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The Relationship Between Expressive Suppression and Problematic Smartphone Use

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ABSTRACT

Expressive suppression is an emotion regulation strategy that refers to the inhibition of emotion-expressive behaviour. Habitual, high expressive suppression may be considered as a less effective strategy because it potentially maintains or even strengthens negative emotion. This experience may develop the urge to regulate their emotions and this urge may lead to smartphone use. In the I-PACE model, individuals can obtain gratification by using a certain smartphone application. This experience may become a reinforcement to develop this cycle. When smartphone use becomes excessive and leads to negative impacts in daily life, it is considered as problematic smartphone use (PSU). The aim of this study is to examine the relationships between expressive suppression and PSU. The study utilizes a correlational research design. An online questionnaire completed by 320 undergraduate students at a university in Jakarta with convenient sampling technique. It was found that expressive suppression has a positive significant relationship to PSU (r = .121, p < .05). This study is in accordance with the I-PACE model which emphasizes that high expressive suppression as an emotion dysregulation may be associated with severe PSU. Results indicate the importance to practice more adaptive emotion regulation strategies and the awareness to monitor smartphone activity from PSU risk.

Keywords: *Expressive suppression, Problematic smartphone use, Emotion.*

1. INTRODUCTION

The use of smartphones has become widespread in today's modern world. With an internet connection, smartphones can provide users with a variety of applications that can be accessed easily, such as chat applications and social media, access to information, watching videos or movies, online games, e-commerce, etc. The benefits provided make smart phones highly desirable, including in Indonesia. A survey conducted by the Ministry of Communication and Information Technology of the Republic of Indonesia in 2017 showed that smartphone ownership in urban areas reached 83.04% [1].

In addition to the positive impacts, the use of smartphones can also cause issues in the community if not used wisely. One of the issues in the social environment is cases of traffic accidents due to using mobile phones while driving [2]. In addition, long-term use of mobile phones can cause health problems, such as pain in the elbow and neck area, and visual disturbances [3]. Students also found that excessive smartphone use can predict academic burnout [4]. Excessive use of smartphones has become a concern for the World Organization Health which was discussed at its meetings in 2014 and 2016 [5]. Excessive or problematic smartphone use can have a negative impact on an individual's daily life [6].

Problematic smartphone use (PSU) can be defined as an individual's inability to control the use of a smartphone which then interferes with their daily life [7]. PSU can be interpreted as excessive smartphone use which is characterized by symptoms that appear in addiction disorders, such as dependence, withdrawal, and tolerance [8,9]. One of the factors

that contributed to the development of PSUs is the pleasure derived from using smartphones. This leads to some people using their smartphones as a way to deal with negative emotions [10,11]. Individuals who seek to change the emotions they feel take part in emotion regulation process.

Emotion regulation can be defined as a strategy that includes a person's judgment which aims to change the emotion response that is currently experienced [12]. The process of emotion regulation can occur consciously or unconsciously. Emotion regulation is not limited to negative emotions, but also to positive emotions [13]. One emotion regulation strategy that has been widely studied is expressive suppression. When an emotional experience arises, individuals with expressive suppression strategy suppress said emotions so that it is not expressed. In certain situations, one can use expressive suppression strategy but the use of this strategy as a habit can have negative impacts in the short and long term [14-16]. This is because individuals with expressive suppression strategy tend to feel that their negative emotions are not reduced, but can continue, accumulate, and are unresolved [17].

The theoretical model used in this study is the interaction of people-affect-cognition-execution model which is abbreviated as I-PACE [10,11]. The I-PACE model explains that problematic behavior develops as a result of the interaction between individual characteristics and affective and cognitive responses. This is what encourages individuals to use certain applications through their smartphones for gratification.

In relation to PSU, when faced with situations that trigger negative emotions, individuals with high expressive suppression strategies are unable to regulate negative emotions well [14,18,19]. This then raises the individual's affective and cognitive responses, such as the urge to regulate their emotions to feel better [10]. This response then prompted them to use a smartphone, which is a portable technology that is easy to use, and provides a variety of applications that can meet their needs [9]. When individuals gain gratification from the use of their smartphones, this experience becomes a reinforcement to repeat the behavior as a dysfunctional strategy [20]. This gratification can develop cognitive bias and increase cue-reactivity and craving in individuals, thus leading to PSU [10,11].

Based on above explanation, it can be hypothesized that expressive suppression is related to PSU. Therefore, this study aims to examine the relationship between expressive suppression and PSU. We hypothesized that high expressive suppression, as a less effective strategy, is positively correlated with PSU.

