

Academic Burnout in Digital Era: Examining the Role of Problematic Smartphone Use, Core Self-Evaluations, and Academic Achievement on Academic Burnout Among Medical Students

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Abstract— *This study aimed to discover the role of problematic smartphone use, core self-evaluations, and academic achievement on academic burnout among medical students. Medical students are a group of students who have a higher pressure in studying compared to students from other field of study. This situation can cause a higher tendency to experience academic burnout. Academic burnout itself can be caused by lack of self-control in prioritizing academic work. Things to be concerned in this era are the use of smartphone, which tend to be categorized as problematic smartphone use; how students evaluate themselves, or a term known as core self-evaluations; and academic achievement. A total of 401 medical students participated in this quantitative study by filling questionnaires. The study showed that problematic smartphone use has a significant role in predicting academic burnout among medical students. Core self-evaluations also showed a significant role in predicting academic burnout among medical students. On the other hand, academic achievement showed no significant result in the link between problematic smartphone use, core self-evaluations, and academic burnout. Further result will be discussed in this article.*

Keywords: *academic burnout, problematic smartphone use, core self-evaluations, academic achievement, medical students*

I. INTRODUCTION

Medical students are a group of students who are known as students with lots of academic work, high pressure, and the seriousness of the practical situations

which must be faced (Iorga, Dondas, & Zugun-Eloae, 2018). A side from that, medical students also have minimum leisure time to refresh and recharge their mind, which can lead them to academic burnout (Wolf & Rosenstock, 2016). A study in a university in Jakarta has shown that 77.1% of medical students in the university has a potential to experience academic burnout (Yudhistira, 2018).

Academic burnout is a serious problem to be considered, which is marked by feeling of exhaustion, cynicism, and inadequacy toward student's study and academic work (Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009). Exhaustion refers to a condition in which students have a feeling of chronic fatigue as a result of high workload and high pressure in the study. Cynicism refers to a condition in which students feel that they lose their interest in the study and not seeing the study materials and academic work as meaningful for them. Sense of inadequacy refers to a condition in which students feel lack of competence in working on their study.

Academic burnout can be caused by lack of self-control in prioritizing one's academic work, which can lead to work overload (Maslach & Leiter in Aydemir & Icelli, 2013). One thing to be concerned and controlled by medical students in this digital era is the use of smartphone, which can become a problematic smartphone use if the students do not use their smartphone wisely (Ching, Ramachandran, Lim, Sulaiman, Foo, & Hoo, 2015). Problematic smartphone use itself is a condition in which one cannot control the use of smartphone and cause disturbance in daily life (Kwon, Kim, Cho, Yang, 2013).

Problematic smartphone use can also diminished student's study time, which then can lowered academic achievement (Samaha & Hawi, 2016) and cause work overload (Derks & Bakker in Elhai, Dvorak, Levine, & Hall, 2017).

Another thing to be considered is core self-evaluations, which is one's basic and fundamental appraisal about his/her self-worth, effectivity in doing his/her work, and individual competences (Judge, Erez, Bono, & Thoresen, 2003). Core self-evaluations can be manifested in self-esteem, emotional stability, general self-efficacy, and internal locus of control (Judge et al., 2003). Positive core self-evaluations can be a protective factor of burnout in undergraduate students (Lian, Sun, Ji, Li, & Peng, 2014), increase academic achievement and students curiosity to learn (Debicki, Kellermanns, Barnett, Pearson, & Pearson, 2016), and increase life satisfactions (Jiang & Jiang, 2015).

Academic achievement is a kind of rewarding thing to know how students' improve in their study (Tian & Sun, 2018), which can affect academic burnout (Maslach & Leiter in Aydemir and Icelli, 2013; Salmela-Aro et al., 2009; May, Bauer, & Fincham, 2015). However, following research also showed inconsistent result, in which academic achievement has no effect in predicting academic burnout (Wang, Chow, Hofkens, & Salmela-Aro, 2015).

Briefly, past researches suggest that problematic smartphone use is a serious condition to be concerned and core self-evaluations has been proved to have positive effects in academic area. A side from that, based on the pervious researches, researchers guessed that academic achievement should also have a mediating effect in the relationship between problematic smartphone use, core self-evaluatins, and academic burnout. However, there are still some inconsistent results in the relationship between academic achievement and academic burnout.

