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The mediating role of problematic social media use in the relationship between social avoidance/distress and self-esteem

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ABSTRACT

The number of social media users in Bangladesh is increasing in every year. Young people – mainly college and university students – are the heavy users of it. Problematic social media use (PSMU) has received increasing research attention over the past decade. However, there are very few studies concerning PSMU in Bangladesh. The present study examined the role of PSMU in the relationship between social avoidance/distress and self-esteem. The study comprised a sample of 370 university students from the University of Chittagong (Bangladesh). Participants were administered a survey including questions regarding socio-demographics, the Bergen Social Media Addiction Scale (BSMAS), the Rosenberg Self-Esteem Scale (RSES), and the Social Avoidance and Distress Scale (SADS). Results showed that PSMU partially mediated the relationship between social avoidance/distress and self-esteem, while social avoidance/distress predicted the level of self-esteem. However, PSMU had a non-significant influence on the relationship between these two variables while self-esteem predicted social avoidance/distress.

1. Introduction

Over the past decade, the use of social media has significantly increased and become a part of many individuals' social lives. Social media have revolutionized communication processes [1], and become a part of everyday culture [2]. Many social media sites are online platforms where individuals build a social network with other users, share personal views, opinions, interests, etc. Boyd and Ellison [3] defined social media as web-based services which allow individuals to create a public personal profile within a bounded system, and articulate a list of same service users with whom they can share their connections. The use of social media is easily accessible by electronic devices by those who have an internet connection (via smartphone, tablet, laptop, computer, etc.). With such easy access, an individual can be connected with others via this online platform from their home, work, or while on the move. In 2017, the number of social media users was estimated as being 2.46 billion around the world and 71% of the total number of internet users [4].

1.1 *Problematic social media use*

Addictive behaviors have traditionally referred to the ingestion of (and dependence to) psychoactive substances [5]. The latest (fifth) edition of the Diagnostic and Statistical Manual of

Mental Disorders (DSM-5) [6] formally recognized behavioral addictions that do not involve the ingestion of such psychoactive substances (i.e., gambling disorder in the main text and internet gaming disorder in the appendix). Addictive behaviors often involve a subjective loss of control of the behavior and occur despite volitional attempts to abstain from or moderate their use. Such behaviors are typically characterized by short-term rewards (immediate gratification) and long-term costs (delayed deleterious effects).

However, despite the formal acceptance of some behaviors as behavioral addictions, some researchers do not recognize social networking in its most problematic form as an addiction [7]. However, many researchers support the possibility of developing behavioral addictions related to excessive technology use [8]. Arguably, social media addiction is a type of internet addiction and characterized as an uncontrollable use of social media that negatively affects every aspect of an individual's life [9]. Some have argued that specific social media addictions (e.g., Facebook addiction) develop in the same way as generalized internet addiction [10]. Given the ongoing debates concerning whether social media addiction exists, the present paper uses the term 'problematic social media use' (PSMU).

PSMU can be defined as a disruption in daily (occupational and/or educational) activities and social life due to excessive and problematic engagement in social media use [11]. Problematic social media users become totally engrossed in the use of social media (both behaviorally and psychologically), and conceal the behavior from family members and/or important others. Such behavior causes interpersonal problems in the offline world due to excessive and problematic engagement on social media and such users experience unpleasant physical and psychological states when trying to cut down or cease social media use [11].

Griffiths [12] asserts there are six core symptoms of any addictive behavior. In the case of PSMU, these are: *salience* (total preoccupation with social media use and engaged in to the neglect of everything else), *mood modification* (using social media as a way of providing a reliable and consistent change in mood state), *tolerance* (the increase of social media use over time to get the same initial mood modifying experiences), *withdrawal effects* (experiencing unpleasant emotional and physical symptoms if the individual is restricted from using social media), *conflict* (psychological and interpersonal problems caused by excessive social media use including the compromising of relationships, occupation, and/or education), and *relapse* (after a period of social media abstinence, quickly returning to problematic social media use). Over the past decade, there

has been a large increase in research examining PSMU. PSMU has been shown to have significant associations with anxiety, depression, low self-esteem, and poor life satisfaction [1, 13-16]. In relation to gender differences, a number of studies have suggested non-significant differences in PSMU [17-19] although there is no general consensus.

