



Big-Five Personality: Prediction of Fear of Missing Out, Problematic Social Media Use, and Deceptive Behavior

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Abstract

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Very rapid development in information technology, one of which lies in social networking media. The use of social media continued to increase from 2013 (42%) to 2015 (47%). The extensive use of social media causes adverse effects such as deceptive behavior (in social media), constant urge to go online, problematic social media use, and checking social media (fear of missing out). This study examines how Big-Five personality affects deceptive behavior, FoMO, and problematic social media use. The sampling technique used was convenience sampling, which 121 students in DKI Jakarta selected. Multiple linear regression and multivariate multiple regression were used to examine the data. As a result, there is a strong correlation between the Big-Five personality in predicting FoMO, deceptive behavior, and problematic social media use. This finding has implications for universities, especially for lecturers with a background in psychology, to direct and provide knowledge to students to avoid deceptive behavior, problematic social media use, and fear of missing out.

INTRODUCTION

This era is where globalization is growing—one of the fields with very rapid technological development, especially information technology. One of the booming information technologies lies in social networking media, and this started in 2004 when social media sites were the most dominant sites searched on the internet (Yamak et al., 2017).

The use of social media continues to increase over time. For example, in 2013, as many as 42% of adults used two or more social media sites, and of those, in 2015, Facebook had nearly 1.4 billion users, namely 47% of all internet users (Bulas, 2015). In addition to occurring in adults, adolescents also spend most of their time online surfing on social media (Barry et al., 2017; Kuss & Griffiths, 2017; Ahn & Jung, 2016). In their research in Jakarta, Moningka (2017) and Moningka and Eminiari (2020) stated that most social media users are adolescents and emerging adults who use social media to present themselves. The use of social media also harms their mental health.

There are more than 60 million internet users in Indonesia, and more than 90%

of internet users access social media (Ministry of Communication and Information of the Republic of Indonesia, 2021). Riyanto (2021) also stated an increase in internet users in Indonesia, as much as 73.7%. Kemp (2021) describes that the social media often used in Indonesia are Youtube, Whatsapp, and Instagram.

Even as social media users increase, so do the harmful consequences of using these platforms. One of the adverse effects is identity theft which makes social media a facility for hunting for target information (Mahajan-Cusack, 2016). The United States Bureau of Justice Statistics estimates that in 2012 as many as 16.6 million people in America were victims of identity theft and suffered losses of up to 24.7 billion USD (Yamak et al., 2017). This case can occur because of deceptive behavior in social media.

Deceptive behavior is a person's deliberate action to make others believe something is untrue (Moningka & Selviana, 2020). The factor in deceptive behavior is presenting oneself better (Moningka & Selviana, 2020). One of a person's actions to present themselves is to talk a lot, like to get along, or want to always appear dominant, both in real life and on social media. The desire to always appear dominant is a feature of the extraversion factor in the Big-Five personality (Colquitt et al., 2012). Based on this, it can be seen that personality is one of the things that can affect a person's deceptive behavior. In addition to personality, the impetus for deceptive behavior in a person's social media account arises due to the hectic traffic of social media. This makes one think social media can be grounds for profiting from fraudulent actions against its users.

The number of active social media users may be due to the fear of missing important events or news when someone is not online to check social media (Bloemen & De Coninck, 2020). The constant urge to check social media is called fear of missing out (FoMO) (Przybylski et al., 2013; Abel et al., 2016). FoMO will also lead to problematic social media use. FoMO will make excessive use of social media and ultimately harm the social, personal, and professional lives of users (Griffiths et al., 2014; Hormes, 2016; Muench et al., 2015; Wu et al., 2013; Ryan et al., 2014; Steers et al., 2014). Therefore, problematic social media use can be positively correlated with deceptive behavior in social media, and FoMO can influence the development of both behaviors.

This study will discuss the positive relationship between personality and FoMO, problematic social media use, and deceptive student behavior. The previous studies discussed deceptive behavior (Galaxhi & Nah, 2007; Lu, 2008; Moningka & Selviana, 2020; Song et al., 2012; Warkentin et al., 2010), personality (Gifford & Nilsson, 2014; Hirsh, 2010; Liu & Zheng, 2020; Nocentini et al., 2018), FoMO (Przybylski et al., 2013; Barry et al., 2017; Sheldon et al., 2021; Kuss & Griffiths, 2017; Wegmann et al., 2021); and problematic social media use (Bányai et al., 2017; Dalvi-Esfahani et al., 2021; Huang, 2020; Lee et al., 2017; Yildiz Durak & Seferoğlu, 2019). However, from these previous studies, there has been no view on the role of Big-Five personality on deceptive

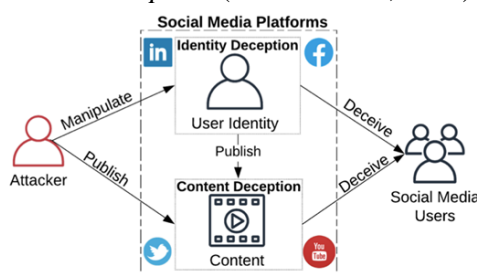
behavior, FoMO, and problematic social media use in one research model. Based on the explanation presented, it is necessary to research the impact of personality on FoMO, problematic social media use, and deceptive behavior.

Based on the limitation of the problem, the problems to be studied are: (1) is there a positive relationship between Big-Five personality and deceptive behavior in students' social media?; (2) is there a positive relationship between Big-Five personality and students' fear of missing out?; (3) is there a positive relationship between Big-Five personality and students' problematic social media use?

Deceptive Behavior in Social Media

Deceptive behavior is a deliberate act by someone to make others believe something that is not true (Moningka & Selviana, 2020). Deceptive behavior in social media changes the sender's original identity to convey something untrue to the recipient, which can ultimately gain the recipient's trust (Wang et al., 2006). Social media's deceptive behavior divides into identity and content fraud (Aimeur et al., 2018; Tsikerdekis, 2018). Identity fraud manipulates or imitates social media users' identities to deceive (Alharbi et al., 2021).

