

SNS Use, Depression Symptoms and the Moderating Role of Attachment Amongst Emerging Adults

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ABSTRACT

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Accumulating research suggests the positive relationship between Social Network Sites (SNS) use and depression symptoms. However, it is still unclear how the relationship between SNS use and depression develops and what are the contributing factors. The aim of the current study was to investigate the relationship between SNS use, symptoms of depression and attachment styles. Additionally, the study tested the moderation effect of insecure attachment on the relationship between SNS use and depression symptoms. A total of 266 participants aged 18-25 years old, students of a public university in Penang, Malaysia completed an online survey containing SNS use self-report, Bergen's Social Media Addiction Scale (BSMAS) and Relationship Experiences in Close Relationships – Revised Questionnaire (ECR-R). Findings suggested a significant relationship between SNS use and depression symptoms. Additionally, findings showed that insecure attachment, characterized by attachment anxiety and attachment avoidance, was significantly associated with depression symptoms. It is observed that attachment anxiety was only marginally significant in moderating the relationship between SNS use and depression symptoms. Theoretically, this study suggested the role of attachment as a possible antecedent of depression symptoms, as well as a potential moderator in the relationship between SNS use and depression symptoms. Findings of this study highlight the importance of establishing and nurturing a secure caretaker-child bond which could promote more mental resilience and serve as a buffer to negative SNS use effects.

Contribution/Originality: This study contributes to the existing literature with the investigation of the moderating role of one's attachment style in the association between SNS use and depression symptoms. Study findings suggested possible utility of one's attachment style in explaining the link between SNS use and its negative effects on individuals.

1. Introduction

Smartphones have become an inseparable part of our life ([Anderson & Jiang, 2018](#); [O'Dea, 2020](#)); however, this has also raised a concern. There is a wealth of data suggesting increasing rates of anxiety and depression among adolescents and emerging adults ([Goodwin et al., 2020](#)). Arguably, such increase may be partially influenced by the increasing availability of smartphones, time spent on them, and a wide range of new Social Network Sites (SNS) that have flourished during the same time period worldwide. More research findings are reporting significant associations between excessive SNS use and depression ([Best et al., 2014](#); [Hoare et al., 2016](#)).

Despite significant associations between excessive use of SNS and depression symptoms, the directionality of these variables is not fully understood. Various studies suggested that individuals who experience loneliness, low self-esteem, and low levels of life satisfaction were likely to use SNS as a channel or way to escape negative emotions and stress ([Carbonell & Panova, 2016](#); [Marino et al., 2016](#)). Emerging adults may be more susceptible to use SNS excessively as compared to other age groups as they have more free time and lack of parental or organizational control ([Turel & Qahri-Saremi, 2016](#)). Also, unlike other age groups, emerging adults often use a variety of platforms ([Smith & Anderson, 2018](#)). [Arnett \(2004\)](#) reported that emerging adults (18-29 years old) may experience more daily stress and depression symptoms due to their transitional stage of life.

Though there seems to be a positive bidirectional relationship between excessive SNS use and depression symptoms, it is unclear why some individuals who use SNS excessively do not develop them ([Lin et al., 2020](#)). It is possible that the association between excessive SNS use and depression symptoms is not “absolute” and other factors may help explain this relationship. One such factor could be attachment.

[Bowlby \(1973\)](#) suggested that attachment acts as an “internal working model” that defines one’s experiences in close relationships throughout their lifespan. Adult attachment is often viewed in terms of two continuums – attachment anxiety, which represents a positive or negative model of self, and attachment avoidance, which represents the model of others ([Brennan et al., 1998](#); [Fraley et al., 2015](#)). Additionally, secure attachment is characterized by low attachment avoidance and anxiety, while insecure attachment is characterized by either high attachment anxiety or high attachment avoidance or both.

Attachment was suggested to play a role in one’s social adjustment and mental resilience. For example, insecure attachment has been considered a general vulnerability to mental disorders ([Mikulincer & Shaver, 2012](#)). A rich body of research has suggested the association between insecure attachment and depression (for examples, see [Muris et al., 2001](#); [Williams & Riskind, 2004](#)). A study argued that insecure attachment is associated with cognitive vulnerability, and the cognitive vulnerability in turn mediated the relationship between attachment and depression symptoms ([Williams & Riskind, 2004](#)). Another study observed that insecure attachment increased susceptibility in suicide ideation by affecting one’s emotion coping mechanisms ([Rohani & Esmaeili, 2020](#)). Conversely, secure attachment seemed to be associated with general resilience to stress, anxiety, and depression in later stages of life ([Jakobsen et al., 2011](#)).