1.2 *Self-esteem and problematic social media use*

Self-esteem is important in most areas of life including education, work, and sports [20]. Self-esteem can be defined as how individuals perceive their own self-worth, sense of pride, and self-respect [21]. It can be viewed as an individual's subjective judgment to their competency regarding self-worth. It is also a set of beliefs through which individuals evaluate them positively or negatively [22]. This evaluation may influence the development of affective and cognitive traits over time [23]. Gender differences in self-esteem is an issue of controversy among studies that have explored this issue [24]. Some studies have suggested non-significant gender differences [25, 26], while other studies have suggested gender differences between males and females [24, 27].

Regarding the association with social media use, self-esteem can be conceptualized in three different ways – as an outcome, a buffer, or a self-motive [28, 29]. For instance, studies have suggested that social media use may increase self-esteem [30] as well as decrease it [31]. Higher self-esteem may protect users from negative experiences such as cyberbullying victimization [32]. Additionally, self-esteem may motivate individuals to use social media in specific way. Studies examining the relationship between social media use and self-esteem suggest that individuals with low self-esteem tend to have greater social media use [33-35]. Facebook users with low self-esteem spend more time on Facebook [36] because they feel safe while using it [37]. Past studies have also suggested a negative association between problematic social media use and self-esteem [38-40].

1.3 *Social avoidance, distress, and problematic social media use*

Social avoidance can be defined as avoiding being with, talking to, and/or escaping from others for any reason [41]. Distress is a condition that is associated with subjective perceptions of unhappiness. It comprises feelings of extreme worry, sadness, or pain. Watson and Friend [41] defined social distress as the experience of negative emotion, such as being distressed, tense, upset, or anxious in social interactions, or the reported lack of positive emotion (e.g., being relaxed, calm,

at ease, or comfortable). Socially distressed individuals have a pattern of withdrawing from their social relationships. Individuals high in social avoidance/distress have uncomfortable feelings in social situations, and prefer to be alone [41]. Studies suggest that individuals high in social avoidance/distress have a lower level of self-confidence, need for dominance, need for affiliation, and need for change [42].

Watson and Friend [37] developed a scale for assessing social avoidance/distress. Galassi and Galassi [43] suggested that high scorers on this instrument (i.e., having more perceived feelings of social avoidance/distress) tend to avoid social situations where they need to interact with others. They also have a negative feeling concerning others' perceptions about themselves. Stewart, Morris, Mellings and Komar [44] found that social avoidance/distress negatively correlated with fear of negative evaluation. Consequently, social avoiders withdraw from social interactions and talk less with other individuals. With such limited social interaction experience, these individuals have fewer appropriate social skills [45]. Watson and Friend [41] reported that males reported more social avoidance/distress than females.

Studies have suggested a negative association between social anxiety and problematic social media use [46, 47]. Social avoidance and distress are factors that contribute to social anxiety and it has been proposed that is an association between social avoidance/distress and problematic social media use. The social compensation hypothesis [48] suggests that individuals with poor friendships get greater benefits from online interaction than face-to-face interaction. Through social avoidance and isolation, individuals having higher social anxiety avoid painful feelings that they anticipate getting from social interaction [49]. Online communication through social media allows them to reduce their feelings of discomfort [50]. Yen et al. [51] suggested that the fear of negative evaluation was lower among individuals having higher social anxiety in online interactions compared to face-to-face interaction.