2. METHOD

2.1. Participants

A total of 320 active undergraduate students at a university in Jakarta were involved in this research. Research participants were confirmed to own and use a smartphone. The age range of the study participants was between 17 and 27 years (M = 20.03). Most of the respondents were aged 20 years old comprising about 29.4% of the total population. As many as 84% of the participants were female.

Table 1. General description of participants

Characteristics		N (320)	Percentage (%)
Age	17	2	0.6
	18	40	12.5
	19	74	23.1
	20	94	29.4
	21	73	22.8
	22	23	7.2
	23	8	2.5
	24	4	1.3
	26	1	0.3
	27	1	0.3
Sex	Male	51	15.9
	Female	269	84.1

2.2. Measurement

Problematic smartphone use is measured using the Smartphone Addiction Scale (SAS) which consists of 33 items divided into six subscales, namely daily-life disturbance, positive anticipation, withdrawal, cyberspace-oriented relationship, and overuse [6]. There are six answer choices on Likert scale, where 1 refers to strongly disagree and 6 refers to strongly agree. The researchers translated SAS into Indonesian. The translation process includes back-translation and expert judgment as part of the validity test of the measuring instrument. The Cronbach's alpha value of SAS from previous studies have

shown good internal reliability, with a range of .93 to .97 [6,20,21]. The value of Cronbach's alpha in this study is .89.

The second measuring instrument used in this study is Gross and John's Emotion Regulation Questionnaire (ERQ) [17] which has been translated into Indonesian [22]. The ERQ consists of 10 items which are divided into two subscales, namely cognitive reappraisal and expressive suppression. There are 7 answer choices on a Likert scale where 1 refers to strongly disagree and 7 refers to strongly agree. In this study, only expressive suppression subscale was used as it is the focus of this study. The ERQ instrument has shown good internal reliability with a range of Cronbach's alpha values of .60 to .75 for the expressive suppression subscale [20-22]. The value of Cronbach's alpha in this study is .64.

The study utilized the descriptive statistics such as the mean and standard deviation. Also, inferential statistics such as the pearson product moment coeffecient was utilized to determine the correlation between expressive suppression and problematic smartphone use.

3. RESULTS AND DISCUSSION

Hypothesis testing was conducted using the Pearson correlation technique with SPSS program version 21. The test results showed a low positive relationship between expressive suppression and PSU (r = .121, p = .030) as seen in Table 2. These results indicate that the higher the expressive suppression, the higher the PSU level of the study participants.

This result is consistent with the results of previous studies which indicated that the higher the expressive suppression, the higher the PSU level [20,21]. This is in accordance with the theory of the I-PACE model which states that PSU is used as a dysfunctional response in dealing with unfavorable experiences or situations [10]. A person with expressive suppression as a dysfunctional strategy can lead to the use of technology, including smartphones, as a strategy to make themselves feel better [10,20]. However, it should be noted that the indications of PSU are not necessarily based solely on high smartphone usage. Someone who has PSU tends to show high smartphone usage activity, but someone with high smartphone usage activity does not necessarily experience PSU [8,9,24].

In the SAS there are six subscales that are the indications of someone experiencing PSU. The description of the research participants' PSU based on the six indicators can be seen in Table 3. Research participants obtained a fairly high average score on the overuse subscale and positive anticipation subscale. This shows that most of the research participants show excessive smartphone usage, and they feel that using smartphones is a fun activity and can relieve stress. This image also supports that the use of smartphones is a possible strategy to overcome negative emotions [10]. The use of smartphones various entertainment becomes a strategy to divert or avoid negative emotions [25,26].

Table 3. Descriptive statistics of SAS Subscales

	M	SD	Min	Max
Daily-life disturbance	3.31	0.87	1.00	5.67
Positive Anticipation	3.81	0.71	1.62	6.00
Withdrawal	2.85	0.85	1.00	5.33
Cyberspace-oriented Relationship	2.73	0.67	1.14	4.86
Overuse	3.95	0.82	1.00	6.00
Tolerance	3.37	0.92	1.00	5.67

There are several limitations in this research. First, this research is only limited to testing the relationship, so that it cannot yet explain the causal relationship between the two variables. The second limitation is related to the collection of research data during the Covid-19 pandemic, which has the potential to affect research results. This is due to government policies that limit face-to-face interactions, so that various activities such as teaching and learning are shifted to online [27,28]. In addition, the participants that are limited to students and acquired by convenience sampling technique and self-reports research method, the results of this study cannot be generalized to the public.