Figure 1
Social Media Deception (Alharbi et al., 2021)



Big-Five Personality

The word "personality" was first coined based on the Latin word *persona*; this relates to the dramatic mask used in Greek plays aimed at projecting the wrong role (Feist & Feist, 2013). However, this understanding is widely opposed by psychologists. Thus, psychologists agree that personality is more than a person's role (Feist & Feist, 2013). A person's personality is a dynamic organization inside their psychophysical system that influences how they individually adapt to their surroundings (Allport & Ross, 1967). Feist & Feist (2013) also argues that personality includes all relatively permanent traits or characteristics that provide consistency to a person's behavior.

According to Colquitt et al. (2012), conscientiousness, agreeableness, neuroticism, openness to experience, and extraversion are the five dimensions or "factors" that best summarize or represent a person's personality. The "Big-Five personality" refers to these five characteristics.

Conscientiousness, one of these dimensions, is described as someone reliable, organized, ambitious, hardworking, and persistent (Heritage et al., 2014). Agreeableness is someone friendly, kind, cooperative, sympathetic, helpful, and polite

(Colquitt et al., 2012). Extraversion indicates someone who is talkative, sociable, passionate, assertive, brave, and dominant. Neuroticism shows a person who is restless, moody, emotional, insecure, and jealous (Colquitt et al., 2012). Openness to experience is associated with someone inquisitive, imaginative, creative, complex, moral, and sophisticated (Colquitt et al., 2012).

Fear of Missing Out

Fear of missing out (FoMO) is defined as a need to be connected to what others are doing by Przybylski et al. (2013). It has also characterized a condition in which a person tries to feel a valuable experience felt by another person without needing to be in the same place or time with that person. It describes the desire to follow or know what others are doing, believing others' experiences are more interesting than their own.

Social media is a tool for developing social skills and offers chances to strengthen social relationships (Przybylski et al., 2013). Those who fear missing out tend to have deficiencies, particularly in meeting attachment needs. So those who have fears of broken relationships will tend to divert their fears using social media. With this explanation, fear of missing out can understand as a situation or problem regarding the lack of fulfillment of these psychological needs that need attention.

Wegmann et al. (2021) revealed that the fear of missing out has two components: trait-FoMO and state-FoMO. Trait-FoMO produces a constant fear that arises when left behind by information or social activities that involve the people around them. An example of this component is the inability to refuse a meeting with friends because they do not want to miss a pleasant experience with friends. Furthermore, state FoMO tends to bring up temporary fear when faced with uncomfortable situations. An example of this component is if someone is afraid of being abandoned by his friends because he is not quick to catch the latest information or things in his circle of friends. The impacts that affect the fear of missing out are low life satisfaction, unstable mood, decreased attention, easily distracted, online vulnerability, depression, and anxiety.

Problematic Social Media Use

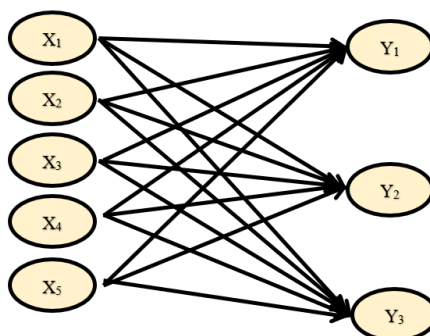
The increasing growth of social media users has led to several studies revealing behavioral changes that tend to occur in humans when interacting on social media. These changes give rise to excessive use, resulting in several literacies with different names, such as "Social Media Addiction" and "Social Networking Addiction". Excessive use that results in negative behavioral impacts defines as addictive behavior. Meanwhile, the word addiction, separately from social media, refers to a behavior disorder based on symptoms and behavioral criteria that lasts for a specific time. Based on this, the behavioral impact that arises from social media does not necessarily last for a specific time and is based on an attachment that cannot be separated from social media activities. In a separate study examining behavioral problems in each social media, Bányai et al. (2017), which was the first time, categorized this behavior into problematic social media use.

Based on the biopsychosocial theory, problematic social media use can be interpreted as the emotional change from a positive feeling to being negative when unable to access social media to causing negative consequences in real life from the results of using social media (Bányai et al., 2017). Andreassen et al. (2017) define problematic social media use as encouragement from a strong motivation to use social media. It takes much time to sacrifice and an effort to be active on social media even though it interferes with social activities, education, work, interpersonal relationships, health, and psychological well-being. The factors influencing problematic social media use are relationship attachment, well-being, life satisfaction, fear of missing out, self-esteem, personality type, depression, and anxiety.

Research Hypothesis

1. Deceptive behavior in college students' social media is predicted positively by the Big-Five personality;
2. FoMO in college students is predicted positively by the Big-Five personality;
3. College students' problematic social media use is predicted positively by Big-Five personality;

Figure 2. *Research Hypothesis model*



X_1 = *Oppenness*
 X_2 = *Conscientiousness*
 X_3 = *Extraversion*
 X_4 = *Agreeableness*
 X_5 = *Neuroticism*
 Y_1 = *Deceptive behavior*
 Y_2 = *Fear of missing out*
 Y_3 = *Problematic social media use*

METHOD

Research Design

This type of research is quantitative with a survey method. Survey methods assess people's thoughts, opinions, and feelings (Shaughnessy et al., 2012). Data were analyzed using multivariate multiple regression.

Place and time of research

This research will conduct at Universitas Pancasila, Universitas Pembangunan Jaya, and Universitas Persada Indonesia from September 2021 – to February 2022.

Population and sampling

The population is all students in DKI Jakarta. Non-probability sampling technique, namely convenience sampling, was used, and 121 students were selected as research samples in this study.