1.4 *The present study*

Social avoiders prefer to work alone and are less confident about their social relationships. Geist and Borecki [52] suggested that individuals with high social avoidance/distress have lower self-esteem. Self-esteem might also influence an individual's tendency for social avoidance and increase distress. This association would also be bi-directional (i.e., each factor affects each other). From the aforementioned discussion regarding the association of PSMU with self-esteem and

social avoidance/distress, it is hypothesized there will be a mediating effect of PSMU on the association between self-esteem and social avoidance/distress. To the best of the present authors' knowledge, no study has ever assessed the association between social avoidance/distress and PSMU. Therefore, the present study explored the relationship between these variables. More specifically, the study assessed the mediating role of PSMU on the association between social avoidance/distress and self-esteem (Figure 1a, 1b). The present study also examined the relationship between demographic characteristics (gender, residence type, family type, etc.), social avoidance/distress, PSMU, and self-esteem.

2. Method

2.1 *Participants*

The present study comprised a convenience sample of undergraduate students who were surveyed during classes at the University of Chittagong (Bangladesh). Out of eight faculties, six faculties were selected and resulted in the recruitment of students via a purposive sampling technique. Approximately 500 students were approached and 370 students agreed to participate in the study. Participants voluntarily participated in the study and did not receive any incentive for taking part. Participants who had used social media for at least one year comprised the study sample in the present study. Among participants, seven were excluded (due to missing responses) leaving 167 males and 196 females (N=363). The mean age was 20.87 years (SD=1.81). Among respondents, 116 were first year, 84 were second year, 86 were third year, and 77 were fourth year students; 119 resided in university halls (residential student), and 244 resided outside the university hall (non-residential students); and 287 were from a nuclear family and 76 were from an extended family.

2.2 *Measures*

All participants completed a battery of psychometric scales including the Bergen Social Media Addiction Scale (BSMAS [53]; Bangla version [54]), Rosenberg Self-Esteem Scale (RSES [55]; Bangla version [56]), and the Social Avoidance and Distress Scale (SADS [41]; Bangla version [57]).

2.2.1 *Bergen Social Media Addiction Scale*

The Bergen Social Media Addiction Scale [53] was adapted from the Bergen Facebook Addiction Scale (BFAS) [58]. The BSMAS comprises six items for assessing six components of problematic use (i.e., salience, craving/tolerance, mood modification, relapse/loss of control, withdrawal, and conflict/functional impairment) [12] and had a high Cronbach's alpha (.88) in the original validation. The Bangla BSMAS was adapted from the Bangla Bergen Facebook Addiction Scale [59]. The adaptation was made by replacing the word 'Facebook' with the words 'social media'. Each question is answered on a five-point Likert scale ranging from 1 (*very rarely*) to 5 (*very often*) yielding a composite score from 6 to 30, concerning experiences during the past year. The cut off score of the BSMAS for classifying an individual as a problematic social media user was 24 in the present study. The Cronbach's alpha in the present study was good (.76). Confirmatory factor analysis indicated that the scale had acceptable model fit (χ^2=21.15, df=9, p=.012, CFI [Comparative Fit Index]=.97, TLI [Tucker-Lewis Index]=.95, RMSEA [Root Mean Square Error of Approximation]=.06, SRMR [standardized root mean square residual]=.03).

2.2.2 *Rosenberg Self-Esteem Scale*

The Rosenberg Self-esteem Scale (RSES) is a widely used self-esteem measure. The Rosenberg self-esteem scale assesses individuals' self-esteem by asking individuals about their current feelings. The RSES is a ten-item scale using a four-point Likert type scale (1=*strongly disagree*, 2=*disagree*, 3=*agree*, and 4=*strongly agree*). Participants have to indicate how strongly they agree or disagree with each item. The scale score ranges from 10-40. A higher value represents a higher level of self-esteem. Cronbach's alpha in the present study was good (.82). Confirmatory factor analysis indicated that the scale had acceptable model fit (χ^2=63.56, df=26, p<.001, CFI=.96, TLI=.94, RMSEA=.06, SRMR=.04).

