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WHAT IS THE INFLUENCE OF SMARTPHONE ADDICTION ON STUDENT'S PSYCHOLOGICAL WELL-BEING?

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Abstract: Smartphone addiction has many impacts on its users both physical and psychological. This research was conducted to explore the influence of smartphone addiction on psychological well-being among university students 407 students from various faculties of a university in Indonesia (181 men and 226 women) were selected based on the cluster random sampling method. The instruments used in this study were Smartphone Addiction Scale (SAS) and Psychological well-being scale that aimed to answer the main objective of the study. Data collected from the study was nalyzed azed using regression tests, Pearson product-moment tests, descriptive tests, as well as the t-test and ANOVA. The results shows that there was significant influence of smartphone addiction on psychological well-being of university students.

Keywords: **Smartphone Addiction, Psychological Well-being, University Students**

BACKGROUND

Internet technology has developed very rapidly in the last few decades. A survey conducted by the Indonesian Internet Service Providers Association (APJII, 2018) found that throughout the year of 2016, around 132.7 million Indonesians were connected to the internet. The total population of Indonesia alone is 256.2 million. This signify in that year alone, there were 51.79% of internet users from all levels of Indonesian society.

Nowadays, internet access is getting easier with the development of smartphone technology. Smartphone is a cellphone that has a function like a computer, usually has a touch screen display, equipped with internet access and an operating system capable of running various

applications. The latest models of smartphones make life easier with a variety of applications, including video calls, computers, internet, cameras, navigation systems, music players, calculators, video cameras and recording devices. The sophistication and ease of smartphones now makes people trapped to always use their mobile phones (Mashable in Kumcagiz, 2016). The literature have reported that the use of smartphones has a profound effect on changes in communication and daily lifestyle, as well as changing patterns of social and emotional development (Karaaslan & Slave, 2012; Chen & Katz, 2009; Adriana & James, 2005; Yilmatz et al., 2015; Bianchi & Philips, 2005; Cetin, 2015 in Kumcagiz, 2016).

One problem that arises in the use of smartphones is the possibility of addictive behavior. Young et al. (2017) defined addiction as a habit that must be carried out in a particular activity or use of a substance, regardless of the consequences that damage physical, social, spiritual, mental and financial well-being. People who are addicted will show physical symptoms such as withdrawal when he tries to stop his behavior. Although the behavior initially arouses pleasure from the user, the need to continually do so is more driven by the need to eliminate the anxiety that is generated when he does not do so, thus getting the individual involved in compulsive behavior. Smartphone addiction is basically is an extension from Internet Addiction theory developed Young (In What Year?). Internet addiction is a five holistic characteristic associated with internet problems: cyber sexual addiction, virtual relationship addiction, the power to use the internet, information overload, and online gaming addiction (Young, in what year?). The effects of internet addiction symptoms facilitated in smartphones include social isolation, family disruption, divorce, academic failure, loss of work and having a lot of debt (Young et al., In Iqbal & Nurdiani, 2016).

Lin et al. (in Haug et al, 2015) have shown that smartphone addiction has several aspects in common with disorders related to the use of illicit substances in DSM-5 which have four factors namely convulsive behavior, functional impairment, withdrawal, and tolerance. Pathological disorders whose diagnosis is included in DSM-5 have four symptoms, namely: (1) Excessive use, which is often associated with loss of feeling about time or ignoring basic impulses; (2) withdrawal, including feelings of anger, tension, and / or depression when the computer (or smartphone)

is inaccessible; (3) tolerance, including the need for better computer equipment (or smartphones), more software, or longer usage hours; and (4) negative repercussions, including arguing, lying, poor performance, social isolation and fatigue. If the pattern of smartphone addiction behavior has been formed, it will damage social relationships and also make life more difficult because of delayed academic development, and ultimately worsen one's psychological well-being. Given this, it is argued that smartphone addiction could have some connection with lower level of psychological well-being.

Psychological well-being is a picture of the psychological health of individuals based on the fulfillment of positive psychological functions (Ryff, in Papalia, Olds, & Feldman, 2008). Individuals who have a high level of psychological well-being are those who experience life satisfaction much less and experience fewer unpleasant emotions, such as anger and sadness. Ryff stated that psychological well-being consists of six dimensions, namely being able to accept oneself, having a positive relationship with others, having autonomy or independence, being able to master or adapt to the environment, having a purpose in life and being able to develop themselves (Ryff, 1989). In addition, each dimension of psychological well-being explains the different challenges individuals must face in order to function positively (Ryff & Keyes, 1995).