Instruments

Deceptive Behavior in Social Media

Deceptive behavior uses a scale with a scoring of 5-4-3-2-1 (very appropriate - appropriate - disagree - not appropriate – very inappropriate) adapted from the Moningka & Selviana (2020) measuring tool with factors of disguising identity with these indicators; (1) displaying photos that are not myself on social media, (2) having more than one social media account with different personal data, (3) enjoying pretending to be someone else on social media, (4) using other people's data on my social media account (to present myself better with these indicators: showing a higher social status to make it look good for others, editing photos with specific applications to make them look attractive, choosing the best photos to upload on social media so that many people like them, and showing photos full of happiness). The total valid items are nine items with a reliability coefficient of 0.73.

Big-Five Personality

Big-Five personality uses a scale with a scoring of 5-4-3-2-1 (very accurate - accurate – no idea – inaccurate - very inaccurate) which is a modification of the measurement tool Loehlin, et al. (1998) with factors such as openness with indicators of (1) being moral in reminding to maintain ethics in the media factor, (2) high curiosity about current issues; conscientiousness with indicators of (1) being reliable in disseminating important information, (2) being persistent in preventing hoax information; extraversion with indicators of (1) actively disseminating important information, (2) strictly guarding against hoax news; agreeableness with indicators of (1) sympathetic to others, (2) helpful factor, (3) friendly in inviting kindness, (4) polite in treating someone; neuroticism with indicators of (1) anxious thinking about the future of the surrounding social environment, (2) depressed because of limited communication with the environment, (3) feeling insecure when social interaction is limited, (4) jealous when someone is better at interacting with others. The total valid items are 11 items with a reliability coefficient of 0.707.

Fear of Missing Out

FoMO uses a scale with a scoring of 5-4-3-2-1 (always – often – sometimes – seldom – never), which is adapted from the measuring instrument of Kaloeti et al. (2021) with factors such as FoMO on new information and FoMO on social opportunities with factors such as fear of missing out on new information and fear of missing out on social opportunities. The total valid items are seven items with a reliability coefficient of 0.722.

Problematic Social Media Use

Problematic social media use a scale with a scoring of 5-4-3-2-1 (very appropriate – appropriate – disagree – not appropriate – very inappropriate) adapted from the Xanidis & Brignell (2016) with withdrawal and compulsion factors. The total valid items are six

items with a reliability coefficient of 0.720.

Data Analysis

Item validity will calculate using the Pearson product-moment (PPM) formula, and the reliability coefficient using the Cronbach alpha formula. It was chosen because the scoring was polytomy (5-4-3-2-1). Furthermore, descriptive analysis, multiple linear regression, and multivariate multiple regression carry out. We have published the data we use on the following link: <https://doi.org/10.6084/m9.figshare.21192835>.

RESULTS

The data are considered to be representative of a normal and homogenous population. The following are sample demographics in this study:

Table 1
Sample Demographics

No.	Profile Sample Demographics	Category	Frequency	Percentage (%)
1	Gender	Man	22	18.18
		Female	99	81.82
		Pancasila University	31	25.62
		Bina Nusantara University	9	7.44
		STT Imanuel Nusantara	9	7.44
2	University	Bhayangkara University of Jakarta	3	2.48
		Bunda Mulia University	1	0.83
		Pembangunan Jaya University	27	22.31
		Persada Indonesia University	38	31.40

The following is a correlation matrix between Big-Five personality and deceptive behavior, FoMO, and problematic social media use, which explains in Table 2:

Table 2
Matrix Correlation

	DB	O	C	E	A	N	FoMO	PM
DB	1	.337**	.168	.096	.071	.027	.235**	.110
O	.337**	1	.240**	.360**	.320**	.187*	.335**	.058
C	.168	.240**	1	.290**	.359**	.117	.107	-.016
E	.096	.360**	.290**	1	.396**	.086	.112	-.035
A	.071	.320**	.359**	.396**	1	.396**	.219*	-.165
N	.027	.187*	.117	.086	.396**	1	.356**	-.168
FoMO	.235**	.335**	.107	.112	.219*	.356**	1	-.006
PM	.110	.058	-.016	-.035	-.165	-.168	-.006	1

Based on Table 2, all correlation coefficients between the Big-Five personality dimensions are significant at $p < 0.001$. There is a positive and medium-high relationship (Cohen, 1988). The strongest correlation occurred in the dimensions of agreeableness with extraversion ($r = 0.395$), openness with extraversion ($r = 0.360$), and agreeableness with conscientiousness ($r = 0.359$). Furthermore, a multiple linear regression analysis analyzes the Big-Five personalities' predictions on deceptive behavior, fear of missing

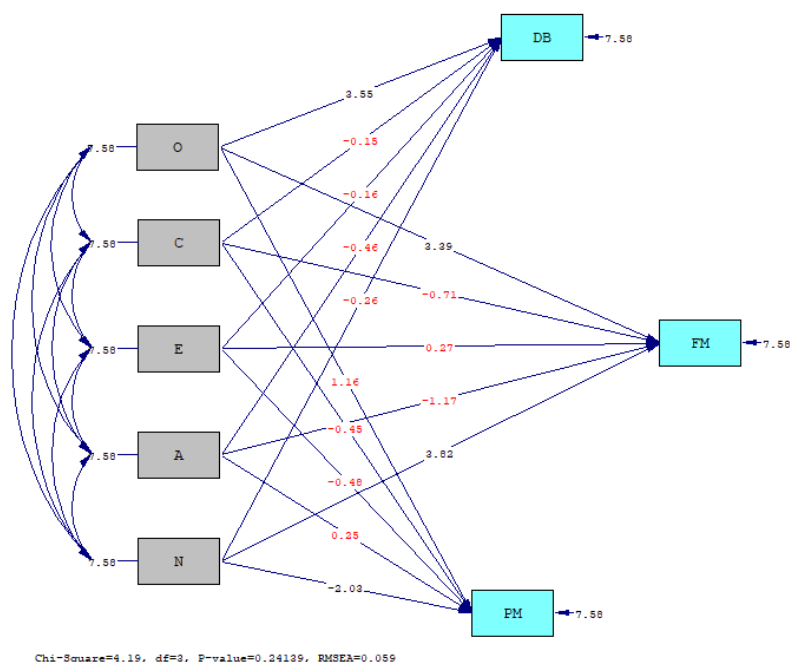
out, and problematic social media use. The results of the multiple linear regression analysis are described in Table 3 below:

