Social Networking Sites and Empathy Among Adolescents in Indonesia

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ABSTRACT

Social networking sites (SNSs) have increased in number and popularity for more than a decade especially for adolescents. Previous studies conducted in western countries have stated that using SNSs could exert positive and negative effects on various aspects of psychosocial development, one of which is empathy. The relationship between SNSs use and empathy has remained unclear, especially in Indonesia. Therefore, the present study aims to determine the relationship between SNSs and empathy on adolescents in Indonesia. This study recruited 1,638 students from junior and senior high school with ages ranging from 12 to 19 years randomly across several provinces in Indonesia. Data collection was carried out by administering online questionnaires to participants consists of informed consent, demographic data, intensity of SNSs use during the past week with the Social Networking Time Use Scale (SONTUS) method, and questions about empathy with the Adolescent Measure of Empathy and Sympathy (AMES) method. Our result showed that higher frequency of using SNSs significantly positive correlated with cognitive empathy, affective empathy, and sympathy among adolescents in Indonesia, which is similar to previous studies, so this may be a general pattern in adolescence. The connections made by SNSs is believed to increase feelings of humanity (sympathy) and also empathy to other humans.

1. Introduction

Social networking sites (SNSs) have increased in number and popularity for more than a decade. They provide social network applications that can connect individuals through the Internet. A lot of people today are very interested in interacting with digital media technology, especially today's youth, who carry out their social interactions online. Various motives for using internet-based social networking sites in adolescents, one of which is staying in touch and establishing communication with their offline friends (Bryant *et al.* 2006). Adolescents aged 14 until 18 years are more likely to use SNS, such as Facebook, Twitter, YouTube, Line, WhatsApp, and Instagram. Particularly, Facebook, Instagram, and YouTube are social settings where multimedia content can be uploaded and watched. The activities reported by

adolescents are spending the majority of the time checking and responding to comments written to them when using SNSs (Espinoza and Juvonen 2011).

Few studies explore the influence of social networking sites use on the psychosocial of adolescents (Vossen and Valkenburg 2016). Certain studies demonstrate that social media use could positively influence social competence, self-esteem, and friendship closeness (Apaolaza *et al.* 2013; Koutamanis *et al.* 2013; Valkenburg and Peter 2011). Conversely, other studies report the adverse effects of social networking sites on self-esteem or mood (Blomfield and Barber 2014; Van der Aa *et al.* 2009). Moreover, a small association may exist between increased life satisfaction and lower social media use (Orben *et al.* 2019). Another psychological factor that may be influenced by social networking sites is empathy.

Empathy is the ability to temporarily or permanently place oneself in the affective (emotional experience of another) or cognitive (another

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individual's perspective) shoes or to attempt to understand the experience of living in the shoes of another person on a general level (Elliott *et al.* 2011). In addition, there are other components that usually accompany empathy, namely sympathy. Sympathy refers to feelings of concern about distressful events in other people's life or feelings of humanity (Clark 2010). The development of social behavior in adolescents can be influenced by empathy (Vossen *et al.* 2015). In peer interaction, empathy is often also associated as social glue (Cohen and Wheelwright 2004). During adolescence, one of the major developmental goals is to create intimate and meaningful relationships with peers. Empathy helps one to relate to other people, and learning to empathize is essential (Vossen and Valkenburg 2016). Empathy is also an essential factor in helping adolescents refrain from aggressive and delinquent behavior (Jolliffe and Farrington 2011).

