

# The Relation between Social Media Addiction Tendencies and Depression: The Mediating Effect of Objectified Body Consciousness Moderated by Self-Compassion

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Social networking website (SNS) addiction has led to a rise in research on its negative impacts, especially depression, due to a significant increase in SNS users over the past decade. According to social comparison theory, the use of SNS makes individuals vulnerable to depression through a comparison with others who are perceived to be superior to them, and via photos displaying an individual's appearance (which are the main upload target), as being likely to cause individuals to become excessively preoccupied with their own bodies. Hence, this study aimed to test whether objectified body consciousness (OBC) mediates the relationship between SNS addiction tendency and depression. Furthermore, we examined whether self-compassion moderates the consequences of OBC on depression. The participants ( $n=271$ ) completed questionnaires measuring SNS addiction tendency, OBC, self-compassion and depression. The results revealed that the indirect effect of SNS addiction tendency on depression through OBC was moderated by self-compassion, and that, specifically, this indirect effect was found to decrease as self-compassion increased. The results of this study suggest that an individual's SNS addiction tendency passes through OBC in the process of influencing depression, and that the effect of such a path may vary depending on the individual's level of self-compassion.

**Keywords:** depression, SNS addiction tendency, objectified body consciousness, self-compassion

## Introduction


Depression is an affective disorder that is influenced by daily events affecting one's emotional states. One of the significant daily activities can be the use of social networking sites (SNS, henceforth), which is now considered a part of daily life for most people, given that more than 50% of the world's population are SNS users, with

an estimated usage rate of 75% (Wichers et al., 2007; Lenhart et al., 2010; "Global Social Media Statistics – DataReportal – Global Digital Insights," n.d). Under the current climate, a phenomenon gained attention: individuals started exhibiting symptoms of depression after spending a considerable amount of time on SNS, which is referred to as 'Facebook depression' (Selfhout et al., 2009). Indeed, an experimental study indicated that individuals reported increased life satisfaction after abstaining from SNS for a week compared to the control group (Tromholt, 2016). Additionally, a meta-analysis (Yoon et al., 2019) showed that greater use of SNS predicted higher levels of depressive symptoms. These research results suggest that excessive use of SNS may lead to depression. However, no study has been conducted to examine the underlying factors that explain the relationship between SNS use and depression. Therefore, we aim to examine the cognitive changes resulting

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from excessive SNS use and its maladaptive consequences.

According to the Social Comparison Theory by Festinger (1954) and Smith (2000), since humans are indisputably social animals, they are oriented to socially compare themselves across various situations. Given that SNS allows individuals to form and cultivate social networks while selectively sharing their private information, it is considered an ideal platform for social comparisons. However, online social comparisons tested to have more detrimental effect on one's psychological well-being than offline ones due to upward comparison from viewing postings that are generated in one's favourable light (Feinstein et al., 2013; Haferkamp & Krämer, 2011; Vogel et al., 2014). Comparing oneself to others' unrealistic advantages led to feelings of inferiority, leading to decreased psychological well-being, depression, and lower subjective well-being (Feinstein et al., 2013; Smith, 2000).

Objectified body consciousness (OBC) is a cognitive process in which individuals internalize social norms, learn to see their bodies as objects to be looked at, and adopt a third-person perspective. Recent research has shown that individuals with a SNS addiction tendency are more likely to experience their bodies in an objectified way, as if evaluating them from a third-party perspective. In other words, frequent use of SNS increases the opportunity to compare one's body with that of others, thereby increasing the risk of repeating the experience of objectifying one's body. As these experiences accumulate, individuals may internalize the observer's perspective, solidifying unrealistic perceptions of body shape (Duan et al., 2022). In summary, the results of previous studies suggest that excessive use of SNS may contribute to the increase in OBC.

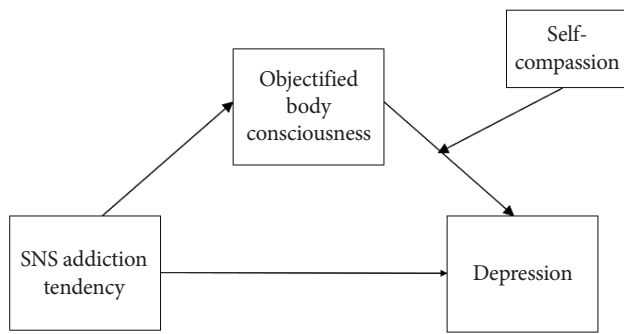
On the other hand, OBC may play as a risk factor in feeling depressed (Blashill & Wilhelm, 2014; Fredrickson & Roberts, 1997). When individuals internalise unattainable appearance standards, they may repeatedly experience feelings of shame and inadequacy when viewing themselves, as they try to meet these standards. Constantly failing to meet these idealised states can decrease one's motivation to decrease the discrepancy between the ideal and current states, potentially leading to a state of learned helplessness (Seligman, 1975). Furthermore, Additionally, Beck's cognitive theory of depression identified appearance-related shame as a cognitive factor that causes depression (Beck, 1973, 1979). These studies suggest that a higher level of OBC may lead to increased depressive

symptoms.