Table 3*Multiple Linear Regression Analysis*

<i>Big-Five Personality Predictors:</i>	<i>Criterion: Deceptive Behavior</i>						
	<i>SE</i>	β	t_{ratio}	t_{table}	F_{ratio}	F_{table} (0,05;5;115)	R
O	0.15	0.52	3.55				
C	0.17	-0.17	-0.15				$R^2 = 0.11$
E	0.33	-0.33	-0.16	1.66	3.375	2.	Errorvar.=
A	0.19	-0.19	-0.46			29	37.03
N	0.25	-0.25	-0.26				
<i>Big-Five Personality Predictors:</i>	<i>Criterion: Fear of Missing Out</i>						
	<i>SE</i>	β	t_{ratio}	t_{table}	F_{ratio}	F_{table} (0,05;5;115)	R
O	0.11	0.36	3.39				
C	0.13	-0.089	-0.71				$R^2 = 0.22$
E	0.24	0.064	0.27	1.66	5.828	2.29	Errorvar.=
A	0.14	-0.16	-1.17				19.45
N	0.18	0.69	3.82				
<i>Big-Five Personality Predictors:</i>	<i>Criterion: Problematic Social Media Use</i>						
	<i>SE</i>	β	t_{ratio}	t_{table}	F_{ratio}	F_{table} (0,3;5;115)	R
O	0.096	0.11	1.16				
C	0.11	-0.052	-0.45				$R^2 = 0.047$
E	0.22	-0.11	-0.48	1.66	1.377	1.23	Errorvar.=
A	0.13	0.032	0.25				16.19
N	0.17	0.34	-2.03				

The analysis of Big-Five personality as predictor variables and deceptive behavior, FoMO, and problematic social media use as criterion variables follows research hypotheses previously determined. The results presented in Table 3 show that Big-Five personality explain 11% of deceptive behavior, 22% of FoMO, and 4.7% of problematic social media use. The effect of openness is most substantial with deceptive behavior ($\beta = 0.52$), followed by fear of missing out ($\beta = 0.36$) and problematic social media use ($\beta = 0.11$). FoMO ($\beta = 0.69$) is the most vital neuroticism path, followed by problematic social media use ($\beta = -0.34$). Meanwhile, conscientiousness, extraversion, and agreeableness are not significantly related to deceptive behavior, problematic social media use, and FoMO, which is indicated by $t\text{-ratio} < t\text{-table}$. This predictive relationship is illustrated in Figure 1 below:

Figure 1
Model of Multivariate Multiple Linear Regression Analysis



DISCUSSION

The first hypothesis shows a significant positive correlation of 0.11 between Big-Five personality and deceptive behavior. These findings support earlier research that shows a significant correlation between the Big-Five personality traits, dark triad traits (Jonason & Sherman, 2020), and deceived behavior (Giammarco et al., 2013). The dark triad traits and deceived behavior are the same as deceptive behavior. Furthermore, it finds that openness was a significant result of the Big-Five personality dimension as a predictor of deceptive behavior. This result indicates that open people are likelier to commit deception or fraud on social media. According to Moore (2018), someone with high openness tends to be easier to trust, so they can easily commit acts of deception. This part needs to explain how the study findings compare to those of earlier studies, be critically examined, and be connected to pertinent recent literature. Other dimensions include conscientiousness, which has one characteristic of independence; agreeableness, which has one trait of sympathy for others; neuroticism, which has one trait of nervousness; and extraversion, which is passion. We assume that the characteristics of this dimension can be a barrier for someone to take deception.

The second hypothesis explains a significant positive correlation of 0.22 between Big-Five personality traits and FoMO. Furthermore, studies by Bowden-Green et al. (2021), Rozgonjuk et al. (2021), and Sindermann et al. (2021) indicated a positive correlation between the Big-Five personality and the FoMO. In addition, in this study, from the dimensions of the Big-Five personality, the results showed that those that played a role in predicting fear of

missing out were the dimensions of openness and neuroticism. This finding means that someone who has openness (tends to be open and active) and neuroticism (easily nervous, unstable, and jealous) has a great potential to have a desire to always be online on social media based on the fear of being left behind by the latest news. Previous research also stated that neuroticism is the only significant predictive factor compared to other Big-Five personality dimensions for fear of missing out (Rozgonjuk et al., 2021). According to Bowden-Green et al. (2021) and Rozgonjuk et al. (2021), this is based on the theory of FoMO, which has a harmful influence component of "fear", which will match the basic properties of neuroticism. In comparison, Lebel's (2016) research explains that someone with high openness tends to need much information to own the FOMO on the information. Neuroticism has one of the characteristics of being insecure; this insecurity drives a person to be not FoMO.

The third hypothesis explains a correlation between problematic social media use and Big-Five personality of $r = 0.047$. In addition, neuroticism was the only dimension in the Big-Five personality that significantly predicted problematic social media use. These results align with the research conducted by Bowden-Green et al. (2021), which states that someone with a high level of neuroticism will increase the potential for harmful behavior resulting from excessive use of social media (problematic social media use). This possibility occurs due to anxiety (founded in neuroticism), which can later lead to negative behavior in one's social media use (Verduyn et al., 2015; Bowden-Green et al., 2021). An example of negative behavior is being unable to distinguish the natural world from the virtual world. Similar to the reason neuroticism is not FoMO because neuroticism has one of the characteristics of being insecure. This insecurity is what drives a person to avoid problematic social media use.