Individuals with insecure attachment may be more vulnerable to negative effects of SNS use compared to those with secure attachment. For example, [Przybylski et al. \(2013\)](#) suggested that individuals with unmet basic psychological needs may be more susceptible to develop a sense of fear of missing out (FOMO). This notion was supported by a study which suggested that individuals with insecure attachment may experience a stronger sense of FOMO than individuals with secure attachment ([Hart et al., 2015](#)). Studies also suggested that individuals with anxious attachment have higher sensitivity to feedback on SNS such as comments and likes ([Flynn et al., 2018](#)). Individuals with insecure attachment may have an underlying prevalence of unsatisfied psychological needs due to difficulties in establishing and maintaining healthy social connections which is often a characteristic of anxious and avoidant attachments. Individuals with insecure attachment tend to have a habit of rumination about personal negative experiences which may include situations perceived as threats, grief, rejections and negative self-comparisons ([Dagan et al., 2018](#)). Thus, such individuals may be more prone to experience symptoms of depression triggered by interactions, content and feedback on SNS use.

Studies investigating attachment in the context of SNS use and psychological wellbeing, such as depression symptoms, are scarce. One such study suggested that insecure attachment predicted low psychological wellbeing measured by Patient Health Questionnaire (PHQ-9) and problematic SNS use among 717 Facebook users ([Young et al., 2020](#)). The study also reported a significant moderating effect of avoidant attachment on mental wellbeing while attachment anxiety was not a significant moderator ([Young et al., 2020](#)). Another study suggested that the relationship between problematic SNS use and reported mental health was significantly higher ($p < .001$) for individuals with high anxious attachment or low avoidant attachment ([Flynn et al., 2018](#)).

Therefore, more research investigating if attachment acts as a moderator of the relationship between excessive SNS use and psychological wellbeing, such as depression symptoms specifically, is needed to shed light on possible individual differences in excessive SNS use and its consequences. The current study seeks to test whether insecure attachment styles predict symptoms of depression among young adults. Additionally, based on the relationship amongst the three variables, this study seeks to identify if attachment style has a moderating link between SNS use and symptoms of depression. Specifically, we predict that attachment anxiety and attachment avoidance would moderate the relationship between SNS use and symptoms of depression because of the higher susceptibility of individuals with insecure attachment towards negative-self comparison, rumination, sensitivity to feedback and stress induced by SNS use as compared to individuals with secure attachment.

2. Methodology

2.1. Study design and participants

This is a quantitative cross-sectional study of emerging adults in Malaysia. Based on the estimation in G-Power (version 3.1.9.7) application for a linear multiple regression, an estimated sample size of 125 participants was sufficient to achieve a power of .80 with the effect size of $f^2 = .10$, and $\alpha = .05$. A total of 266 participants were recruited among students of a local public university in Penang, Malaysia and from various social media groups (Facebook, WhatsApp, Instagram, and Telegram) between July and November 2021. The study required participants to have a grade C or an equivalent in English

language national high school examination, users of social media, age between 18 and 25, not diagnosed with a mental health disorder in the past year, and not have a disability. In the final analysis, 66 participants were excluded as they did not meet the inclusion criteria. The remaining 200 participants in the final analyses reported a mean age of $M = 21.9$ ($SD = 2.15$). Participants completed an online survey on a Google Form website. Variables measured were SNS use, depression symptoms and attachment.

2.2. Materials

2.2.1. SNS Use

Participants reported their SNS use patterns by answering “How much time do you use SNS daily?” They selected one of 4 intervals of SNS use, which are “up to 1 hour”, “1 hour – 2 hours 30 minutes” “2 hours 30 minutes – 4 hours” and “more than 4 hours”. Participants completed the Bergen’s Social Media Addiction Scale (BSMAS) consisted of six items such as “I spend a lot of time thinking about social media” or “I feel an urge to use social media more and more”. Participants evaluated each item on a scale from 0 being “very rarely” to 5 being “very often”. The criterion indicating excessive SNS use using the BSMAS was a score of 19 and above (Bányai et al., 2017).

