. From the use of this smartphone, there are three negative impacts, namely addictive behavior, impulsive behavior and extraversion behavior.

The view of Listyo (2010) states that if someone uses a smartphone excessively because of several factors, academic stress is one of the triggers. Academic stress is an unfavorable condition in the form of pressure experienced by a student from the results of his perceptions related to education or science. As for what can cause this, among others, pressure to achieve an achievement, pressure due to study time, anxiety in facing exams, several tasks that are felt to be a lot that must be completed immediately, getting bad grades, and so on (Waskitha, 2017).

Of course, if someone experiences a condition that shows stress, automatically in this condition he will try to overcome it with certain actions, none other than using his smartphone. The use of this technology is used by students as their actions to change the conditions they experience, namely stress conditions that arise from education or academics. As a temporary stress reliever, this situation triggers this sophisticated technology to act as a producer of satisfaction and also of course as a calmer from the pressure received (Van Deursen, et.al., 2015: 411-420).

Therefore, it is undeniable that the current phenomenon is smartphones and of course most students are now using technology called smartphones. This study was conducted to find out the effect of academic stress on smartphone addiction in MTs NII students in Medan City. The hypotheses of this research are: H1= there is an influence of academic stress on smartphone addiction in students, H0= there is no effect of academic stress on smartphone addiction in students.

D. CONCLUSION

Based on the results of the study, it was concluded that there was a significant effect between academic stress on smartphone addiction. Data calculation analysis was performed using the SPSS 25 statistical program for Windows. The results prove that there is a significant relationship between Academic Stress and Smartphone Addiction, then from the analysis carried out there is a value (R: 0.602 and P: 0.000 <0.050). The contribution of the influence of academic stress on smartphone addiction in MTs NII students in Medan is 60.2 percent.
REFERENCES


Listyo. (2010). *Mobile Phone Addict*. Retrieved from http://www.ubaya.ac.id/2014/content/articles_detail/10/Mobile-PhoneAddict.html


