

**The Effect of Neuroticism and Loneliness to SNS Addiction
on Social Media Users**

Indah Mulyani¹
Wahyu Rahardjo²
Ajeng Furida Citra³
Meta Damariyanti⁴
Maizar Saputra⁵
Aprilia Maharani Ayuningsih⁶
Marcia Martha Siahay⁷

^{1,2,3,4,5,6,7}Faculty of Psychology, Gunadarma University, Indonesia

Adresses for Corespondence:

Faculty of Psychology Gunadarma University
Campus D, Jl. Margonda Raya No 100, Depok, 16424, West Java, Indonesia
indah_mulyani@staff.gunadarma.ac.id

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^{1,2,3,4,5,6,7}Faculty of Psychology, Gunadarma University, Indonesia

Abstract.

The using of social media becomes easier as increase as smartphone users in Indonesia today. It triggers physically and psychologically dependencies among social media users considering the using of social media daily. The aim of this research is to investigate the effect of neuroticism and loneliness to SNS (Social Networking Site) addiction on social media users. Around 235 participants were analyzed and showed that research model developed in path analysis has goodness of fit (Chi-Square = 6.090; probability = 0.637; $p > 0.05$). It means SNS addiction could be explained by neuroticism and loneliness among social media users.

Keywords: Neuroticism, Loneliness, SNS addiction

Introduction

Addiction behavior is not always tied into drugs or other substances usage such as alcohol. Griffiths (2005) is resistant to his statements about some potential addictive behaviors including behaviors that do not involve the drugs usage at all, including gambling addiction behavior, overeating, sex, exercise, playing video games, love, internet use, and work. In Indonesia, the most content that accessed via the internet is social media (social network sites) which is 97.4% of internet users in Indonesia (APJII, 2016).

The excessive use of social media which potentially involved in addiction behavior, seems to be unraised into the discussion of clinical problems. Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (2013) mentions that internet gaming disorder

becomes a tentative disorder and still needs some research in the future. DSM-V also notes that internet gaming disorder is a special disorder which is exclude of internet usage for business and professional content, entertainment and social content, and sexual content. It shows that social media addiction has not been a part of mental disorders, although some evidence suggests the opposite. Behavioral addiction to social media ia a part of cyber-relationship addiction, because the primary purpose and motivation of social networks usage is to build and maintain both online and non-online relationships (Kuss & Griffiths, 2011).

Social network sites which is installed on smartphones have long been positively interpreted by teenagers because they are capable to accommodate variations of communication needs and supporting lifestyles today (Pradeep & Sriram, 2016). Social network sites is web-based service that is allows individuals to construct a public or semi public profile within a bounded system, articulate a list of other users with whom the people share the connection, and also view and traverse the list of connections and those made by others within the system (Boyd & Ellison, 2007). In everyday life, early adult groups are also very familiar to social network sites usage (Pittman & Reich, 2016), especially for social, lifestyle, and work purposes. Many people are depend on their smartphone because they involvement on the social network site. So in the end, the intensity of user involvement with social network site is developed into addiction (Salehan & Negahban, 2013).

The use of addiction terminology related to the use of social network site often become a conversation among experts. Many experts suggested to use problematic use

instead addiction because the effect is not as heavy as other additions that appear in DSM (Lee, Ho, & Lwin, 2017). However, there is no meaning difference basically, so many experts still use the word addiction rather than problematic use in social network sites usage. Social network site addiction is an addiction behavior with symptoms such as (1) prioritizing the interest to use social network site, (2) there is a condition where the use of social network site can modify the user's mood, (3) decreasing tolerance of social network site usage, 4) the emergence of withdrawal behavior when using social network sites, (5) the relapse of social network site addiction, and (6) the emergence of conflicts with the surrounding environment related to the use of social network sites (Kuss & Griffiths, 2017).

Social network site addiction is a common problem around younger generation and it become adults concern today as it can lead individuals into other forms of addiction behaviors such as eating and shopping behavior on the internet (Tang & Koh, 2017). Zheng and Lee (2016) states that basically, there are three conflict categorizations that possibly meet by individuals with excessive social network site such as technology-family, technology-personal, and technology work. This research gives explanation that the side effect of the social network site excessive usability has widespread consequences. Furthermore, the other findings show that social media addiction is also related to mental health among young people so further research is needed on the factors that influence social media addiction behavior (Jung et al., 2017; Pantic, 2014; Singleton et al., 2016).