2.2.2. Symptoms of Depression

Depression symptoms were measured by Depression, Anxiety and Stress Scale 21 (DASS-21) (Lovibond & Lovibond, 1995). The DASS scale consisted of 21 items. Participants rated each statement on how it applied to them over the past week from “Did not apply to me at all” (0) to “Applied to me very much or most of the time” (4) (Lovibond & Lovibond, 1995).

2.2.3. Attachment Styles

Attachment styles were measured by Relationship Experiences in Close Relationships – Revised Questionnaire (ECR-R). The ECR-R questionnaire consisted of 36 items rated on a 7-point Likert scale with 1 being “strongly disagree” and 7 being “strongly agree”. In this scale, 18 items measure attachment anxiety and another 18 items measure attachment avoidance. Each of the attachment dimensions was calculated by averaging total scores for each participant. In the current study, insecure attachment was operationalized as high attachment anxiety (score ≥ 4) and high or low attachment avoidance (score < 4) or low attachment anxiety (score < 4) but high attachment avoidance (score ≥ 4), while secure attachment is operationalized as low attachment anxiety (score < 4) and low attachment avoidance (score < 4) (Fraley et al., 2011).

2.3. Study procedure

The recruitment was conducted through campus announcements among students, as well as postings on social media channels such as Facebook and WhatsApp groups. Interested participants contacted the study researcher and were given a link or a QR code to the research. Materials described above on Google Forms service. Those who agreed and gave consent to participate on the first page of the survey then completed the demographics section, which included the item reporting their daily SNS use duration. Participants then completed the BSMAS, DASS-21 and ECR-R. Lastly, participants were debriefed and thanked for their participation.

3. Results

3.1. SNS use

Participants were categorized into four groups based on their self-report current daily SNS use: “up to 1 hour” - 7.5% (15/200), “1 hour - 2 hours 30 minutes” - 24% (48/200), “2 hours 30 minutes - 4 hours” - 27% (54/200) and “more than 4 hours” - 41.5% (83/200).

Mean score of Bergen’s Social Media Addiction Scale (BSMAS) in the current sample was $M = 18.41$ ($SD = 5.2$). Mean depression scores measured by DASS-21 and BSMAS scores of participants in the four categories of current SNS use are presented in [Table 1](#). There was an increasing trend of scores in both BSMAS and depression symptoms with the increase in SNS use duration. Mean BSMAS scores were significantly different across categories of SNS use [$F(3,196) = 14.49$, $p < .01$]. Tukey’s post-hoc analyses revealed that the mean value of the BSMAS scores were significantly different between “up to 1h” and “1h – 2h30min” groups ($p < .001$, 95% CI [-9.39, -2.13]), “up to 1h” and “2h30min – 4h” groups ($p = .001$, 95% CI [-8.81, -1.64]) and “up to 1h” and “more than 4h” groups ($p < .001$, 95% CI [-11.67, -4.78]). The scores were also significantly different between “1h – 2h30min” and “more than 4h” groups ($p = .024$, 95% CI [-4.69, -0.24]) and “2h30min – 4h” and “more than 4h” groups ($p = .002$, 95% CI [-5.14, -0.85]). Considering a mean score of $M = 19$ and above as a threshold for excessive SNS use, 41.5% ($n = 83/200$) of study participants reported “more than 4h” of SNS use and could be considered as excessive users ([Bányai et al., 2017](#)).

Table 1: Mean and SD scores of BSMAS and Depression Symptoms Scores Across Four Categories of SNS Use

Variable	Up to 1hr		1hr – 2hr 30min		2hr 30min – 4hr		More than 4hr	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
BSMAS	12.2	5.37	17.9	4.27	17.4	4.44	20.4	5.05
DASS-21								
Depression score	13.6	11.64	13.7	9.2	15.3	10.18	18.6	11.15

Note: Scores as measured by BSMA and DASS-21 for the whole sample ($N=200$)

3.2. SNS use, Attachment and Depression symptoms

One-way ANOVA revealed significant differences in depression scores between categories of SNS use [$F(3,196) = 2.83$, $p = .04$]. A linear regression was conducted to test whether SNS use and both anxious and avoidant attachments predict levels of depression (See [Table 2](#)). Findings suggested that all three variables significantly predicted symptoms of depression [$F(3, 196) = 27.449$, $p < .001$], with $R^2 = .296$. Each extra depression level score was associated with .17 points on SNS use scale ($B = .171$). Also, each extra depression level score was associated with .41 points on attachment anxiety scale ($B = .411$) and .22 ($B = .221$) points on avoidance scale.