As a solution, this research aimed to examine the effect of problematic smartphone use and core self-evaluations in academic burnout among medical students, and also academic achievement as a mediating factor. This research also intend to find some practical suggestions for students and university in Indonesia in finding solutions to control the smartphone use, boosting positive core self-evaluations among medical students, and relieve academic burnout among medical students. There are three hypotheses in this research:

H1: Problematic smartphone use has a significant effect in predicting academic burnout among medical students.

H2: Core self-evaluations has a significant effect in predicting academic burnout among medical students.

H3: Academic achievement has a mediating effect in the relationship between problematic smartphone use, core self-evaluations, and academic burnout among medical students.

II. METHOD

A. Participants

The participants in this study comprised 401 medical students from two universities in Jakarta, Indonesia. There were 108 males and 293 females participated in the study. Convenience sampling was applied in this study. For those who agreed to participate in the research will be asked to fill in the informed consent first before continuing to demographic part and the research instruments. The ages of the participants ranged from 18 to 25 years old ($M = 20.18$; $SD = 1.03$).

B. Instruments

Academic burnout was examined using the School Burnout Inventory (SBI) developed by Salmela-Aro et al. (2009) which has been translated into Indonesian. The instrument consists of nine items measuring three components of academic burnout: (1) exhaustion (e.g., I feel overwhelmed by my study); (2) cynicism (e.g., I am not motivated to study and often think of giving up); and (3) sense of inadequacy (e.g., I often have feelings of inadequacy in relation to my study) to be rated on a 6-point Likert scale (1 = strongly disagree; 6 = strongly agree). In the present study, Cronbach's alpha was 0.626 for exhaustion, 0.782 for cynicism, and 0.704 for sense of inadequacy.

Problematic smartphone use was examined using the Smartphone Addiction Scale – Short Version (SAS-SV) developed by Kwon, Kim, et al. (2013) which has been translated into Indonesian. This instrument consists of ten items of unidimensional factor (e.g., Missing planned work due to smartphone use) to be rated on a 6-point Likert scale (1 = strongly disagree; 6 = strongly agree). In the present study, Cronbach's alpha was 0.839.

Core self-evaluations were examined using the Core Self-Evaluations Scale (CSES) developed by Judge et al. (2003) which has been translated into Indonesian. This instrument consists of twelve items of unidimensional factor, which has been grouped into six favourable items (e.g., I am confident I get the success I deserve in my life) and six unfavourable items (e.g., Sometimes I feel depressed) to be rated on a 6-point Likert scale (1 = strongly disagree; 6 = strongly agree). Reversed scoring applied for the unfavourable items. However, one item was dropped in this study (I determine what will happen in my life) because of its low score in corrected item-

total correlation (below 0.2), so we only consisted eleven items in the questionnaire. The Cronbach's alpha for the instrument in this study was 0.828.

Academic achievement information was written by the participants in the grade point average (GPA) row in the demographic part of the questionnaire. The GPA of medical students was ranged from 1.00 – 4.00.

III. ANALYTIC STRATEGY

After data were collected, researchers did a reliability analysis first to confirm the validity and reliability of the items in the instruments. Reliability analysis was conducted using SPSS 23. All valid items must have at least 0.2 for the corrected item-total correlation score. For the items which scored under 0.2 for corrected item-total correlation will be dropped and not included in the calculation.

Next, normality analysis was used to test the condition of data distribution. The normality analysis was conducted using Lisrel 9.30. After doing the normality analysis, the researchers do a path analysis to test the hypothesis. The path analysis was conducted using Lisrel 9.30.

Descriptive information about means, standard deviations, and the participants' purposes in using smartphone are included in this paper. The detailed of descriptive information was ran by SPSS 23.

IV. RESULTS

The means and standard deviations among all variables were presented in table 1.

TABLE I. MEANS AND STANDARD DEVIATIONS

	M	SD
AB	3.00	0.80
PSU	3.30	0.82
CSE	4.20	0.69
AA	3.14	0.40

*AB = academic burnout, PSU = problematic smartphone use, CSE = core self-evaluations, AA = academic achievement

Normality analysis has been conducted first. Results shown that all data were distributed normally ($p > 0.05$). Detailed information can be seen in table 2.