Several studies have explored the association between social networking sites and empathy. Social networking sites use can have a positive influence on empathy behavior. For example, Vossen and Valkenburg (2016) demonstrated that adolescents' increased ability to share and understand the emotions of others is in line with their frequent use of social networking sites. Additionally, Alloway *et al.* (2014) found that chatting on Facebook was positively associated with empathic concern. This result was consistent with those of studies conducted among African-American males, which found that Internet usage frequently related to racial issues was linked to improvement in empathic social skills after one year (Lozada and Tynes 2017). Another study revealed that going online had very small negative impacts relationships with empathy in the real world (Carrier *et al.* 2015). Approximately 60% of the studies that investigated the social and psychological correlations between empathy and prosocial responses among adolescents were mainly conducted in the United States, Italy, the Netherlands, and China, where 40% were conducted in the United States (Silke *et al.* 2018). According to Vosen and Valkenburg (2016), empathy is a crucial part of psychosocial development that has received relatively little attention in social media studies. In addition, few studies explore the association between SNSs and empathy (Vossen and Valkenburg 2016), especially in Indonesia. To address this research gap, the current study aims to determine whether a relationship exists between time spent on social networks and the empathy of adolescents in Indonesia.

2. Materials and Methods

2.1. Participants and Procedure

The study was approved by the Ethics Committee of the IPB University (No: 364/IT3.KEPMSM-IPB/SK/2021), and methods were carried out in accordance with the approved ethical approval. All respondents were informed about the study, and all provided informed consent before taking part in this study. This research was conducted from August 2021 to June 2022 by filling out questionnaires on the Google Forms. Before completing the questionnaire, informed consent was obtained from the participants and principal of their school as the delegate of their parents. In addition, the study provided a briefing with explanations and information about this research through an online meeting application. The participants were allowed to clarify the meaning of certain questions, but we did not influence their responses to the items. Lastly, they were assured of the strict confidentiality of their responses.

This study recruited students from junior high school (912 students) and senior high school (726 students) with ages ranging from 12 to 19 years randomly across several provinces in Indonesia. According to Hurlock (1953), that the adolescence starts from 12 to 19 years. The final number of participants is 1,638 with ages ranging from 12 to 19 years (*M* age = 15.80, *SD* = 1.60) and includes 629 male students (*M* age = 15.70, *SD* = 1.63) and 1,009 female students (*M* age = 15.86, *SD* = 1.57).

2.2. Measures
2.2.1. Demographic Data

Demographic data contain demographic information on name, year of birth, sex, level of education, allowance, cost of Internet per month, and reasons for using SNSs.

2.2.2. Social Networking Time Use Scale

The Social Networking Time Use Scale (SONTUS) is commonly used to measure the intensity of SNS use in research conducted by Olufadi (2016). This questionnaire is the newest and most reliable method for measuring time spent on SNSs in general. It consists of 29 items grouped under five factors, namely, (1) relaxation and free periods, (2) academic-related periods, (3) public-place–related use, (4) stress-related periods, and (5) motives for use. The items of the SONTUS were designed in an 11-point Likert-type scale format. Those component

scores are summed to produce a global score that ranges from 5 to 23. Global score ranges of 5–9, 10–14, 15–19, and >19 denote low, average, high, and extremely high levels of SNS use, respectively (Table 2; Olufadi 2016). The questionnaire was translated into Indonesian and distributed in that language.

2.2.2. Adolescent Measure of Empathy and Sympathy (AMES)

AMES is made up of 12 statements that assess affective empathy (four items), cognitive empathy (four items), and sympathy (four items) (Vossen *et al.* 2015). For each statement, the participants indicated the frequency of occurrence of a behavior using five-point Likert-type scale (1 = never, 2 = almost never, 3 = sometimes, 4 = often, and 5 = always).

The three subscales' mean scores were computed (Table 3). High scores indicate high levels of affective empathy, cognitive empathy, and sympathy. The questionnaire was translated into Indonesian and distributed in that language.

2.3. Data Analysis

For descriptive statistics and correlation analysis, the RStudio software version 4.0.3 (R Core Team 2020) was used. To assess the correlation between empathy as the response variable with SNS use and demographic data as the predictor variables, the study applied the Censored Regression Model (censReg) analysis.

3. Results

3.1. Descriptive Statistics

Demographic data such as educational level, allowance, cost of internet per month respondents, the reason for using SNSs has no statistically significant correlation with cognitive empathy, affective empathy, and sympathy (CensReg analysis, p-value>0.05; Table 1).