4. CONCLUSION AND SUGGESTIONS

This study shows that there is a positive correlation between expressive suppression and problematic smartphone use (PSU). Individuals who have a strong preference to expressive suppression strategy may shift to smartphone use which has the potential to develop into PSU. It may be a concern for smartphone users that the use of smartphones can

Table 2. Pearson correlation between the variables

	M	SD	Min	Max	ES	PSU
ES	4.29	1.01	1.25	6.75	-	
PSU	3.31	0.56	1.79	4.91	.121* (.030)	-

Note. ES = Expressive Suppression; PSU = Problematic Smartphone Use.

provide short term pleasure. However, if this becomes the go-to strategy to deal with unfavorable emotions, it is necessary to be aware of the possibility that it can lead to PSU and the negative impacts that may occur in the long term. In addition, practitioners and psychologists may provide psychoeducation for the public regarding more adaptive emotion regulation strategies.

A suggestion for further research is to determine predictors of PSU and variables that can reduce PSU. Future research may also examine other emotion regulation strategies to be associated with PSU. In addition, increasing the number or diversity of participant characteristics may also be possible.

AUTHORS' CONTRIBUTIONS

IA and ST led the project. IA performed data analysis and writes manuscripts. ST and BM supervised and revised the manuscript.

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REFERENCES

[1] Kementerian Komunikasi dan Informatika Republik Indonesia, Survei penggunaan TIK serta implikasinya terhadap aspek sosial budaya masyarakat, 2017. https://balitbangsdm.kominfo.go.id/?mod=publikasi&a=dl&page_id=360&cid=9&download_id=187

[2] H. Muhardi, Ponsel jadi penyebab terbesar kecelakaan lalu lintas, Liputan 6, February 2018. https://www.liputan6.com/otomotif/read/3308171/ponsel-jadi-penyebab-terbesar-kecelakaan-lalu-lintas

[3] M. Nareva, Hati-hati dampak negatif HP bagi kesehatan, Alodokter, September 2020. https://www.alodokter.com/hati-hati-menggunakan-ponsel-berlebihan-bisa-memicu-penyakit-ini

[4] Christy, R. Sahrani, P. H. Heng, Academic burnout in digital era: Examining the role of problematic smartphone use, core self-evaluations, and academic achievement on academic burnout among medical students, in: Proceedings of the Tarumanagara International Conference on the Applications of Social Sciences and Humanities (TICASH), 2019, pp. 586-590. DOI: https://doi.org/10.2991/assehr.k.200515.098

[5] World Health Organization, Public health implications of excessive use of the Internet and other communication and gaming platforms, September 2018. https://www.who.int/news/item/13-09-2018-public-health-implications-of-excessive-use-of-the-internet-and-other-communication-and-gaming-platforms

[6] M. Kwon, J. Y. Lee, W. Y. Won, et al., Development and validation of a smartphone addiction scale (SAS), PLoS ONE 8(2) (2013). DOI: https://doi.org/10.1371/journal.pone.0056936

[7] O. Lopez-Fernandez, D. J. Kuss, M. D. Griffiths, J. Billieux, The conceptualization and assessment of problematic mobile phone use, in: Z. Yan (Ed.), Encyclopedia of Mobile Phone Behavior, 2015, pp. 591-606. DOI: https://doi.org/10.4018/978-1-4666-8239-9.ch050

[8] J. Billieux, P. Philippot, C. Schmid, et al., Is dysfunctional use of the mobile phone a behavioral addiction? Confronting symptom-based versus process-based approaches, Clinical Psychology and Psychotherapy 22(5) (2014) 460-468. DOI: https://doi.org/10.1002/cpp.1910

[9] J. Billieux, P. Maurage, O. Lopez-Fernandez, et al., Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research, Current Addiction Reports 2(2) (2015) 156–162. DOI: https://doi.org/10.1007/s40429-015-0054-y

[10] M. Brand, K. S. Young, C. Laier, et al., Integrating psychological and neurobiological considerations regarding the development and maintenance of specific Internet-use disorders: An Interaction of Person-Affect-Cognition-Execution (I-PACE) model, Neuroscience and Biobehavioral Reviews 72 (2016) 252-266. DOI: https://doi.org/10.1016/j.neubiorev.2016.08.033

[11] M. Brand, E. Wegmann, R. Stark, et al., The Interaction of Person-Affect-Cognition-

Execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors, Neuroscience and Biobehavioral Reviews 104 (2019) 1-10. DOI: https://doi.org/10.1016/j.neubiorev.2019.06.032

[12] J. J. Gross, The extended process model of emotion regulation: Elaborations, applications, and future directions, Psychological Inquiry: An International Journal for the Advancement of Psychological Theory 26(1) (2015) 130-137. DOI: https://doi.org/10.1080/1047840X.2015.989751

[13] K. McRae, J. J. Gross, Emotion regulation, Emotion 20(1) (2020) 1-9. DOI: https://doi.org/10.1037/emo0000703

[14] T. Hu, D. Zhang, J. Wang, et al., Relation between emotion regulation and mental health: A meta-analysis review, Psychological Reports: Measures & Statistics 114(2) (2014) 341-362. DOI: https://doi.org/10.2466/03.20.PR0.114k22w4

[15] T. L. Webb, E. Miles, P. Sheeran, Dealing with feeling: A meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation, Psychological Bulletin 138(4) (2012) 775–808. DOI: https://doi.org/10.1037/a0027600

[16] S. A. Moore, L. A. Zoellner, N. Mollenholt, Are expressive suppression and cognitive reappraisal associated with stress-related symptoms? Behaviour Research and Therapy 46 (2008) 993-1000. DOI: https://doi.org/10.1016/j.brat.2008.05.001

[17] J. J. Gross, O. P. John, Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being, Journal of Personality and Social Psychology 85(2) (2003) 348-362. DOI: https://doi.org/10.1037/0022-3514.85.2.348

[18] J. D. Elhai, B. J. Hall, M. C. Erwin, Emotion regulation's relationships with depression, anxiety and stress due to imagined smartphone and social media loss, Psychiatry Research 261 (2018) 28-34. DOI: https://doi.org/10.1016/j.psychres.2017.12.045

[19] Gainey, K. N., McMahon, T. P., & Chacko, T. P. (2017). The structure of common emotion regulation strategies: A meta-analytic examination. Psychological Bulletin 143(4), 384-427. doi:10.1037/bul0000093.supp

[20] D. Rozgonjuk, J. D. Elhai, Emotion regulation in relation to smartphone use: Process smartphone use mediates the association between expressive suppression and problematic smartphone use, Current Psychology (2019). DOI: https://doi.org/10.1007/s12144-019-00271-4

[21] J. D. Elhai, A. A. Contractor, Examining latent classes of smartphone users: Relations with psychopathology and problematic smartphone use, Computers in Human Behavior 82 (2018) 159-166. DOI: https://doi.org/10.1016/j.chb.2018.01.010

[22] C. Suwartono, D. Bintamur, Validation of the emotion regulation questionnaire (ERQ): Network analysis as an alternative of confirmatory factor analysis (CFA), ANIMA Indonesian Psychological Journal 34(3) (2019) 115-124. DOI: https://doi.org/10.24123/aipj.v34i3.2300

[23] J. Pallant. SPSS survival manual: A step by step guide to data analysis using IBM SPSS, Open University Press, 2016.

[24] T. Panova, X. Carbonell, Is smartphone addiction really an addiction? Journal of Behavioral Addictions 7(2) (2018) 252–259. DOI: https://doi.org/10.1556/2006.7.2018.49

[25] C. Trumello, A. Babore, C. Candelori, et al., Relationship with Parents, Emotion Regulation, and Callous-Unemotional Traits in Adolescents' Internet Addiction, BioMed Research International (2018) 1–10. DOI: https://doi.org/10.1155/2018/7914261

[26] A. J. A. M., van Deursen, C. I. Bolle, S. M. Hegner, et al., Modeling habitual and addictive smartphone behavior: The role of smartphone usage types, emotional intelligence, social stress, self-regulation, age, and gender, Computer in Human Behavior 45 (2015) 411-420. DOI: https://doi.org/10.1016/j.chb.2014.12.039

[27] PcW. Global consumer insights survey 2020: The consumer transformed (2020). https://www.pwc.com/id/en/industry-sectors/consumer-industrial-products-services/consumer-insights-survey.html

[28] M. X. Zhang, J. H. Chen, K. K. Tong, et al., Problematic smartphone use during the COVID-19 pandemic: Its association with pandemic-related and generalized beliefs, International Journal of Environmental Research and Public Health 18(11) (2021) DOI: https://doi.org/10.3390/ijerph18115724