CONCLUSION

Based on the finding of the data analysis and theoretical study described in the previous section, it can conclude that the Big-Five personality factors are associated significantly with deceptive behavior, FoMO, and problematic social media use. In addition, another finding in this study is that the Big-Five personality dimensions have a significant correlation in predicting deceptive behavior, namely the openness dimension, and the Big-Five personality dimension in predicting FoMO, namely the openness and neuroticism dimensions. Big-Five personality dimensions significantly correlate in predicting problematic social media use, namely the neuroticism dimension.

The results show that the Big-Five personality predicts deceptive behavior, meaning anyone can perform the behavior. Moreover, this study's findings show that individuals with an openness personality tend to be highly deceptive. In addition, individuals with an openness personality are also terrified of missing up-to-date information or are called fear of missing out. Clinical psychologists can use these findings to predict deceptive behavior and fear of missing out. It is also hoped that this finding in universities, especially for lecturers with a psychology background, can direct students to avoid the fear of missing out.

Individuals with neuroticism tend to experience high fear of missing out so that someone can take excessive actions against social media, which can become problematic social media use. According to the research's findings, individuals with neuroticism tend to abuse social media heavily. These findings are also helpful as information and knowledge for clinical psychologists and other fields of psychology related to personality and social media problems.

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ETHICAL STATEMENT

This research permit has been issued by the Research and Community Service Institute of Atmajaya Catholic University with the letter number: 0007M/III/PPPE.PM.10.05/09/2022.

REFERENCES

- Abel, J. P., Buff, C. L., & Burr, S. A. (2016). Social Media and the Fear of Missing Out: Scale Development and Assessment. *Journal of Business & Economics Research (JBER)*, 14(1), 33–44. <https://doi.org/10.19030/jber.v14i1.9554>
- Adler, F. (1956). The Value Concept in Sociology. *American Journal of Sociology*. <https://doi.org/10.1086/222004>
- Ahn, J., & Jung, Y. (2016). The common sense of dependence on smartphone: A comparison between digital natives and digital immigrants. *New Media and Society*, 18(7), 1236–1256. <https://doi.org/10.1177/1461444814554902>
- Aimeur, E., Hage, H., & Amri, S. (2018). The scourge of online deception in social networks. *Proceedings - 2018 International Conference on Computational Science and Computational Intelligence, CSCI 2018*, 1266–1271. <https://doi.org/10.1109/CSCI46756.2018.00244>
- Alharbi, A., Dong, H., Yi, X., Tari, Z., & Khalil, I. (2021). Social Media Identity Deception Detection. *ACM Computing Surveys*, 54(3), 1–35. <https://doi.org/10.1145/3446372>
- Allport, G. W., & Ross, J. M. (1967). Personal religious orientation and prejudice. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/h0021212>
- Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior*, 49, 111–119. <https://doi.org/10.1016/j.chb.2015.02.057>
- Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). Loneliness and Internet use. *Computers in Human Behavior*, 19(1), 71–80. [https://doi.org/10.1016/S0747-5632\(02\)00014-6](https://doi.org/10.1016/S0747-5632(02)00014-6)

- Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors*, *64*, 287–293. <https://doi.org/10.1016/j.addbeh.2016.03.006>
- Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/0022-3514.74.6.1531>
- Bahri, L., Carminati, B., & Ferrari, E. (2018). Knowledge-based approaches for identity management in online social networks. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, *8*(5), 1–10. <https://doi.org/10.1002/widm.1260>
- Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., Andreassen, C. S., & Demetrovics, Z. (2017). Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE*, *12*(1), 10–14. <https://doi.org/10.1371/journal.pone.0169839>
- Barry, C. T., Sidoti, C. L., Briggs, S. M., Reiter, S. R., & Lindsey, R. A. (2017). Adolescent social media use and mental health from adolescent and parent perspectives. *Journal of Adolescence*, *61*, 1–11. <https://doi.org/10.1016/j.adolescence.2017.08.005>
- Bloemen, N., & De Coninck, D. (2020). Social Media and Fear of Missing Out in Adolescents: The Role of Family Characteristics. *Social Media and Society*, *6*(4). <https://doi.org/10.1177/2056305120965517>
- Bolger, N., & Zuckerman, A. (1995). A Framework for Studying Personality in the Stress Process. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037/0022-3514.69.5.890>
- Bowden-Green, T., Hinds, J., & Joinson, A. (2021). Understanding neuroticism and social media: A systematic review. *Personality and Individual Differences*, *168*(June 2020), 110344. <https://doi.org/10.1016/j.paid.2020.110344>
- Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. M. (2017). Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior*, *66*, 248–255. <https://doi.org/10.1016/j.chb.2016.09.055>
- Bulas, J. (2015). *33 Social Media Facts and Statistics You Absolutely Need to Know*.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (Second Edition). Lawrence Erlbaum Associates, Inc.
- Colquitt, J. A., Lepine, J. A., & Wesson, M. (2012). Organizational Behavior: Improving Performance and Commitment in the Workplace 3rd Edition. In *McGraw-Hill Education; 3 edition*.
- Dalvi-Esfahani, M., Niknafs, A., Alaedini, Z., Barati Ahmadabadi, H., Kuss, D. J., & Ramayah, T. (2021). Social Media Addiction and Empathy: Moderating impact