2.2.3 *Social Avoidance and Distress Scale*

The Social Avoidance and Distress Scale (SADS) scale comprises 28 true/false items that assess distress in social situations and the avoidance tendency in social interactions. Each item on the SADS is a statement concerning aspects of social anxiety. When answering the SADS, individuals must decide whether each statement is true or false for themselves personally. If the choice is difficult, participants are asked to choose the response that was slightly more applicable based on how they feel at that moment. Scores consist of total raw score (0-28) and the total score

is obtained based on the answers to the true/false questions. Scores between 0-1 suggest lower social anxiety; 2-11 suggest average social anxiety; and scores above 12 suggest greater social anxiety. To compute the total score of SAD in the present study, Item 4 and Item 23 were excluded because they had negative and low item-total correlation. The Cronbach's alpha in the present study was very good (.86). Confirmatory factor analysis indicated that the scale had acceptable model fit (χ^2=616.03, df=298, p<.001, CFI=.95, TLI=.94, RMSEA=.05, SRMR=.07).

Along with these psychometric scales, demographic information was also collected including participants' age, gender, academic year, corresponding faculty where they were studying, residential status (whether they resided in university halls or not), and family type (how they were brought up, either nuclear or extended family).

2.3 *Statistical analysis*

The Statistical Package for Social Science (SPSS) version 25.0 was used to process and analyze the collected data. Descriptive statistics (e.g., frequencies, percentages, skewness, and kurtosis), two independent sample *t*-tests, Pearson product moment correlation coefficients, and process analysis using macros from Hayes [60] were performed. Mean differences, correlation coefficients, and regression coefficients are reported with 95% confidence intervals. Frequency and percentages were used to assess demographic characteristics of the participants. Skewness and kurtosis were used to check the normality of the data. A skewness value larger than 2 and kurtosis value larger than 7 suggest the non-normality of the data for a sample larger than 300 [61]. Independent sample *t*-tests were used to assess the group differences concerning PSMU, social avoidance/distress, and self-esteem by demographic characteristics. Pearson's product moment correlation coefficients were used to estimate the correlations between variables. Process analysis (Model 4) was performed to estimate the mediating role of PSMU in the relationship between social avoidance/distress and self-esteem. Two mediation models were tested. In the first model, social avoidance/distress was the predictor and self-esteem was the outcome variable. In the second model, self-esteem was the predictor and social avoidance/distress was the outcome variable.

2.4 *Ethics*

The present study was carried out in accordance with the Declaration of Helsinki. Participants were informed about the purpose, nature, and procedure of the study. They were informed that all information given by them would be kept confidential and anonymous. They were also informed about their right to withdraw from the study at any stage. Participants' informed consent was obtained before collecting the data.

3. Results

Skewness values (ranging from -.35 to .17) and kurtosis values (ranging from -.66 to -.08) suggested that data were normally distributed (see Table 1). Analysis regarding mean differences in social avoidance/distress, PSMU, and self-esteem by gender, residence, and family type (Table 2) showed significant mean differences in social avoidance/distress by respondents' gender ([t=4.39, p<0.01], d=.46, 95% CI[1.53,3.99] and residence status ([t=1.98, p<.05], d=.22, 95% CI[.01, 2.69]). However, Table 2 shows non-significant mean differences in PSMU and self-esteem by respondents' gender, residence status, and family types. Table 1 shows that social avoidance/distress had significant correlations to PSMU (r = .11, p<.05, 95% CI[.01, .21]), and self-esteem (r =-.38, p<.01, 95% CI[-.47, -.29]). PSMU was also significantly correlated to self-esteem (r=-.24, p<.01, 95% CI [-.34, -.15]).