The results of the SONTUS indicated that the majority of the participants were average SNS users (48.35%), where female students displayed higher levels of SNS use (61.6%) than the male students (38.4%; Table 2).

The degrees of compassion and empathy of the participants were evaluated using their AMES scores, which were analyzed separately according to gender using descriptive statistics. Scores for sympathy were higher than those for cognitive empathy and affective empathy for the female and male participants (Table 2).

Furthermore, the female students exhibited higher levels of SNS use (Table 2) and scored higher on affective empathy, cognitive empathy, and sympathy than the male students (Table 2).

Table 1. Correlation of demographic data and Adolescent Measure of Empathy and Sympathy (AMES)

Demographic data	Cognitive empathy	Affective empathy	Sympathy
Educational level	P = .759	P = .4307	P = .853
Allowance	P = .264	P = .567	P = .4668
Cost of internet per month	P = .0855	P = .4875	P = .4569
Reason for using SNS	P = .944	P = .4989	P = .1095

Table 2. Results of the social networking time use scale

Category	N*		Total N*	Percentage (%)		Total Percentage (%)
	Male	Female		Male	Female	
Low level of SNS use	248	323	571	15.14	19.72	34.86
Average SNS use	283	509	792	17.28	31.07	48.35
High level of SNS use	90	167	257	5.49	10.20	15.69
Extremely high level of SNS use	8	10	18	.49	.61	1.1
Total	629	1,009	1,638	38.4	61.6	100.0

N*: Number of individuals

Table 3. Descriptive statistics of the Adolescent Measure of Empathy and Sympathy (AMES)

Scale	All participants (n = 1638)		Males (n = 629)		Females (n = 1,009)	
	M	SD	M	SD	M	SD
Cognitive empathy	2.90	.80	2.52	.77	3.13	.73
Affective empathy	3.38	.74	3.18	.78	3.51	.68
sympathy	4.31	.60	4.16	.68	4.40	.52

M = mean, SD = standard deviation, n = number of individuals

3.2. Correlation Between SONTUS and AMES

Our study shows the sex differences displayed a statistically significant positive correlation with cognitive empathy (p = <2e−16), affective empathy (p = <2e−16), and sympathy (p = <2e−16) with female students producing higher scores than the male students. In addition, the age has no statistically significant correlation with cognitive empathy (p = .99347), affective empathy (p = .55661), and sympathy (p = .56167). Furthermore, we found a higher frequency of SNS usage during relaxation and free time periods displayed a statistically significant positive correlation with affective empathy (p = .00265) and sympathy (p = .04651). Moreover, this higher frequency of SNS usage pointed to a statistically significant positive correlation with sympathy (p = 6.44e−05) for academic-related periods. In terms of public place-related periods, increased frequency of SNS use was statistically significantly positive correlated with sympathy (p = 2.93e−07). In addition, higher frequency of SNS usage during stress-related periods exhibited a statistically significant positive correlation with cognitive empathy (p = 6.89e−07) and affective empathy (p = .00113). Lastly, a higher frequency of SNS usage with motive use suggested a statistically significant positive correlation with cognitive empathy (p = 6.12e−05), affective empathy (p = .00074), and sympathy (p = .00061; Table 4).

4. Discussion

The study found that the majority of participants aged 12–19 years are average SNS users. This result is similar to that of Dinindaputri (2020), who conducted a study on adolescents in Bogor, Alfarizi *et al.* (2020) and Putri (2021). The results indicated that the participants in Indonesia actively use SNSs.