Research on the influence of smartphones on psychological conditions and social relations have been carried out in Indonesia. For example, Palupi, Sarjana, and Hadiati (2018) found a positive relationship between smartphone dependence and anxiety among UNDIP medical faculty students. In addition, Muflih et al. (2017) also reported a negative relationship between the level of dependence on smartphones and social interactions, that is, the higher the dependence on smartphones, the worse the social interactions will be (Azizi et.al, 2017). Whilst, studies in other country such as Turkey also found a negative correlation between smartphone addiction with psychological well-being, which means that the higher the level of psychological well-being of someone, the dependence on smartphones will decrease (References?). However, from these studies, it can be said that one such issue that has been thoroughly discussed is concerning how the influence of smartphone addiction on psychological well-being.

In a survey conducted by the Association of Indonesian Internet Service Providers (APJII), data were obtained that the largest internet accessors in Indonesia were users between the ages of 19-34 years (49.52%) and the device used to access the internet was smartphone or personal tablet (44.16%). By looking at these data, it can be concluded that students with an age ranged from 18-21 years, are the most internet access in Indonesia. In addition, smartphone or tablet media is the device most widely used to access the internet.

Given this, this study aims to in investigatethe influence of smartphone addiction on psychological well-being among university students.. Besides that, the study also examine the relationship between the psychosocial condition of the students to smartphone addiction and also their psychological well-being condition. Based on the above objectives; the present study intended to answer these following questions:

- Is there a correlation between smartphone addiction and psychological well-being in students at UMB?
- How does the influence of smartphone addiction on psychological well-being of UMB students?
- Are the psychological well-being of students and their addiction to smartphones related to gender, college majors, parenting patterns, class at university and age?

RESEARCH METHODS

This research used quantitative methods with correlational analysis techniques, regression, and model tests. Correlational analysis was performed to examine the relationship between the independent variable (Smartphone Addiction) with the dependent variable (psychological well-being). Whilst, a regression test was conducted to test the influence of independent variables on the dependent variable. In addition, a model test research was also conducted to see differences in psychological well-being and Smartphone Addiction on respondents based on gender, age, major and and semester levels.

The instrument used in this study was the Smartphone Addiction Scale (SAS) developed by Kwon, et al (2018) that consists of six aspects, namely disturbances in daily life, positive anticipation, withdrawal from the environment, relations oriented to cyberspace, over-use, and tolerance. The six aspects are represented by 33 items with six answer

choices, namely strongly disagree, disagree, somewhat disagree, somewhat agree, agree and strongly agree.

Psychological well-being scale developed by Ryff (1989 was used in this study that comprised of 6 aspects, namely self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal strength. The scale consists of 54 items with six answer choices for each item, namely strongly disagree, disagree, somewhat disagree, somewhat agree, agree and strongly agree.

The population which is the area of generalization of research results is the regular 1 students of Mercu Buana University. This is based on consideration of the homogeneity of age and occupation. Based on effectiveness considerations, the researchers only measured a portion of the subjects in the population by selecting a sample of subjects. The sample selection is done using cluster random sampling technique (Azizi et.al, 2007). The minimum number of samples collected is determined through the Isaac and Michael calculation table (in Sugiyono, 2011), which is 343 people. Data collection was carried out through surveys using a questionnaire measuring instrument, namely Psychological well-being scale (Ryff, 1989) and Smartphone Addiction Scale (Kwon, 2013), and self-report to capture sociodemographic data in the form of age, sex, parenting parents, major of study, and semester level.

RESEARCH IMPLEMENTATION

The research was carried out in several stages. In the first stage, researchers conducted a pilot study to assess the reliability and selection of items against the measuring instrument that was adapted. This stage is carried out twice involving about 100 samples. The result is the SAS measurement tool which initially consists of 33 items, after testing the remaining 30 items, with a reliability coefficient $\alpha = 0.933$ and an item discrimination index of 0.326 to 0.785. Meanwhile, for the PWB measurement tool remained from 54 items to 30 items, with a reliability coefficient $\alpha = 0.884$ and item discrimination index of 0.289 to 0.681. After getting a reliable measuring instrument with good items, researchers began distributing questionnaires by going into classes, during class hours at the Meruya campus of Mercu Buana University. In order to attract students from all faculties, researchers worked closely with Learning Operation Bureau by requesting class data from all

faculties that were taking place on the day of data collection. Students who were willing to fill in the questionnaire were 428 samples and from all samples, the results of the questionnaire that could be used in the study were 407 samples.