Results of the process analysis (Model 4) are presented in Table 2. Table 2 shows the mediating role of PSMU when social avoidance/distress predicted self-esteem. Both social avoidance/distress and the PSMU were significant predictors of self-esteem. Both variables explained 19% variance of self-esteem. Figure 2a also shows the mediating role of the PSMU. Table 2 also shows that the PSMU had no mediating role in the relationship between these variables, when self-esteem predicted social avoidance/distress. PSMU was a non-significant predictor of social avoidance/distress. Both factors explained 15% variance of social avoidance/distress. The relationship among these variables is shown in Figure 2b.

4. Discussion

The present study explored the relationship among social avoidance/distress, PSMU, and self-esteem. The findings suggested a significant negative association between self-esteem and social avoidance/distress. This finding is consistent with past studies that have assessed the

association between self-esteem and social anxiety [62, 63]. Geist and Borecki [52] suggested that individuals with high social avoidance/distress had a tendency to perceive themselves as controlled by external factors and had lower self-esteem. However, individuals with higher self-esteem are able to perceive social situations as less threatening to their self. They are confident and like social situations. Individuals with lower self-esteem have low confidence in handling social situations where they have to interact with others. Consequently, they tend to avoid social situations.

Results suggested a weak (but still significant) correlation between PSMU and social avoidance/distress and supported the first hypothesized mediation model (Figure 1a). This, along with the small amount of variance explained in both hypothesized models, suggests there are other more important variables that contribute to the acquisition, development, and maintenance of PSMU or that social avoidance/distress is important for some social media users and not others given the data were pooled. PSMU partially mediated the association between social avoidance/distress and self-esteem only when social avoidance/distress predicted self-esteem. This finding supported the social compensation hypothesis [48]. The present study suggested social avoidance/distress as a possible further risk factor of PSMU. Because individuals with high social avoidance/distress are likely to avoid social situations, they may feel more comfortable engaging in virtual interaction with other social media users. This engagement in social media negatively influences users' self-esteem. The present study suggested that frequent social media use decreases users' self-esteem and that this relationship is mediated by upward social comparison [30].

The findings of the present study did not support the second hypothesized mediation model (Figure 1b) (i.e., PSMU did not mediate the association between self-esteem and social avoidance/distress). Results regarding this hypothesis supported the sociometer theory suggesting that self-esteem is an important predictor of social anxiety [64]. It also supported the findings from previous studies regarding self-motives that users having lower self-esteem tend to have greater social media engagement [33-35]. PSMU may lead to social anxiety due to social comparison [46], but the results here suggested PSMU had no impact on the social anxiety or social avoidance/distress. The fact that PSMU did not mediate the association while self-esteem predicted social avoidance/distress needs further research to confirm and explain.

Regarding gender differences, results showed that females had more feelings of social avoidance/distress than males. This result did not support the findings regarding gender differences in social avoidance/distress reported by Watson and Friend [41]. However, the finding was

consistent with recent past studies [65, 66] suggesting that females have higher levels of social anxiety than males. In the present study, the findings relating to non-significant gender differences in PSMU were consistent with recent past studies [17-19]. The results regarding non-significant gender difference in self-esteem was consistent with some previous studies [25, 26]. However, some studies have also suggested that males have higher levels of self-esteem than females [24, 27].

Limitations, recommendations and practical implications

The present study utilized self-report data which were collected from a non-representative sample of Bangladeshi university students using non-psychometrically validated measures (only translated) in Bangladesh context (although the authors' own psychometric testing showed acceptable model fits for all scales used). Such data are subject to well-known biases (such as social desirability and memory recall). Furthermore, the data were collected from only one university of Bangladesh which utilized a convenience sampling technique. Consequently, generalizability to other age samples both inside and outside of Bangladesh may be limited. These limitations could be overcome in future research via the use of larger and more nationally representative samples.