A moderation analysis model 2 in Hayes PROCESS version 4 was conducted to test whether attachment anxiety and attachment avoidance moderated the relationship between SNS use and levels of depression. The relationship between SNS use and symptoms of depression was significant ($b = 1.90$, $p = .004$, 95% CI [4.64, 17.17]). Attachment anxiety had a significant relationship with depression symptoms levels ($b = 3.50$, $t = 6.77$, $p < .001$, 95% CI [2.48, 4.52]). However, the interaction effect was only

marginally significant ($b = 1.01$, $t = 1.94$, $p = .054$, 95% CI $[-.02, 2.04]$). Attachment avoidance had a significant relationship with depression symptoms levels ($b = 2.41$, $t = 3.27$, $p = .001$, 95% CI $[.95, 3.87]$), while the interaction effect was not significant ($b = -.91$, $t = -1.26$, $p = .054$, 95% CI $[-2.33, .51]$).

Table 2: Linear Regression Coefficients for SNS Use, Attachment Anxiety, Attachment avoidance and Depression Symptoms

Variable	Unstandardized coefficients		t	Sig.
	B	Std. Error		
(Constant)	-13.583	3.916	-3.46	.001
SNS use	1.854	.664	2.7948	.006
Attachment anxiety	3.412	.517	6.600	.000
Attachment avoidance	2.612	.738	3.540	.001

4. Discussion

4.1. SNS use, Attachment and Depression symptoms

As predicted, there was a significant and positive relationship between SNS use and depression symptoms. This is consistent with the findings of previous studies on emerging adults (Shannon et al., 2022). This group faces pressure from adjustment to changes in social, academic, and career status; possible relocation; and other challenges specific to this life stage. Individuals may “escape” negative affect in real life by immersing themselves in SNS. The online world and social media may have become one of the ways for such individuals to escape from real problems and relieve psychological stress and negative emotions (Marino et al., 2016). Lack of timely intervention, proper guidance, and low self-control may contribute to the formation of this vicious cycle of behavior. Moreover, individuals susceptible to stress and symptoms of anxiety and depression are more vulnerable to the effects of SNS use, ranging from negative thoughts to biased self-perception fostered by content presented online (Lup et al., 2015).

4.2. Attachment and Depression Symptoms

Findings from the current study added support to the growing literature that attachment anxiety and attachment avoidance significantly predicted depression levels measured by DASS-21. These findings suggested that feeling anxious and unsafe, which are characteristics of anxious attachment (Hazan & Shaver, 1987), or feeling detached from others, a characteristic of avoidant attachment (Hazan & Shaver, 1987), may result in feelings of loneliness and lack of a sense of belonging to the world. This sense of loneliness and disconnectedness could lead to having a weak support system and unhealthy interpersonal interactions, eventually leading to depression symptoms. In the early attachment theory, Bowlby (1973) stated that attachment, or “inner working models”, set the stage for self-efficacy beliefs, self-perception, and development of distress emotion regulation strategies. For example, Malik et al. (2015) suggested that impaired emotion regulation strategies may explain the link between insecure attachment and depression symptoms. Individuals with insecure attachment appeared less likely to seek support at times of distress in contrast to securely attached individuals (Dujardin et al., 2016). Another underlying explanation of the association between insecure attachment and depression is the development of maladaptive cognition. For instance, Williams and Riskind (2004) suggested that insecure attachment, which is

maintained throughout the life span may act as an antecedent of maladaptive cognitive styles that are related to the development of internalizing disorders such as depression. Such individuals are more susceptible to stress during interpersonal interactions (Morley & Moran, 2011). Verhees et al. (2021) also suggested that individuals who were high in anxious attachment focused more on situations producing negative affect and less on situations of positive affect as compared to other individuals which led to depression symptoms. The same is also observed among individuals high in attachment avoidance, whose lack of focus on positive affect was associated with depressing symptoms (Verhees et al., 2021).