RESULT

Socio-demographic characteristics of the sample

Table 1: Socio-demographic Characteristics of The Sample

Socio-demographic characteristics		N (407)	%
Gender	Male	181	44.5
	Female	226	55.5
Faculty	Creative Arts Design	39	9.6
	Technique	22	5.4
	Economics and Business	81	19.9
	Communication Studies	86	21.1
	Computer Science	53	13
	Psychology	126	31
Semester	2	157	38.6
	4	126	31
	6	96	23.6
	7	4	1
	8	23	5.7
	10	1	0.2
Parenting Style	Democratic	343	84.3
	Authoritarian	27	6.6
	Permissive	37	9.1
Age	17	4	1
	18	69	17
	19	130	31.9
	20	97	23.8
	21	72	17.7
	22	21	5.2
	23	10	2.5
	24	2	5
	25	2	5

SAS Correlation Test Results with PWB

From the data entered from the questionnaire, the correlation test results are as follows:

Table 2: SAS and PWB Scale Correlation Test Results

Correlation	R	Significance (p)
Pearson product moment	-.477	.000

From the calculation above, it can be concluded that there was a significant negative correlation ($r = -0.477 p < 0.05$) showing that when the smartphone addiction score was higher, the psychological well-being tends to be low or vice versa.

SAS regression test results with PWB (What is PWB?)

The researchers also conducted a regression test of the two variables. The result is:

Table 3: Regression Tests between SAS and PWB

Regression	R	R^2	Significance F Change(p)
Linear Regression	.477	.228	.000

From the table above it was found that the SAS to PWB regression rate was around 0.228, which means SAS affected PWB by 22.8%, while another 87.2% was influenced by other factors.

Differences in PWB and SAS by age

PWB and SAS test results that are associated with age differences are as follows:

Table 4: ANOVA Test of Differences in PWB and SAS by Age

Variable	F Value	Significance
Psychological Well-Being	0.601	.777
Smartphone Addiction	1.003	.433

Based on the ANOVA test, no significant difference was found between psychological well-being and smartphone addiction among students of different ages.

Differences in PWB and SAS by gender

PWB and SAS test results that are linked to gender differences are as follows:

Table 5: Results of PWB and SAS Differences By Gender

Dependent Variable	Independent Variable	Average	t	Significance
Psychological Well-Being	Male		1.300	.194
	Female			
Smartphone Addiction	Male	94.72	-3.868	.000
	Female	102.76		

Based on the table above it can be seen that there was no significant difference in terms of PWB between men and women, while on the SAS scale there was a significant difference between men and women, where women have a higher tendency to addiction than men (average: 102.76> 94.7).

Differences in PWB and SAS Based on Parenting Style

PWB and SA test results that are associated with differences in parenting style are as follows:

Table 6: ANOVA Test Differences in PWB and SAS Based on Parenting

Dependent Variable	Independent Variable (Parenting Style)	Average	F	Significance
Psychological Well-Being	Democratic	71,33	9,435	.000
	Authoritarian	64,19		
	Permissive	65,46		
Smartphone Addiction	Democratic	97,82	5,509	.004
	Authoritarian	102,44		
	Permissive	109,46		

Based on the ANOVA test, there was a significant difference between PWB and SAS between one or more of the three parenting. The analysis was then continued with post hoc calculations with the Tukey test and the following results were obtained:

Table 7: Tukey's test of differences in PWB based on parenting style

Parenting Style	Ratio	Average Difference	Significance
Democratic	Authoritarian	7,144	.003

	Permissive	5,870	.006
Authoritarian	Democratic	-7,144	.003
	Permissive	-1,274	.889
Permissive	Democratic	-5,870	.006
	Authoritarian	1,274	.889

Based on Tukey's previous test, it was found that children with democratic parenting had a significantly higher average PWB than children with authoritarian or permissive parenting. While children with Permissive parenting have an average PWB higher than children with authoritarian parenting, but the difference is not significant.