It is evident from the present study that PSMU is associated with social avoidance/distress, and low self-esteem. However, it is not clear how these associations influence the everyday behavior of social media users. Qualitative and observational studies should be carried out to explore the influence of this identified association on everyday behavior of social media users. Exploratory and longitudinal studies should also be carried out to identify, describe, and predict potential changes in future behavior of social media users. Young individuals worldwide are now highly dependent upon the virtual world, therefore trying to decrease the amount of social media use is difficult given the many individuals that use it. From a practical implications perspective, the results indicate that awareness programs and workshops are needed to guide students concerning responsible use of social media that would be helpful in increasing self-esteem, self-recognition, self-actualization, and self-confidence. These programs could be used to raise awareness among users about the potential negative effects of problematic social media use. Counseling and behavior modification therapy should also be provided for problematic social media users for those who need it.

The findings of the present study also have practical significance in educational, social, and occupational areas, particularly in Bangladesh where there are relatively few data. Students and university employees will benefit from the findings of the present study which demonstrate that PSMU and social avoidance/distress are associated with lower self-esteem.

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Tables

Table 1. *Descriptive statistics of social avoidance and distress, problematic social media use, and self-esteem*

Variable	M	SD	Skewness	Kurtosis	Correlation with 95% CI	
SAD	12.77	6.11	.17	-.66	1	
PSMU	16.33	5.06	.13	-.39	.11* [.01, .21]	1
SE	26.14	5.12	-.35	-.08	-.38** [-.47, -.29]	-.24** [-.34, -.15]

*p<.01, **p<.01; values in the parentheses relate to a 95% confidence interval

SAD=social avoidance and distress, PSMU=problematic social media use, SE=self-esteem

Table 2. *Mean differences in social avoidance and distress (SAD), problematic social media use (PSMU), and self-esteem (SE) by gender, residence status, and family type*

Variable	Category	*n*	*M*	*SD*	*Df*	*t*	95% confidence interval		*d*
							Lower	Upper	
Gender									
SAD	Female	196	14.04	5.99	361	4.39**	1.53	3.99	.46
	Male	167	11.28	5.93					
PSMU	Female	196	16.07	5.12	361	-1.06	-1.61	.49	-.11
	Male	167	16.63	4.99					
SE	Female	196	25.86	5.11	361	-1.16	-1.68	.44	-.12
	Male	167	26.48	5.12					
Residence Status									
SAD	Resident	119	13.67	6.33	361	1.98*	.01	2.69	.22
	Non-resident	224	12.32	5.96					
PSMU	Resident	119	16.71	5.53	361	1.02	-.53	1.69	.11
	Non-resident	224	16.14	4.82					
SE	Resident	119	25.75	5.31	361	-1.01	-1.70	.55	-.11
	Non-resident	224	26.33	5.02					
Family Type									
SAD	Nuclear	287	12.91	6.13	361	.87	-.87	2.24	.11
	Extended	76	12.22	6.07					
PSMU	Nuclear	287	16.33	5.25	361	.02	-1.27	1.29	.001
	Extended	76	16.32	4.32					
SE	Nuclear	287	26.01	5.18	361	.96	-1.93	.66	.13
	Extended	76	26.65	4.87					

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

Table 3. *Mediating effects of problematic social media use in the relationship between social avoidance and distress and self-esteem*

Model	**Antecedent**	**Consequent**							
		SMA (M)				**Self-esteem (Y)**			
		Coefficient	***SE***	***LLCI***	***ULCI***	***Coefficient***	***SE***	***LLCI***	***ULCI***
1	SAD(X)	.09*	.04	.001	.18	-.30**	.04	-.38	-.22
	PSMU (M)					-.21**	.05	-.30	-.11
	Indirect effect					-.019	.01	-.04	-.001
	Constant	15.17	.61	13.97	16.38	33.36	.92	31.54	35.17
		R^2=.012, F (1,361)=4.33, p<.038, f^2 = .01				R^2=.19, F (2, 360)=41.23, p<.001, f^2 = .23			
2	**Antecedent**	**SMA (M)**				**SAD (Y)**			
		Coefficient	***SE***	***LLCI***	***ULCI***	***Coefficient***	***SE***	***LLCI***	***ULCI***
	Self-esteem (X)	-.24**	.05	-.34	-.14	-.45**	.06	-.57	-.33
	PSMU (M)					-.02	.06	-.10	.14
	Indirect effect					-.001	.02	-.03	.02
	Constant	22.64	1.35	19.99	25.29	24.18	2.07	20.11	28.26
		R^2=.06, $F_{(1, 361)}$=22.90, p<.001, f^2= .06				R^2=.15, $F_{(2, 360)}$=30.53, p<.001, f^2=.18			

Model 1: Effect of social avoidance and distress on self-esteem via problematic social media use.