- of personality traits among high school students. *Telematics and Informatics*, 57, 101516. <https://doi.org/10.1016/j.tele.2020.101516>
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*, 55(1), 34–43. <https://doi.org/10.1037/0003-066X.55.1.34>
- Ehrenberg, A., Juckes, S., White, K. M., & Walsh, S. P. (2008). Personality and self-esteem as predictors of young people's technology use. *Cyberpsychology and Behavior*, 11(6), 739–741. <https://doi.org/10.1089/cpb.2008.0030>
- Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2016). Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. *Computers in Human Behavior*, 63, 509–516. <https://doi.org/10.1016/j.chb.2016.05.079>
- Feist, J., & Feist, G. J. (2013). Theories of Personality Seventh Edition. *Journal of Chemical Information and Modeling*.
- Frei, R. L., & McDaniel, M. A. (1998). Validity of customer service measures in personnel selection: A review of criterion and construct evidence. In *Human Performance*. https://doi.org/10.1207/s15327043hup1101_1
- Funder, D. C. (2012). Accurate Personality Judgment. *Current Directions in Psychological Science*. <https://doi.org/10.1177/0963721412445309>
- Galanxhi, H., & Nah, F. F. H. (2007). Deception in cyberspace: A comparison of text-only vs. avatar-supported medium. *International Journal of Human Computer Studies*, 65(9), 770–783. <https://doi.org/10.1016/j.ijhcs.2007.04.005>
- Giammarco, E. A., Atkinson, B., Baughman, H. M., Veselka, L., & Vernon, P. A. (2013). The relation between antisocial personality and the perceived ability to deceive. *Personality and Individual Differences*, 54(2), 246–250. <https://doi.org/10.1016/j.paid.2012.09.004>
- Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International Journal of Psychology*, 49(3), 141–157. <https://doi.org/10.1002/ijop.12034>
- Graziano, W. G., Jensen-Campbell, L. A., & Hair, E. C. (1996). Perceiving interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology*. <https://doi.org/10.1037//0022-3514.70.4.820>
- Griffiths, M. D., Kuss, D. J., & Demetrovics, Z. (2014). Social Networking Addiction: An Overview of Preliminary Findings. In *Behavioral Addictions: Criteria, Evidence, and Treatment* (pp. 119–141). Elsevier. <https://doi.org/10.1016/B978-0-12-407724-9.00006-9>
- Hamburger, Y. A., & Ben-Artzi, E. (2000). Relationship between extraversion and neuroticism and the different uses of the Internet. *Computers in Human Behavior*, 16(4), 441–449. [https://doi.org/10.1016/S0747-5632\(00\)00017-0](https://doi.org/10.1016/S0747-5632(00)00017-0)

- Heritage, O., Wealth, G., Limited, M., Limited, S., Achievements, O., Analysis, C. S., C, O. T., Victoria, O., Wang, F., Chich-jen, S., Mei-ling, T., Tan, M., Hee, T. F., Piaw, C. Y., Change, O., Study, C., Nanjundeswaras, T. S., Swamy, D. R., Spinks, N., ... Horner, M. (2014). Management of Leadership Style : An Approach to Organizational Performance and Effectiveness in Nigeria. *Leadership Quarterly*, 1(2), 1–5. <https://doi.org/10.1017/CBO9781107415324.004>
- Hirsh, J. B. (2010). Personality and environmental concern. *Journal of Environmental Psychology*, 30(2), 245–248. <https://doi.org/10.1016/j.jenvp.2010.01.004>
- Hirsh, J. B., & Dolderman, D. (2007). Personality predictors of Consumerism and Environmentalism: A preliminary study. *Personality and Individual Differences*, 43(6), 1583–1593. <https://doi.org/10.1016/j.paid.2007.04.015>
- Hormes, J. M. (2016). Under the influence of Facebook? Excess use of social networking sites and drinking motives, consequences, and attitudes in college students. *Journal of Behavioral Addictions*, 5(1), 122–129. <https://doi.org/10.1556/2006.5.2016.007>
- Hough, L. M., Eaton, N. K., Dunnette, M. D., Kamp, J. D., & McCloy, R. A. (1990). Criterion-Related Validities of Personality Constructs and the Effect of Response Distortion on Those Validities. *Journal of Applied Psychology*. <https://doi.org/10.1037/0021-9010.75.5.581>
- Howard, M. S., & Medway, F. J. (2004). Adolescents' attachment and coping with stress. *Psychology in the Schools*, 41(3), 391–402. <https://doi.org/10.1002/pits.10167>
- Huang, C. (2020). A meta-analysis of the problematic social media use and mental health. *International Journal of Social Psychiatry*, 2016. <https://doi.org/10.1177/0020764020978434>
- Jonason, P. K., & Sherman, R. A. (2020). Personality and the perception of situations: The Big Five and Dark Triad traits. *Personality and Individual Differences*, 163(April), 110081. <https://doi.org/10.1016/j.paid.2020.110081>
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*. <https://doi.org/10.1037/0021-9010.87.4.765>
- Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*. <https://doi.org/10.1111/j.1744-6570.1999.tb00174.x>
- Kaloeti, D. V. S., Kurnia S, A., & Tahamata, V. M. (2021). Validation and psychometric properties of the Indonesian version of the Fear of Missing Out Scale in adolescents. *Psicologia: Reflexao e Critica*, 34(1). <https://doi.org/10.1186/s41155-021-00181-0>
- Kemp, S. (2021). *Digital 2021: the latest insights into the “state of digital.”*
- Kernberg, O. (1967). Borderline Personality Organization. *Journal of the American*