Furthermore, the SAS test results associated with three types of parenting are as follows:

Table 8: Tukey's test of SA differences based on parenting style

Parenting Style	Ratio	Average Difference	Significance
Democratic	Authoritarian	-4,625	0,512
	Permissive	-11,640	0,004
Authoritarian	Democratic	4,625	0,512
	Permissive	-7,015	0.383
Permissive	Democratic	11,640	0,004
	Authoritarian	7,015	0.383

Based on the Tukey test above, it can be seen that there are significant SA differences between one or more of the three types of parenting. Children with permissive parenting have a significantly higher average AS than children with authoritarian or democratic parenting. Children with authoritarian parenting have a higher average SA than children with democratic parenting, but the difference is not significant.

Differences between PWB and SAS based on faculty

The results of the PWB and SAS tests that are associated with different faculties are as follows:

Table 9: ANOVA Test of Differences in SAS by Faculty

Dependent Variable	Independent Variable (Faculty)	Average	F	Significance
Psychological Well-Being	Design and Creative Arts Technique Economics and Business Communication Studies Computer Science		2,279	.019

	Psychology		
Smartphone Addiction	Design and Creative Arts Technique Economics and Business Communication Studies Computer Science Psychology	2,633	.023

ANOVA test results can be seen that there are differences in PWB scores from each faculty, ie students of the Faculty of Communication Science have the highest PWB compared to other faculties. Then the Faculty of Psychology students had the lowest PWB. The PWB of psychology students was significantly lower than the PWB of the Faculty of Communication Sciences, Lastly, there was no significant PWB difference between the other faculties. For SAS it was found that there were significant differences between faculties, with the highest FEB mean (102.28) followed by psychology (101.24).

Differences in PWB and SAS based on semester of study

The PWB and SA test results that are related to differences in study semesters are as follows:

Table 10. ANOVA Test of Differences in SAS by Semester of Study

Variable	F Value	Significance
Psychological Well-Being	0,877	0,497
Smartphone Addiction	0,712	0,615

Based on the above table, there is no difference between 2,4,4,7,8 and 10 semesters in the PWB and SAS scale scores.

DISCUSSION

This research was conducted among university students with the aim of measuring the relationship between smartphone addiction and their psychological well-being. It also measured the relationship between the two variables with their socio-demographic characteristics data, such as gender, age, differences in parenting, faculty differences and semester differences.

From the correlation test results found a significant negative relationship between smartphone addiction and psychological well-being of UMB

students. These results are in line with the results of Kumcagiz's research (2016) in Turkey, but with a greater correlation level of -0.477. This might be due to the wider diversity of samples, involving students from various faculties, while the sample chosen by Kumcagiz only came from the education faculty. These results also reinforce the notion, if smartphone addiction is formed, it will worsen the level of satisfaction of one's life and he will be more vulnerable in feeling negative emotions (PWB).

Whilst, regression test results showed the influence of SAS on PWB of 22.8%. This is a fairly large percentage because it covers one fifth of the overall psychological well-being of students affected by their behavior in smartphone usage. This may be due to the fact that smartphones have become an inseparable part of one's life, so that most of the time a day is spent with interactions between individuals and their smartphones, and this makes it vulnerable to make a person's life dependent on these sophisticated devices that have an addictive effect.

Smartphone addiction will adversely affect a person's psychological development, especially when viewed from the symptoms caused by addiction, namely: (a) Excessive use, which is often associated with a loss of feeling about time or ignoring basic impulses, which of course if often done will hamper the development of individual self and may make it lose its purpose in life, which is the 5th and 6th dimension in PWB; (b) withdrawal, including feelings of anger, tension, and / or depression when the computer (or smartphone) is inaccessible, this will make a person's social relations disrupted and make it difficult to adapt to the environment; and (c) tolerance, including the need for a better computer (or smartphone) device, more software, or longer usage hours. The last symptom is negative repercussions, including arguing, lying, poor achievement, social isolation and fatigue, this will damage positive relationships with others, such as family and friends around him and hinder his development.

In this study, there were no differences in SAS and PWB scores in students aged 17-25 years. This shows that this age difference is not related to SAS and PWB levels. This may be due to the distance of age that is still close, the majority of the sample entered into early adulthood.

If the age range is enlarged by involving middle adulthood or early adolescence, it may show different results.

From the results of the sex differences test with the PWB scale it was found that there were no differences between male and female student in terms of PWB. This is contrary to the results of Kumcagiz's research (2016) which shows that the level of psychological well-being (PWB) for female is higher than for men in the Mayd University Ondocuk Education faculty. For the smartpone addiction scale, it was found that significant differences between male and female, with the level of female smartphone addiction being higher than male. This result was not in line with the results of Kumcagiz's (2016) study which found no gender differences in the calculation of smartphone addiction scales, but strengthened the results of other studies conducted by Dogan & Tosun (2016) and Kwon et al. (2013) (in Kumcagiz, 2016).