We found female students scored higher on cognitive empathy, affective empathy, and sympathy than the male students (Table 3). This result is consistent with studies in Austin (the United States), southeast China, northeastern Italy, Valencia (Spain), Chicago (the United States), and the Netherlands, show female empathy's score higher than male due to the ability of female to stand in people's shoes (which means more empathy) and to feel for someone in trouble or need (i.e., Albiero *et al.* 2009; Davis 1983; Li *et al.* 2019; Mestre *et al.* 2009; Michalska *et al.* 2013; Vossen *et al.* 2015; Vossen and Valkenburg 2016). In addition, female can better recognize

Table 4. Correlation of Adolescent Measure of Empathy and Sympathy (AMES) and Social Networking Sites Use (SONTUS)

		Cognitive empathy				Affective empathy				Sympathy			
		estimate	Std. error	t-value	p-value	estimate	Std. error	t-value	p-value	estimate	Std. error	t-value	p-value
	Intercept	2.537	.085	29.775	<2e-16***	1.920	.10794	17.784	<2e-16***	4.14394	.10848	38.200	<2e-16***
	Sex	.324	.031	10.458	<2e-16***	.720	.03940	18.263	<2e-16***	.39955	.03980	10.039	<2e-16***
	Age	-.000	.024	-.008	.99347	-.018	.03083	-.588	.55661	-.0180	.03108	-.580	.56167
	Relaxation and free time periods	.023	.013	1.702	.08882	.051	.01715	3.006	.00265**	.03484	.01750	1.991	.04651*
Social Networking Time Use Scale	Academic-related periods	.030	.018	1.591	.11166	-.033	.02357	-1.389	.16487	.09713	.02431	3.996	6.44e-05***
	Public places-related periods	-.044	.032	-1.383	.16656	-.054	.04049	-1.338	.18080	-.2092	.04080	-5.128	2.93e-07***
	Stress-related periods	.076	.015	4.965	6.89e-07***	.063	.01943	3.256	.00113***	.03340	.01978	1.688	.09133
	Motives for use	.091	.023	4.008	6.12e-05***	.097	.02892	3.372	.00074***	.10082	.02943	3.426	.00061***
	logSigma	.150	.010	14.542	<2e-16***	.375	.01103	33.989	<2e-16***	.32498	.01401	23.190	<2e-16***

*p<.05, **p<.01, ***p<.001

emotions, understand and share the feelings of other people, which is a component of cognitive empathy and sympathy (Di Tella *et al.* 2020).

Higher frequency of SNS usage during relaxation and free time periods pointed to a statistically significant positive correlation with affective empathy and sympathy. The reason for this result may be that spare time tends to be spent in communicating and maintaining friendships through SNSs. In line with this argument, the current study illustrates that the motives for using SNSs (communicating, seeking information, and maintaining friendships) are the primary objective of SNS use in adolescents in Indonesia. This is also in line with the study of Espinoza and Juvonen (2011) which stated that most of the time adolescents spend when visiting SNS is to check and respond to comments written to them, and that keeps them connected with their friends. Moreover, online communication in adolescents is predicted to increase the cohesiveness of friendships such as having intimate conversations with friends, having quality closeness with friends and having support for friends (Lee 2009). Online communication is used to improve the quality of adolescent friendships (Shklovski *et al.* 2004; Wellman *et al.* 2001). Therefore, the increased exposure to SNSs to communicate may give access to circumstances that encourage empathy (Stern 2008; Vallor 2009).

Furthermore, higher frequency of SNS usage during academic-related periods demonstrated a statistically significant positive correlation with sympathy, which indicated that in the results of the current study, interacting with other people undergoing the same event or condition, such as accessing discussion groups (Facebook or WhatsApp groups and others) when doing school assignments at home; reading in the library for academic purpose, were positively correlated with sympathy. This finding is in line with the scores for sympathy, which are higher than the scores for cognitive empathy and affective empathy for males and females group of participants (Table 3). According to Ahn (2011), studies on the use of SNS and psychological well-being in adolescents have additional learning through the mechanism of academic involvement. Our study indicated that the use of SNS during academic-related periods shows a positive correlation with sympathy. This is in line with the study of Fredericks *et al.* (2004), stated that emotional of academic involvement describes the feelings towards teachers,

peers, and the other school community. Interacting with friends and teachers in academic-related periods presents emotional involvement that can affect sympathy. Moreover, SNSs provide people with more access to one another, which provides people added opportunities to express their feelings, which they may hold back during intimate interactions. Through online communication to self-disclosure using SNS, people could gain certain social benefits that may compensate for their offline sociability (Alloway 2014; Lee 2009).