Given that OBC is characterised by excessive self-criticism, self-compassion, which protects individuals from the negative emotional implications of perceived failure arising from self-criticism (Neff, 2003), may moderate the relationship between OBC and depression. In other words, it is likely that a psychological process will occur in which the non-judgmental nature or kind attitude toward oneself inherent in self-compassion interacts with the negative evaluative nature or shame inherent in OBC. And through such a process, it is expected that self-compassion will be able to somewhat alleviate the effect of OBC on depression. Indeed, previous studies tested that self-compassion moderated the effect of OBC on depression (Daye et al., 2014; Wollast et al., 2019).

Since SNS have become an integral part of life across generations (Lenhart et al., 2010), it is essential to thoroughly examine how SNS impacts individuals' psychological health. Previous research has shown that engaging in upward social comparison on SNS is significantly related to higher depressive symptoms (e.g., Vogel et al., 2014). However, social comparison can occur in various domains, making it challenging to specify in clinical interventions for individuals with SNS addiction tendencies. Given that the primary content of most SNS platforms revolves around photos and videos, we have narrowed our focus to appearance comparison among these domains. In addition, previous studies have revealed that OBC is a variable influenced by SNS addiction tendency (Duan et al., 2022) and has characteristics that cause depression (Blashill & Wilhelm, 2014). So, we tested whether OBC mediates the relationship between SNS addiction tendencies and depression. On the other hand, the negative self-judgment and shame involved in OBC are likely to be alleviated by the non-judgmental acceptance involved in self-compassion or a gentle and kind attitude toward the self. therefore, we examined self-compassion as a potential moderator in the aforementioned relationship.

Hence, we tested the following hypotheses: 1) Excessive SNS use leads to a higher level of OBC, which consequently results in higher depressive symptoms. 2) The mediation of OBC in the relationship between excessive SNS use and depression is moderated by self-compassion (Figure 1). This study aims to provide insights into intervening with individuals experiencing depression due to maladaptive SNS use.



**Figure 1.** Research model.

## Methods

### Participants

271 Korean adults (81 males and 190 females) recruited by online advertisements with an age range from 18 to 64 years (mean [SD] = 30.05 [8.63]). The purpose of the study and informed consent was provided prior to participation and the researcher's contact information was provided. Participants completed a series of self-report questionnaires assessing SNS addiction tendency, the level of OBC, depressive symptoms and self-compassion. This study was conducted with the approval from the Institutional Review Board of\*\* University Medical Center (IRB No. C\*\* 2023-01-001-001).

### Measures

#### Objectified body consciousness (K-OBCS)

To measure levels of OBC in this study, the Korean version of the Objectified Body Consciousness scale (K-OBCS) was used. This modified version of the scale was developed by McKinley and Hyde (1996) to be applicable to Koreans across genders. Each item on the K-OBCS is rated on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating higher levels of OBC. In the current study, the internal consistency of the K-OBCS was found to be high, with a Cronbach's  $\alpha$  of .835 for Body surveillance and .836 for Body shame.

#### SNS addiction tendency

The Korean version of the Social Networking Sites Addiction Tendency Scale, developed by Cho and Suh (2013), was utilized to assess the level of SNS addiction tendency. The scale comprises 20 items in total, measuring the severity of SNS addiction tendency

using a 4-point Likert scale ranging from 1 (not at all) to 4 (almost always). Higher scores indicate a greater degree of SNS addiction tendency. The internal consistency of the scale in the current study was Cronbach's  $\alpha = .94$  with the given population.

#### Depressive symptoms (CES-D)

The Korean version of Center for Epidemiological Student Depression Scale (Chon et al., 2001) was employed to measure the depressive symptoms of the community sample. It comprises 20 items that measure four aspects of depressive symptoms; depressive affect (4 items), somatic symptoms and bluntness (7 items), positive affect (4 items) and interpersonal difficulties (2 items). Scores range from 0 to 60 and higher scores indicates greater depressive symptoms. The internal consistency for this sample was Cronbach'  $\alpha = .939$ .

#### Self-compassion (K-SCS)

The Korean version of Self-Compassion scale (K-SCS; Kim et al., 2008) was used to assess the level of self-compassion which was originally developed by Neff (2003). K-SCS is 26 items self-report questionnaire using a five-point Likert scale. The total scores range from 25 to 130 and a higher score indicates a higher level of self-compassion. The K-SCS consists of three sub-categories to assess the level of self-compassion; a) Self-kindness versus self-judgment, b) common humanity versus isolation, lastly c) mindfulness versus over-identification. In the original study, internal consistency was Cronbach'  $\alpha = .92$  (Neff, 2003) and the current study demonstrated Cronbach'  $\alpha = .918$ .