Model 2: Effect of self-esteem on social avoidance and distress via problematic social media use.

*p<.05, **p<.01, X = independent variable, M = mediator variable, Y = dependent variable, *SE* = standard error, *LLCI* = lower limit of 95% *confidence interval*, *UCLI* = upper limit of 95% *confidence interval, SAD* = social avoidance and distress, PSMU = problematic social media use, f^2= effect size

Figures

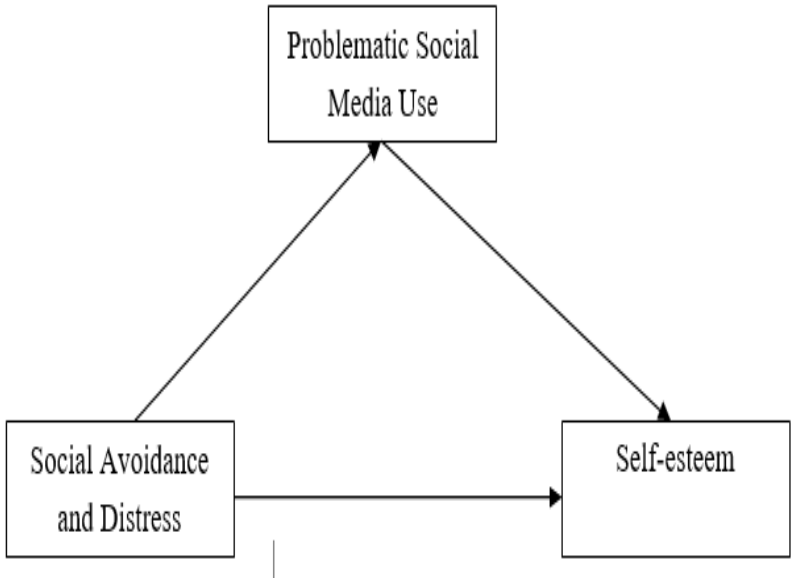

*Figure 1a***:** Mediating role of problematic social media use in social avoidance/distress predicting self-esteem.

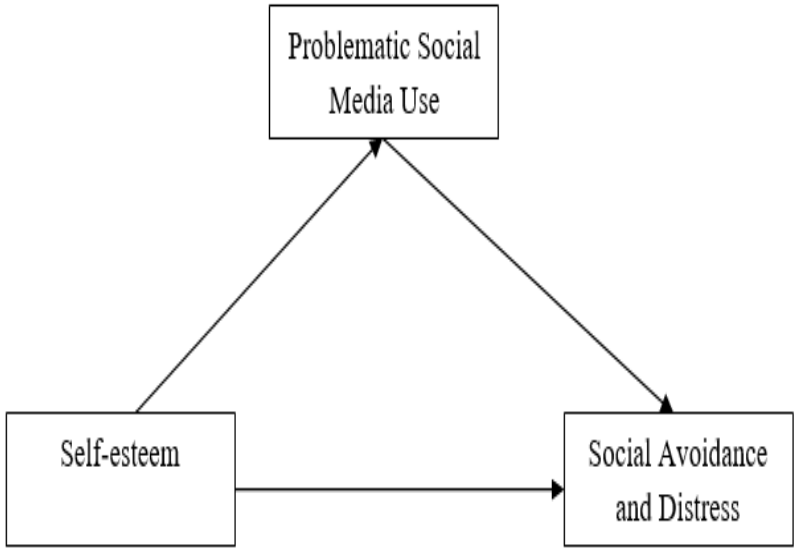

Figure 1b: Mediating role of problematic social media use in self-esteem predicting social avoidance/distress.