Before social network sites become a part of the global lifestyle, instant messaging has embarked on a real-time internet-based communication pattern. Communication patterns that occur without face-to-face are helping shy people to tie relationships with

others and reduce their own loneliness (Bardi & Brady, 2010). So it makes sense, that lonely people because of feelings of shame in interacting or other reasons are helped by communication technology. Research on social media addiction usually involves only one type of social media, such as facebook. Ryan, Chester, Reece, and Xenos (2014) state their finding regarding Facebook addiction. The findings show that individuals with low psychosocial wellbeing, such as loneliness, anxiety or depression, are motivated to use Facebook to find social support or to pass time. The lift in mood that this provides (also known as mood alteration) leads to deficient self-regulation, possibly due to negative reinforcement.

Loneliness is one of the psychosocial topics that associated with technology excessive use by humans (Darcin et al., 2016). Loneliness is often found in people who are shy or less ability to develop well interaction (Odaci & Celik, 2013). The use of social network sites can reduce the lonely feeling in the real world as it accommodates individuals to develop cyber-related orientations (Darcin et al., 2016). The higher loneliness, the longer duration individual social network sites involvement duration that they have (Lemieux, Lajoie, & Trainor, 2013). Loneliness was also found take affect into microblogging addiction as another form of communication that matches social network sites (Ndasauka et al., 2016).

The relationship between personality factors and social network sites addiction has been well established in prior research. Studies are often based on the five-factor model of personality emphasizing the following main dimensions: neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. Neuroticism manifested by the tendency to experience unpleasant emotions (anxiety, depression, fear) and it is

positively correlated with SNS addiction (Andreassen, 2015). Neuroticism is assumed to be positively related to the use of social media because it can be used as a method of seeking support (Tang et al., 2016). A recent survey in a large occupational sample found that neuroticism was positively related to private social network site usage during working hours (Andreassen, Thorseim, & Pallesen, 2014). Social network site usage during working hours show one of social network site addiction characteristic which is emergence of conflicts with the surrounding environment related to the use of social network sites.

Problematic social network site usage which has same meaning with social network site addiction is significantly and positively related to neuroticism, while negatively associated to agreeableness. However, problematic use of social network site is not related to conscientiousness, openness to experience and extraversion. It shows that neuroticism and agreeableness have been proven to be good predictors of problematic social network site usage (Giota & Kleftaras, 2013).

Neuroticism was not associated with increased levels of social network site use. Similar to agreeableness, previous research has demonstrated neuroticism to be significantly associated with time spent on the Internet. However, it found that neuroticism was only a predictor of internet usage for the specific purpose of seeking information (rather than socializing). It is likely that because of their insecure and anxious nature, neurotic young adults may not like the idea of posting photos and information about themselves on an social network site and instead prefer to use the internet for other functions (Wilson, Fornasier, & White, 2010). Similar with Cock et al. (2014) who state that people with high scores on neuroticism are less likely to share personal identifying

information on the social network site and make less use of private messages. Also, compulsive social network site users score higher on feelings of loneliness and depression. (Cock et al., 2014; Hong, Huang, Lin, & Chiu, 2014).

Method

Participants in this study were 235 people who mostly came from Jakarta, Bogor, Depok, Tangerang, and Bekasi. Most participants were women ($N = 167$) and the rest were men ($N = 68$). Most participants were college students ($N = 170$), employees ($N = 58$), and working college students ($N = 7$).

One of social network sites that almost everyone has is Facebook. So the SNS is measured based on the concept developed by Andreassen et al. (2012) with Bergen Facebook Addiction Scale. This scale consists of 18 items for six core features of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse (example : *How often during the last year have you Ignored your partner, family members, or friends because of Facebook?*). Higher scores indicate greater social network site addiction. The reliability score is 0.914.

Loneliness is measured by Revised-UCLA Loneliness Scale (Hughes, Waite, & Cacioppo, 2004). This scale is revised version of UCLA Loneliness Scale which is consists of 20 items. There are 10 items favorable (example : *I feel left out*) and 10 item unfavorable (example : *I am not feel alone*). Higher scores indicate greater lonely feeling. The reliability score is 0.895.

Items for neuroticism was taken from Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). This scale is a short version of Big-Five Personality Inventory which is consists of 10 item, 2 items for each personality type. On this scale, Gosling, Rentfrow, and Swann (2003) stated neuroticism as emotional stability. Emotional stability is the reversion of neuroticism. Emotional stability from the Big Five is defined as the tendency to be stable, self-reliant, and adaptable to new situations (Goldberg, 1993). This is means that the higher score of emotional stability, the lower neuroticism is depicted. The items are “*I see myself as: Anxious, easily upset*”, and “*I see myself as: Calm, emotionally stable*”. The reliability score is 0.565.