- Psychoanalytic Association*. <https://doi.org/10.1177/000306516701500309>
- Khan, M. L. (2017). Social media engagement: What motivates user participation and consumption on YouTube? *Computers in Human Behavior*, 66, 236–247. <https://doi.org/10.1016/j.chb.2016.09.024>
- Kim, J. H., Seo, M., & David, P. (2015). Alleviating depression only to become problematic mobile phone users: Can face-to-face communication be the antidote? *Computers in Human Behavior*, 51(PA), 440–447. <https://doi.org/10.1016/j.chb.2015.05.030>
- Kircaburun, K., Alhabash, S., Tosuntaş, Ş. B., & Griffiths, M. D. (2020). Uses and Gratifications of Problematic Social Media Use Among University Students: a Simultaneous Examination of the Big Five of Personality Traits, Social Media Platforms, and Social Media Use Motives. *International Journal of Mental Health and Addiction*, 18(3), 525–547. <https://doi.org/10.1007/s11469-018-9940-6>
- Kircaburun, K., Jonason, P. K., & Griffiths, M. D. (2018). The Dark Tetrad traits and problematic social media use: The mediating role of cyberbullying and cyberstalking. *Personality and Individual Differences*, 135(June), 264–269. <https://doi.org/10.1016/j.paid.2018.07.034>
- Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3). <https://doi.org/10.3390/ijerph14030311>
- Le Pine, J. A., Colquitt, J. A., & Erez, A. (2000). Adaptability to changing task contexts: Effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology*. <https://doi.org/10.1111/j.1744-6570.2000.tb00214.x>
- Lebel, R. D. (2016). Overcoming the fear factor: How perceptions of supervisor openness lead employees to speak up when fearing external threat. *Organizational Behavior and Human Decision Processes*, 135, 10–21. <https://doi.org/10.1016/j.obhdp.2016.05.001>
- Lee, E. W. J., Ho, S. S., & Lwin, M. O. (2017). Explicating problematic social network sites use: A review of concepts, theoretical frameworks, and future directions for communication theorizing. *New Media and Society*, 19(2), 308–326. <https://doi.org/10.1177/1461444816671891>
- Liu, Y., & Zheng, L. (2020). Relationships between the Big Five, narcissistic personality traits, and online sexual activities. *Personality and Individual Differences*, 152(August 2019), 109593. <https://doi.org/10.1016/j.paid.2019.109593>
- Loehlin, J. C., McCrae, R. R., Costa Jr, P. T., & John, O. P. (1998). Heritabilities of common and measure-specific components of the Big Five personality factors. *Journal of research in personality*, 32(4), 431–453. <https://doi.org/10.1006/jrpe.1998.2225>
- Lu, H. Y. (2008). Sensation-seeking, Internet dependency, and online interpersonal

- deception. *Cyberpsychology and Behavior*, 11(2), 227–231. <https://doi.org/10.1089/cpb.2007.0053>
- Mackinnon, D. W. (1962). The nature and nurture of creative talent. *American Psychologist*. <https://doi.org/10.1037/h0046541>
- Mahajan-Cusack, L. (2016). The impact of social media on local government transparency and citizen engagement. *Unpublished Phd Thesis, State University of New Jersey, New Jersey, USA, May*, 166. <https://rucore.libraries.rutgers.edu/rutgers-lib/50539/>
- Manasijević, D., Živković, D., Arsić, S., & Milošević, I. (2016). Exploring students' purposes of usage and educational usage of Facebook. *Computers in Human Behavior*, 60, 441–450. <https://doi.org/10.1016/j.chb.2016.02.087>
- Milfont, T. L., & Duckitt, J. (2004). The structure of environmental attitudes: A first- and second-order confirmatory factor analysis. *Journal of Environmental Psychology*, 24(3), 289–303. <https://doi.org/10.1016/j.jenvp.2004.09.001>
- Milyavskaya, M., Saffran, M., Hope, N., & Koestner, R. (2018). Fear of missing out: prevalence, dynamics, and consequences of experiencing FOMO. *Motivation and Emotion*, 42(5), 725–737. <https://doi.org/10.1007/s11031-018-9683-5>
- Moningka, C. (2017). Self comparison: The self in Digital World. In M. F. Wright (Ed.), *Identity, Sexuality, and Relationships among Emerging Adults in the Digital Age* (1st ed., p. 18026). IGI Global. <https://doi.org/https://doi.org/10.4018/978-1-5225-1856-3>
- Moningka, C., & Ratih Eminiari, P. (2020). *The Effect of Self-Comparison in Social Media on Self Esteem*. 494(Iciap 2019), 383–389. <https://doi.org/10.2991/assehr.k.201125.032>
- Moningka, C., & Selviana, M. (2020). Pengembangan Skala Deception Behavior in Social Media. *Jurnal Psikologi Ulayat*, 8, 110–122. <https://doi.org/10.24854/jpu143>
- Moore, S. (2018). Towards a Sociology of Institutional Transparency: Openness, Deception and the Problem of Public Trust. *Sociology*, 52(2), 416–430. <https://doi.org/10.1177/0038038516686530>
- Muench, F., Hayes, M., Kuerbis, A., & Shao, S. (2015). The independent relationship between trouble controlling Facebook use, time spent on the site and distress. *Journal of Behavioral Addictions*, 4(3), 163–169. <https://doi.org/10.1556/2006.4.2015.013>
- Müller, S. M., Wegmann, E., Stolze, D., & Brand, M. (2020). Maximizing social outcomes? Social zapping and fear of missing out mediate the effects of maximization and procrastination on problematic social networks use. *Computers in Human Behavior*, 107, 106296. <https://doi.org/10.1016/j.chb.2020.106296>
- Nocentini, A., Menesini, E., & Pluess, M. (2018). The Personality Trait of Environmental