TABLE II. NORMALITY ANALYSIS

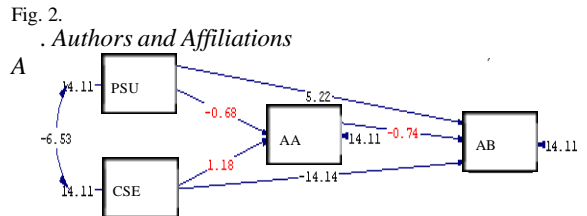
	AB	PSU	CSE	AA
p	0.998	0.998	0.999	0.999

After doing the normality analysis, we continued to test our hypothesis. Path analysis was conducted to examine the answers for our hypothesis. Our first hypothesis aimed to examine the effect of problematic smartphone use in predicting academic burnout among medical students. Result showed that $\beta = 0.21$ dan $t = 5.22$ ($t > 1.96$), which means H1 was accepted. This result indicated that problematic smartphone use has a significant effect in predicting academic burnout among medical students, in which the increased score in problematic smartphone use will be followed by the increased score in academic burnout, and vice versa. The detailed result can be seen in figure 1.

Our second hypothesis aimed to examine the effect of core self-evaluations in predicting academic burnout among medical students. Result showed that $\beta = -0.56$, $t = -14.14$ ($t > 1.96$), which means H2 was accepted. This result indicated that core self-evaluations has a significant effect in predicting academic burnout among medical students, in which the increased score in core self-evaluations, will be followed by the decreased score in academic burnout, and vice versa. The detailed result can be seen in figure 1.

Our third hypothesis aimed to test the mediating effect of academic achievement in the relationship between problematic smartphone use, core self-evaluations, and academic burnout among medical students. Result showed that $\beta = -0.04$, $t = -0.68$ ($t < 1.96$) which means problematic smartphone use has no effect in predicting academic achievement. Core self-evaluations also has no significant effect in predicting academic achievement as showed by $\beta = 0.06$, $t = 1.18$ ($t < 1.96$). A side from that, academic achievement also showed no effect in predicting academic burnout, as showed by $\beta = -0.03$ dan $t = -0.74$ ($t < 1.96$). These results mean H3 was rejected, which indicated that academic achievement has no mediating effect in the relationship between problematic smartphone use, core self-evaluations, and academic burnout (figure 1).

Fig. 1. Mediation model and direct model of the variables in the research



V. RESULTS

This study investigated the effect of problematic smartphone use and core self-evaluations in predicting academic burnout, also the mediating effect of academic achievement in the relationship between problematic smartphone use, core self-evaluations, and academic burnout among medical students.

Result in this study showed that problematic smartphone use has a significant effect in predicting academic burnout, in which the increased score in problematic smartphone use will be followed by the increased score in academic burnout. Although this is a novel result, this is not a surprising result, because problematic smartphone use is a condition which can be caused by lack of self-control in using smartphone (Kwon, Lee, et al., 2013). This problem can cause another problem, which is work overload (Derks & Bakker in Elhai et al., 2017), which also may lead medical students to a more serious problem called academic burnout.

This study also showed that core self-evaluations has a significant effect in predicting academic burnout, in which the increased score in core self-evaluations will be followed by the decreased score in academic burnout. This result is in line with another previous result, which also showed that positive core self-evaluations have a positive effect in diminishing burnout among undergraduate students (Lian et al., 2014). Positive core self-evaluations have been proved to help students to put more attention to their strength, rather than their weakness (Hobfoll in Lian et al., 2014). This condition also can increase positivity in students' psychological condition, which may also help to minimize the students' tendency to experience academic burnout (Chunning, Harrison, MacIntyre, Travaglia, & Balasooriya, 2017).

Another result found in this study was academic achievement which has no mediating effect in the relationship between problematic smartphone use, core self-evaluations, and academic burnout. This result is supported by the previous research which said that academic achievement has no effect in predicting academic burnout (Wang et al., 2015), but also contradicted with other researches which found that problematic smartphone use has a significant effect in predicting academic achievement (Samaha & Hawi, 2016) and core self-evaluations that have a significant effect in predicting academic achievement (Debicki et al., 2016). However, academic achievement was usually measured by achievement test, which may have different standard between one and another institution (Santrock,

2018). This could help explained the result. This study was conducted in two universities. These universities might have different standard and different curriculum, which can affect the objectivity of students' GPA in this result.

This study also has several limitations. As mentioned above, academic achievement in this study might be affected by different standard and curriculum between one and another university, which then questioned the objectivity of the GPA in this study. Other than that, the sampling method used in this study was convenience sampling, which means result's generalization should be done carefully.

Further researches about problematic smartphone use might be interesting to be conducted, especially in this digital era, where almost everybody has their own smartphone and almost all life aspects are now connected to smartphone. Collaboration with some experts in technology or smartphone

use will also be needed so information about the smartphone use, applications accessed by the users, or other information related to smartphone use might be addressed more accurately. Experimental study should also be conducted to find more ways to promote positive core self-evaluations among medical students.

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