Result

The correlation between variables shows that social network site addiction only correlates with neuroticism, loneliness, and the duration using social network site. For more details, can be seen at Table 1.

Table 1
Correlation Between Age, Neuroticism, Loneliness, SNS Addiction, and Year(s) Using the Social Network Sites

	1	2	3	4	5
1					
2	0.63				
3	-0.092	-0.356**			
4	-0.092	-0.372**	0.348**		
5	0.169*	-0.058	-0.003	0.339**	
<i>M</i>	21.82	8.13	37.26	45.28	2.34
<i>SD</i>	3.13	2.47	9.74	12.29	1.11

Note: 1 = age, 2 = neuroticism, 3 = loneliness, 4 = social network site addiction, 5 = year(s) using the social network sites
(*) = $p < .05$, (**) = $p < .01$

The results also showed no difference in almost all variables based on sex and job status. However, there is also a difference in loneliness based on sex, in which male

participants tend to feel more loneliness than female participants. A clearer description is shown in Table 2.

Table 2
Comparison Between Variables Based on Sex and Job Status

	1 (N = 167)	2 (N = 68)	t-score	3 (N = 170)	4 (N = 7)	5 (N = 58)	F score
Neuroticism	8.25 (2.50)	8.08 (2.47)	.ns	8.04 (2.37)	9.29 (3.20)	8.26 (2.67)	.ns
Loneliness	35.49 (8.83)	41.63 (10.53)	-4.569 ($p < .05$)	37.55 (10.08)	43.29 (10.85)	35.69 (8.29)	.ns
SNS addiction	45.40 (10.79)	44.99 (15.46)	.ns	45.85 (11.98)	48.00 (5.03)	43.26 (13.65)	.ns

Note: 1 = male, 2 = female, 3 = college students, 4 = working college students, 5 = employee

Based on the first empirical modification model, it has goodness of fit with a score of Chi-Square of 18.361 and the probability of 0.303 ($p > .05$). More detailed explanation is shown in Figure 1. Nevertheless, in the first model, the modification indices ask the loneliness to be correlated to the last two dimensions of social network site addiction. This result shows that the items on the dimensions of withdrawal and conflict required by items on the loneliness scale, or statistic implies that it has the same construct. The next step that can be done is to abort the dimensions of withdrawal and conflict. These two dimensions are also two of the three weakest dimensions in explaining social network site addiction variable.

The result then shows that the second empirical modification model also has a goodness of fit with a good Chi-Square score of 6.090 and the probability of 0.637 ($p > .05$). This second model is better because there are no covariance problems between different constructs as encountered in the first modification model. In the second model, it appears

that neuroticism and loneliness explain social network sites in college students and employees. A more complete explanation is shown in Figure 2, Table 3, and Table 4.