- Sensitivity Predicts Children's Positive Response to School-Based Antibullying Intervention. *Clinical Psychological Science*, 6(6), 848–859. <https://doi.org/10.1177/2167702618782194>
- Odaci, H., & Çikrikçi, Ö. (2014). Problematic internet use in terms of gender, attachment styles and subjective well-being in university students. *Computers in Human Behavior*, 32, 61–66. <https://doi.org/10.1016/j.chb.2013.11.019>
- Przybylski, A. K., Murayama, K., Dehaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, 29(4), 1841–1848. <https://doi.org/10.1016/j.chb.2013.02.014>
- Riyanto, G. . (2021, February). Jumlah pengguna internet di Indonesia tembus 202 juta. *Kompas.Com*.
- Ross, C., Orr, E. S., Sisic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computers in Human Behavior*, 25(2), 578–586. <https://doi.org/10.1016/j.chb.2008.12.024>
- Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2021). Individual differences in Fear of Missing Out (FoMO): Age, gender, and the Big Five personality trait domains, facets, and items. *Personality and Individual Differences*, 171(June 2020), 110546. <https://doi.org/10.1016/j.paid.2020.110546>
- Ryan, T., Chester, A., Reece, J., & Xenos, S. (2014). The uses and abuses of facebook: A review of facebook addiction. *Journal of Behavioral Addictions*, 3(3), 133–148. <https://doi.org/10.1556/JBA.3.2014.016>
- Sendurur, P., Sendurur, E., & Yilmaz, R. (2015). Examination of the social network sites usage patterns of pre-service teachers. *Computers in Human Behavior*, 51(PA), 188–194. <https://doi.org/10.1016/j.chb.2015.04.052>
- Shaughnessy, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2012). *Research Methods in Psychology: Vol. Tenth Edit* (Tenth). McGraw-Hill Education.
- Sheldon, P., Antony, M. G., & Sykes, B. (2021). Predictors of Problematic Social Media Use: Personality and Life-Position Indicators. *Psychological Reports*, 124(3), 1110–1133. <https://doi.org/10.1177/0033294120934706>
- Sheldon, P., & Bryant, K. (2016). Instagram: Motives for its use and relationship to narcissism and contextual age. *Computers in Human Behavior*, 58, 89–97. <https://doi.org/10.1016/j.chb.2015.12.059>
- Sindermann, C., Yang, H., Liu, T., Elhai, J. D., & Montag, C. (2021). WeChat—Its Problematic Use and Relations with the Big Five Personality Traits and Fear of Missing Out. *Journal of Technology in Behavioral Science*, 6(2), 397–405. <https://doi.org/10.1007/s41347-020-00179-y>
- Song, L., Zhang, W., Liao, S. S. Y., & Kwok, R. C. W. (2012). A critical analysis of the state-of-the-art on automated detection of deceptive behavior in social media. *Proceedings - Pacific Asia Conference on Information Systems, PACIS 2012*.

- Steers, M. L. N., Wickham, R. E., & Acitelli, L. K. (2014). Seeing everyone else's highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social and Clinical Psychology, 33*(8), 701–731. <https://doi.org/10.1521/jscp.2014.33.8.701>
- Tandon, A., Dhir, A., Talwar, S., Kaur, P., & Mäntymäki, M. (2021). Dark consequences of social media-induced fear of missing out (FoMO): Social media stalking, comparisons, and fatigue. *Technological Forecasting and Social Change, 171*(June). <https://doi.org/10.1016/j.techfore.2021.120931>
- Tsikerdekis, M. (2018). Real-Time Identity-Deception Detection Techniques for Social Media: Optimizations and Challenges. *IEEE Internet Computing, 22*(5), 35–45. <https://doi.org/10.1109/MIC.2017.265102442>
- Van Buren, A., & Cooley, E. L. (2002). Attachment styles, view of self and negative affect. *North American Journal of Psychology, 4*(3), 417–430. <https://psycnet.apa.org/record/2002-11560-012>
- van Rooij, A. J., Lo Coco, G., De Marez, L., Franchina, V., & Abeeel, M. Vanden. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among Flemish adolescents. *International Journal of Environmental Research and Public Health, 15*(10). <https://doi.org/10.3390/ijerph15102319>
- Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J., Ybarra, O., Jonides, J., & Kross, E. (2015). Passive facebook usage undermines affective well-being: Experimental and longitudinal evidence. *Journal of Experimental Psychology: General, 144*(2), 480–488. <https://doi.org/10.1037/xge0000057>
- Wang, G. A., Member, S., Chen, H., Xu, J. J., & Atabakhsh, H. (2006). Deception : An Adaptive Detection Algorithm. *Techniques, 36*(5), 988–999.
- Warkentin, D., Woodworth, M., Hancock, J. T., & Cormier, N. (2010). Warrants and deception in computer mediated communication. *Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW, 9–12*. <https://doi.org/10.1145/1718918.1718922>
- Wegmann, E., Brandtner, A., & Brand, M. (2021). Perceived Strain Due to COVID-19-Related Restrictions Mediates the Effect of Social Needs and Fear of Missing Out on the Risk of a Problematic Use of Social Networks. *Frontiers in Psychiatry, 12*(April), 1–12. <https://doi.org/10.3389/fpsy.2021.623099>
- Wesley Schultz, P. (2001). The structure of environmental concern: Concern for self, other people, and the biosphere. *Journal of Environmental Psychology, 21*(4), 327–339. <https://doi.org/10.1006/jev.2001.0227>
- Williams, L., Ashford-Smith, S., Cobban, L., Fitzsimmons, R., Sukhatme, V., & Hunter, S. C. (2019). Does your partner's personality affect your health? Actor and partner effects of the Big Five personality traits. *Personality and Individual Differences, 149*(June), 231–234. <https://doi.org/10.1016/j.paid.2019.06.004>
- Wiseman, M., & Bogner, F. X. (2003). A higher-order model of ecological values and its

- relationship to personality. *Personality and Individual Differences*, 34(5), 783–794. [https://doi.org/10.1016/S0191-8869\(02\)00071-5](https://doi.org/10.1016/S0191-8869(02)00071-5)
- Wu, A. M. S., Cheung, V. I., Ku, L., & Hung, E. P. W. (2013). Psychological risk factors of addiction to social networking sites among Chinese smartphone users. *Journal of Behavioral Addictions*, 2(3), 160–166. <https://doi.org/10.1556/JBA.2.2013.006>
- Xanidis, N., & Brignell, C. M. (2016). The association between the use of social network sites, sleep quality and cognitive function during the day. *Computers in Human Behavior*, 55, 121–126. <https://doi.org/10.1016/j.chb.2015.09.004>
- Yamak, Z., Saunier, J., & Vercouter, L. (2017). Automatic detection of multiple account deception in social media. *Web Intelligence*, 15(3), 219–231. <https://doi.org/10.3233/WEB-170363>
- Yildiz Durak, H., & Seferoğlu, S. S. (2019). Modeling of variables related to problematic social media usage: Social desirability tendency example. *Scandinavian Journal of Psychology*, 60(3), 277–288. <https://doi.org/10.1111/sjop.12530>