In addition, the study also found that there was significant PWB differences when associated with parenting style. Children with democratic parenting have a significantly higher average PWB than children with authoritarian or permissive parenting. Whilst, children with Permissive parenting have an average PWB higher than children with authoritarian parenting, but the difference was not significant. This is in line with the results of Kassa & Rao's research (2019) which shows that parenting style has a significant relationship between good and rational (decent and reasonable) or authoritative (democratic) parenting and psychological well-being (PWB) in high school children in the Amhara area, India. It's just that in this study, researchers did not use a special measuring instrument to measure students 'perceptions of their parents' parenting. Here the researchers only provide a general explanation, so it needs to be studied in more depth to get more accurate results.

In terms of smartphone addiction, there was a significant SAS differences between one or more of the three types of parenting style. Children with permissive parenting have a significantly higher average AS than children with authoritarian or democratic parenting. Children with authoritarian parenting have a higher average SA than children with democratic parenting, but the difference is not significant. In the questionnaire, democratic parenting is described as "Parents listen to the

opinions and desires of children and discuss decisions with children", then authoritarian parenting is spelled out as "Parents determine all decisions for children without listening to children's opinions", and permissive parenting is described as " Parents do not interfere with the child's decision ". In this study, permissive parenting was associated with a high level of smartphone addiction compared to the other two parenting styles, so it can be concluded that students who are left to determine themselves and are not overly controlled in their behavior tend to have greater levels of addiction than students who always monitored and invited to discuss by their parents (democratic) and children whose behavior is always controlled by their parents (authoritarian). But parents who apply democratic parenting can prevent children from being addicted to smartphones compared to the other two parenting. Nevertheless, more in-depth research needs to be done by using better measures of perception about parenting. However, the results of this study are in line with the results of other studies related to online game addiction conducted by Kusumawati, Aviani and Molina (2017) which show that permissive and uninvolved parenting is associated with high levels of online game addiction.

ANOVA test results can be seen that there are differences in PWB scores from each faculty, ie students of the Faculty of Communication Science have the highest PWB compared to other faculties. Then the Faculty of Psychology students had the lowest PWB. This is a surprising finding, considering that psychology faculty students are students who study the human soul. Researchers suspect that there is a priming effect as in social psychology, where psychology faculty students are exposed to more information about psychological problems from their lecture material than students from other faculties, so that they have a higher level of sensitivity to the problem and influence them when answering the PWB questionnaire . However, further research is needed to be able to ascertain the real cause.

For SAS, it was found that there were significant differences between faculties, with the highest FEB mean (102.28) followed by psychology (101.24). It also needs to be investigated further, to measure the level of student addiction from the two faculties. This data is sufficient to support the finding of a negative correlation between SAS and PWB, so it can be

said that SAS is one of the causes of the low PWB of psychology students as in the previous discussion.

Anova test results show that there is no difference between semester 2,4,6,7,8 and 10 on the PWB and SAS scale scores. The finding of the relationship between PWB scores and grade level at university is the same as the results of Kumcagiz's research (2016). As for SAS, the findings in this study differ from Kumcagiz (2016) research which states that level 1 students have a higher mean score compared to level 3 and 4 students at Ondokuz Mayis University.

CONCLUSIONS AND SUGGESTIONS

In this study it was found that smartphone addiction had a significant relationship to psychological well-being university students in mercu buana. The influence of SAS reached 22.8% among other influences on PWB. In addition, different mean score levels were also found for differences in sex, age, parenting, faculty and semester.

In this context there are several recommendations for overcoming smartphone addiction and increasing the PWB of Mercu Buana university students:

- More in-depth research is needed on findings in the field, about high levels of smartphone addiction and fairly low levels of psychological well-being in some faculties.
- The need for further research to improve psychological well-being scores of UMB Psychology students, through training combined with experimental research.
- More in-depth research is needed by using a more accurate measurement of the relationship between parenting and the level of smartphone addiction and psychological well-being of students.
- Parenting socialization is needed to support the prevention of smartphone addiction and increase psychological well-being among parents of UMB students.

There should be one section that summarize the strengths and limitations of the study. For example, the issue of cross-sectional method employed in the study; recall bias on the part of the

respondents and the issue of common method variance itself need to be discussed thoroughly by the authors.

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