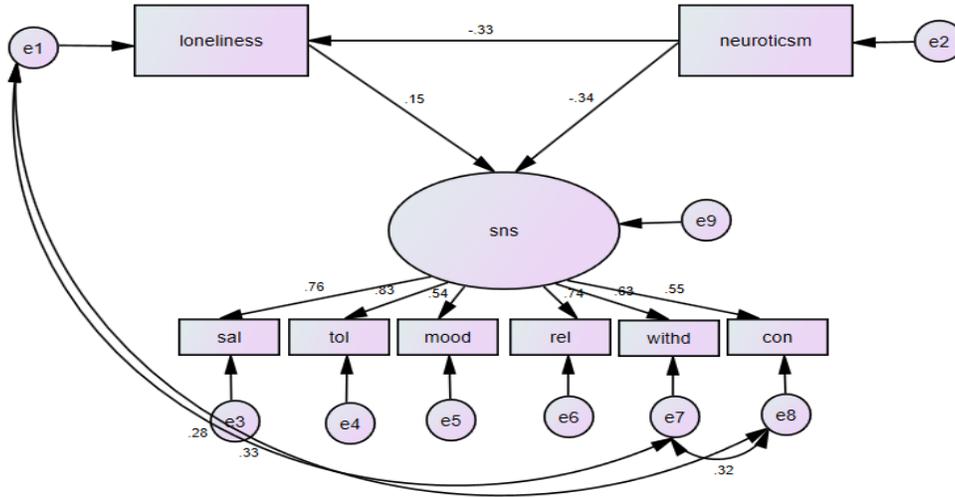


Figure 1
First Modification Empirical Model

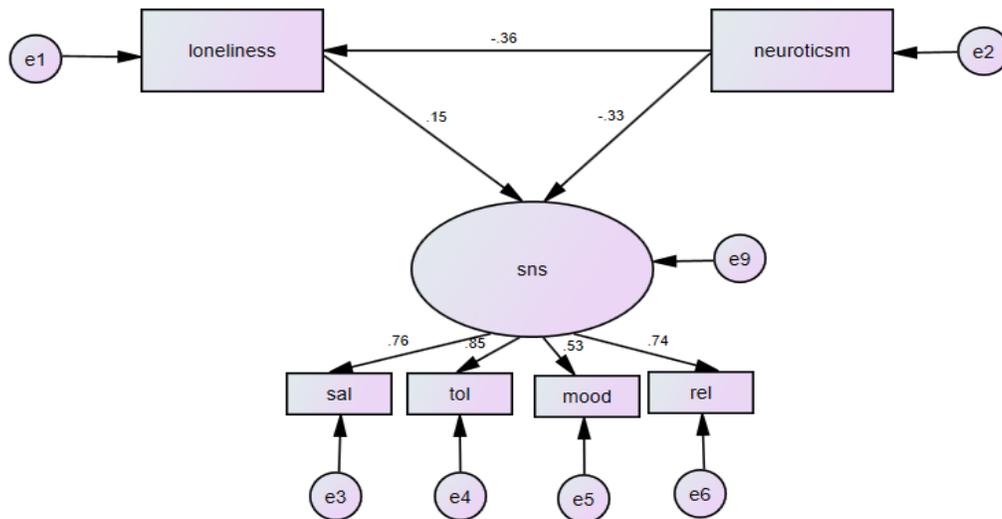


Figure 2
Second Modification Empirical Model

Table 3
Description of Regression Weight for Each Variable

			Estimate	S.E.	C.R.	P	Label
loneliness	<---	neuroticism	-1.400	.240	-5.825	***	
sns	<---	loneliness	.031	.014	2.140	.032	
sns	<---	neuroticism	-.261	.058	-4.517	***	
rel	<---	sns	1.093	.103	10.658	***	
tol	<---	sns	1.142	.098	11.651	***	
mood	<---	sns	.846	.111	7.621	***	
sal	<---	sns	1.000				

Table 4
Regression for Each Variable

			Estimate
loneliness	<---	neuroticism	-.356
sns	<---	loneliness	.152
sns	<---	neuroticism	-.330
rel	<---	sns	.737
tol	<---	sns	.847
mood	<---	sns	.531
sal	<---	sns	.763

Discussion

The finding of this study shows that there is a tendency in which male participants feel more lonely compare to female participants. This is in line with the finding of previous study of Nicolaisen and Thorsen (2014). In some cases, the need for popular becomes a source of loneliness for men. Meanwhile, proximity to parents can also be a source of loneliness for men (Maes, Klimstra, van den Noortgate, & Goossens, 2015). Associated with the use of social networking sites, loneliness appears in people who have a need for having lot of friends (Dumas, Maxwell-Smith, Davis, & Giulietti, 2017). That is, the use of social networking sites is perceived to help individuals to have many more friends online, something that may not be achieved in the offline.

The other result of this study is quite interesting considering that only loneliness that has an influence on social network site addiction. Similar findings were found in Fujimori et al. (2015) which states that loneliness has a positive influence on social network site addiction in both men and women.

Meanwhile it can be seen that the social network site that is installed as an application in the smartphone has many advantages such as the ease of building communication, although separated by distance and time zone, and various games applications that has strong element of recreation for the smartphone user. For people who do not get warmth in social relationships in the offline world, social network sites can be a means of gaining intimacy and meeting the needs of having friends. Even in relationships with parents or close relatives, the finding of Gentzler, Oberhauser, Westerma, and Nadorff (2011) explains that adolescents who communicate over social network sites have higher loneliness than those who communicate with having a call for each other. Several other studies have suggested that there is a possibility that people who experience problems with excessive use of the internet and social network sites because of lack of warmth in the family, and good relationships with parents can reduce the intensity of engagement with the social network site because of the loneliness experienced (Ang, Chong, Chye, & Huan, 2012; Lee, Ho, & Lwin, 2017a).

Popular social network sites like Facebook, Instagram, and Path offer many advantages in meeting the needs of friendship and psychological recreation for the people. These eases will be very helpful for people who experience loneliness in the offline world. The finding of Shettar, Karkal, Kakunje, Mendonsa and Chandran (2017) reveal that

Facebook as a popular social network site for communicating, powerful entertainment elements, and superior in information exchange, can accommodate the loneliness felt by the users.