The third component of SONTUS is the higher the frequency of SNS usage during public place-related periods, which displayed a statistically significant negative correlation with sympathy. When a situation occurs in a public place (e.g., football stadium, a cinema, a religious place for prayer or ceremony; a wedding or birthday party), using SNSs can lead to behavior that does not care about the people around. We assumed that being in a public place with a crowd will make it difficult for us to be able to focus and recognize the emotions of others.

Furthermore, the frequency of SNS use during stress-related periods exhibited a statistically significant positive correlation between cognitive empathy and affective empathy. According to Nolan *et al.* (2017), this scenario may occur when emotional stress occurs because people tend to need emotional support. In this regard, SNSs are proven to provide social support to individuals online (online social support). This scheme can complement face-to-face support. Therefore, searching for the type of support that people want is possible if face-to-face is unavailable (Turner *et al.* 2001). In line with this notion, computer-mediated social support (online social support) benefitted people faced with emotionally stressful situations to obtain emotional support (Rains and Young 2009; Wright and Bell 2003). This emotional support is to reduce stress or negative effects, this support includes empathetic support, and sympathy (Oh *et al.* 2013). Moreover, Wright and Li (2011) found a correlation between the amount of time spent online and increase of prosocial conduct, which includes being kind, helpful, upbeat, and letting others know you care. Thus, SNS use can foster empathic concern (Alloway 2014), because it enables young people to understand themselves better and their capacity to practice empathy (Stern 2008; Vallor 2009). By getting emotional support when needed, it can certainly improve a person's

emotional state to be able to understand what happened. This is in line with Stern (2008) and Vallor (2009), that by getting emotional support, adolescents can practice their empathic concern.

Lastly, the frequency of SNS use according to motives for use displayed showed a statistically significant positive correlation among cognitive empathy, affective empathy, and sympathy. According to Stockdale and Coyne (2020), basically, the purpose of SNSs is to connect between people, this human connection can increase humanity (sympathy) and empathy for the people around us. Each motive-based use of SNSs (e.g., boredom, information seeking, and connection) was significantly associated with empathy. These findings suggest that SNSs are accomplishing what they were designed to do: connecting individuals and raising feelings of compassion and empathy (Stockdale and Coyne 2020).

In the other hand, the use of social networking sites such as Facebook (Alloway 2014) stated that narcissism in males and females is related to personal distress (affective empathy). However, the time of using Facebook does not predict narcissism. This is in line with the study of Bergman et al. (2011) that the purpose of using SNS is to communicate not to seek attention. So all the way around, the results obtained that the use of social networking sites can be seen that the use of social networking sites with the aim of communicating shows a correlation with increased empathy and sympathy for adolescents in Indonesia. as previous studies have revealed (Alloway 2014; Espinoza 2011; Lee 2009; Shklovski et al. 2004; Stern 2008; Stockdale and Coyne 2020; Vallor 2009; Wellman et al. 2001). Thus, our study showed the positive correlation between SNS use and empathy might be general pattern in adolescence.

In conclusion, this study found that empathy and sympathy significantly correlated with the frequency of use of SNSs among students in Indonesia, which is similar with previous studies. Thus, the positive correlation between SNS use and empathy might be general pattern in adolescence. In other words, adolescents with high levels of social networking time tended to display high levels of sympathy. The empathy scores of the female students were higher than those of the male ones. The majority of adolescents aged 12–19 was average SNS users. Thus, increased use of SNS to communicate may provide added access to circumstances that encourage empathy.

For further research, a longitudinal study is required to understand whether a change in empathy occurs on SNS use over time. Furthermore, assessing the potential influence of SNS use on the empathic skills of adolescents could provide important insights into the manner in which new communication technologies shape the psychosocial development of adolescents, such as assessing how many SNSs and what types of SNSs adolescents use.

Conficts of Interest

The authors declare that there is no conflict of interest.

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