4.3. Moderating Effect of Attachment on SNS Use and Symptoms of Depression

Although excessive SNS use seems to be relatively common among emerging adults, not all excessive SNS users develop depression symptoms (Seabrook, Kern & Rickard, 2016). The current study proposed that attachment may be the factor that could explain such individual differences. However, attachment did not show notable moderating effects on the relationship between SNS use and symptoms of depression. Studies suggest that individuals with high attachment anxiety may use SNS as a platform to seek a “safe” way to establish social connections (Nitzburg & Fraber, 2013). The marginally significant moderation effect of attachment anxiety on SNS use and depression symptoms observed in the current study may suggest that by spending more time in online communication, such individuals are simultaneously exposed to negative news, cyberbullying, negative self-comparison, and fear of missing out. This could eventually lead to more experiences of negative emotions including symptoms of depression. Moreover, individuals with pre-existing negative affect including symptoms of depression may find themselves stuck in a vicious cycle of using SNS as an avenue of escapism and further compounding and increasing their negative affect (Frison & Eggermont, 2016). On the contrary, individuals high in attachment avoidance do not seek to build connections in real life as well as online, thus, they may be less susceptible to negative interactions online (Yaakobi & Goldenberg, 2014). Furthermore, attachment avoidance is characterized by a model of “positive self, negative others”, which suggests they may be prone to lower negative self-comparison or fear of missing out in relation to connecting with others. There are studies suggesting that attachment anxiety (and not attachment avoidance) is associated with poor emotional regulation, which in turn may lead to depression symptoms (Malik et al., 2014; Brenning & Braet, 2013). Individuals high in attachment anxiety very likely worry and feel anxious about the presence and quality of close relationships, as well as their worth as an individual to the attachment figures representing those close relationships.

The findings of this study highlight the role of attachment style as a potential factor for developing mental resilience and emotional regulation which in turn could protect an individual from negative effects of SNS use such as depression symptoms. In this fast paced digitalization era where individuals are exposed to smartphones at a very young age, they are often unprepared to effectively manage SNS use or handle the negative effects of it. Parenting that promotes the establishment of a healthy caretaker-child bond and a secure attachment as a result may have an enduring positive effect on individuals that could protect one from negative mental states and even psychological disorders (Jakobsen et al., 2011).

5. Limitations and future directions

The current study has a few limitations that may hinder the generalizability of the findings. First, gender of participants was not controlled for as the information was not captured in the demographic survey. A meta-analysis study concluded that in many studies, males of different age categories used SNS more excessively than females (Baloglu et al., 2020). There could have been gender differences in attachment styles and this was not included in the regression analyses of the current study.

Second, the unreliability of self-report measures evaluating SNS use (Junco, 2013; Lee et al., 2017; Scharnow, 2016). In the current study, participants self-reported their current SNS use based on general estimates, which might be subjected to bias. Junco (2013) claimed that participants tend to under- or even overestimate their SNS use due to one's inability to objectively estimate the amount of time spent on such a captivating activity. This study attempted to reduce the margin of error by offering time intervals rather than asking participants to report number of minutes. Future studies should use objective measures such as a mobile application that records screen time or use of any specific application on one's smartphone.

Findings of the current study might have been affected by changes in lifestyle as well as mental well-being during COVID-19 pandemic. Many individuals were forced to shift to remote study and work following pandemic waves and movement restriction orders. This might have led to different patterns and duration of SNS use; for example, checking COVID-19 related news frequently throughout the day. As the pandemic caused job loss, salary reduction, illness of family members, higher divorce and suicide rates, individuals might have experienced more stress in general, compared to pre-pandemic, which may have increased SNS use as a method of escapism.

6. Conclusion

Findings from the current study revealed that SNS use and insecure attachment styles significantly predicted depression symptoms. Additionally, they suggested a possible significance of attachment moderating the relationship between SNS use and depression symptoms, as findings in the current study indicated a marginally significant moderation effect of avoidant attachment style on depression symptoms. The role of attachment should be studied more extensively in the field of cyber and media research to understand if and how this could be a protective factor for negative consequences of problematic SNS use.

Ethics Approval and Consent to Participate

The study was conducted in accordance with research ethics guidelines and approved by the Human Research Ethics Committee of Universiti Sains Malaysia with a protocol code USM/JEPeM/21030255.

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Conflict of Interest

The authors declare no conflict of interest.

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