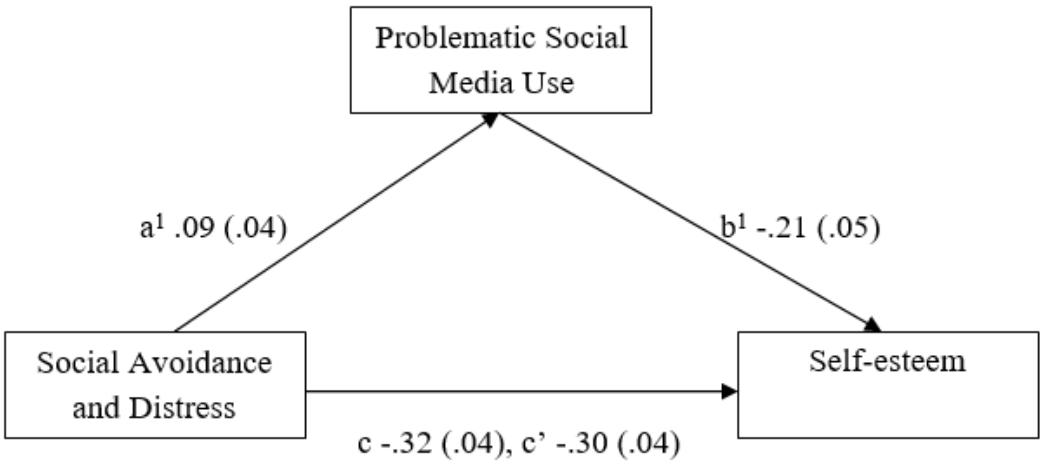

Figure 2a. Mediating effect of problematic social media use in social avoidance/distress predicting self-esteem

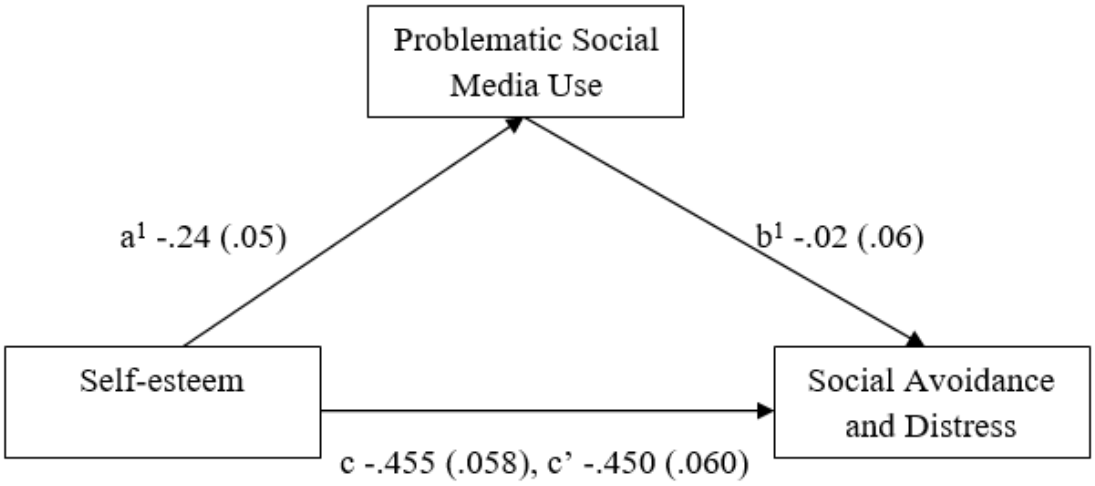

Figure 2b: Mediating effect of problematic social media use in self-esteem predicting social avoidance/distress.