The involvement with social network sites helps user to develop some cyber-related interactions (Darcin et al., 2016). This happens because the user does not have good enough social skills to establish a warm relationship in offline world (Bonetti, Campbell, & Gilmore, 2010; Kim, LaRose, & Peng, 2009). The user then strives to meet their psychological needs related to social relations, self-disclosure, and identity exploration using social network sites (Bonetti, & Campbell, & Gilmore, 2010). Therefore, the fulfillment needs of social relations become fulfilled so that the perceived loneliness will decrease because the user feels connected psychologically with their friends who are listed in the online world (Deters & Mehl, 2012). Cyber-related interaction itself does not actually show real social relationships. The number of friends whom the user has in the online does not necessarily describe the interpersonal proximity. Probably, online friends are only a few in number. This is supported by the findings of Lemieux, Lajoie, and Trainor (2013) which states that the number of close social network site friends is negatively and statistically significant related to social loneliness.

Most participants in this study had at least one or more social network sites. The two most frequently mentioned social network sites owned by most participants of this research are Facebook and Instagram. This finding is certainly not surprising because both social network sites are much accommodating the needs of communication by combining elements of text, images, and video. The study of Pittman and Reich (2016) suggests that

this type of social network site provides greater space for the creation of intimacy and reduces user-perceived loneliness compared to text-based social network sites such as Twitter.

Another study by Lee, Noh, and Koo (2013) states that the use of social network sites is helpful in increasing well-being in users who feel lonely. Thus, the frequency of interactions and relationships that arise in the use of social network sites can encourage lonely people to engage more intensely with social network sites. In some contexts, the higher the loneliness that is felt, the more intense and addict the user becomes involved in the social network site (Kim, LaRose, & Peng, 2009).

The influence of loneliness on social network site gives the meaning that personal or internal elements have a role, that is not less important, than the external elements. However, loneliness is always in the context of social relations. This means that loneliness itself is related to whether people get the need for intimacy and affiliation from others. This finding can be explained by Bandura's triadic model of the social cognitive model that essentially, social network site addiction is influenced simultaneously by personal and environmental factors (Lee, Ho & Lwin, 2017).

Blackwell, Leaman, Tramposch, Osborne, and Liss (2017) study suggests that the use of social network sites can be predicted by neuroticism. This study also mentions that social network site addiction is triggered by the fear of missing out that occurs because of the tendency of the existing neuroticism. The findings of this research also explain that the less experienced neuroticism or the more stable the emotions possessed by a person will be the lower the tendency of individuals involved in social network site.

On the other side, Correa, Hinsley, and de Zuniga (2010) explains that emotional stability is important for someone to be able to control himself to avoid internet addiction. Pornsakulvanich's study (2017) for example, found that individuals with stable emotions tend to spend less time using social network sites and prefer to spend their time on other things that are considered more useful. Problematic internet use, especially for social network sites, are becoming increasingly complex when someone has an unstable emotional tendency (Karl, Peluchette, & Schlaegel, 2010). In other words, emotional instability brings the individual into a more intense involvement in the use of social network site.

Several studies explain that in understanding the internet and social network site addiction should consider the cultural elements because it shows different results where a specific social network site addiction appears in each participant from a different culture (Chen & Nath, 2016; Montag et al., 2015). This is important because the various cultures perceive the context of the use of technology, economic benefits and psychological technology differently (Chen & Nath, 2016). This provides further insight that the findings of previous research in the highly-individualized West people may be quite different when compared to the conditions of participants in collective culture in the East such as in Indonesia.

There are several limitations in this study. First, this research does not involve external factors that can affect social network site addiction. Second, the participants involved are general participants, it would be better if the participants for future research become more specific who experience certain psychological problems such as stress, or

depression. Thirdly, some earlier studies have suggested the existence of cultural elements as factors that can influence the independent variables or mediators, so it is better in subsequent research that cultural elements are involved.

Conclusion

The findings of this study extend the previous findings that both loneliness and neuroticism play important role in the overlap of individual involvement on the internet and social network sites. It is important for the individual to pay attention to personality factors and develop good emotional stability to avoid involvement with many deviant behaviors. Further study by considering the various variables on the cause of social network sites should be developed to obtain a more comprehensive picture of social network site addiction.

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Declaration of Interest

The authors report no conflicts of interest in this work.

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