### Data analysis

In this study, the data collected using the SPSS 21.0 program and SPSS Macro PROCESS were analyzed. The analysis method for the data is as follows: First, Pearson's correlation analysis was conducted to confirm the relationship between SNS addiction tendency, OBC, self-compassion, and depression. Second, through analysis of PROCESS Macro model 14, we performed regression analysis included in the model and attempted to confirm whether the indirect effect of SNS addiction on depression through OBC is moderated by self-compassion. In addition, by using the 'boot' function and 'boot.ci' function included in the 'Boot' package of the R program (Davison & Hinkley, 1997), self-compassion scores are input

at 5-point intervals to determine the upper and lower limits of the indirect effect and confidence interval for each score. At this time, the number of bootstraps was set to 10,000, and the confidence interval was 'Bca' type. Afterwards, these scores were plotted using the 'loess' function included in the 'mgcv' package. Next, a hierarchical multiple regression analysis was conducted to examine whether self-compassion controls the effect of OBC on depression. To this end, the significance of the interaction term was verified by multiplying the average-centered two scores and putting them into the interaction term (Cohen et al., 2003). Finally, it was verified whether the mediating effect of OBC on the relationship between SNS addiction tendency and depression is controlled by self-compassion. To this end, the moderated mediating effect was analyzed through the PROCESS model 14, the number of bootstrap samples was 10,000, and the bias-corrected bootstrap confidence interval was used for the bootstrap confidence interval.

### Results

First, the Pearson correlation coefficient between variables and the mean and standard deviation of each variable were calculated and

**Table 1.** Correlation between Variables (n = 271)

	1	2	3	4
1. SNS addiction tendency	-			
2. Objectified body consciousness	0.27***	-		
3. Self-compassion	-0.24***	-0.38***	-	
4. Depression	0.32***	0.38***	-0.67***	-
Mean	35.87	47.93	80.30	17.04
SD	11.91	10.20	17.03	11.88
Kurtosis	-0.14	-0.42	-0.66	0.33
Skewness	0.58	-0.02	0.01	0.89

Note. \*\*\*p < .001.

**Table 2.** Regression Analysis Results Included in the Moderated Mediation Model (n = 271)

Independent variable	Dependent variable	B	SE	t	LLCI	ULCI
SNS addiction tendency	Objectified body consciousness	0.23	0.05	4.62***	0.13	0.33
SNS addiction tendency	Depression	0.13	0.05	2.75**	0.04	0.22
Objectified body consciousness		0.57	0.22	2.56**	0.13	1.01
Self-compassion		-0.15	0.14	-1.10	-0.41	0.12
Objectified body consciousness × self-compassion		-0.01	0.00	-2.02*	-0.01	-0.00

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

presented in Table 1. Specifically, SNS addiction tendency showed a significant positive correlation with OBC and depression ( $r = 0.27, p < .001$ ;  $r = 0.32, p < .001$ , respectively), and showed a significant negative correlation with self-compassion ( $r = 0.24, p < .001$ ). In addition, OBC showed a significant positive correlation with depression ( $r = 0.38, p < .001$ ), and a significant negative correlation with self-compassion ( $r = 0.38, p < .001$ ). Finally, in the relationship between self-compassion and depression, the negative correlation was found to be significant ( $r = 0.67, p < .001$ ). And the skewness and kurtosis of the variables included in this study satisfy the normality assumption.

Second, PROCESS Macro model 14 analysis was performed and the results were presented in Table 2. First, as a result of a regression analysis using SNS addiction tendency as a predictor variable and objectified body consciousness as the reference variable, the regression coefficient was  $B = 0.23 (p < .001)$ , showing that SNS addiction tendency has a significant influence on OBC. Second, in the results of a regression analysis using SNS addiction tendency, OBC, self-compassion, and the interaction term between OBC and self-compassion as the predictor variable on depression, SNS addiction tendency and OBC are self-compassion was found to have a significant effect on depression (in each order,  $B = 0.13, p < .01$ ;  $B = 0.57, p < .01$ ), but self-compassion did not significantly predict depression ( $B = -0.15, ns$ ). In addition, the effect of the interaction between OBC and self-compassion on depression was significant,  $B = -0.01, p < .05$ . This means that the effect of OBC on depression varies depending on the level of self-compassion.

Lastly, the significance of the moderating mediation effect was verified through the moderated mediation index provided in the PROCESS Model 14 model analysis (Table 3). The confidence interval for the moderated mediation index did not include 0, so the moderated mediation effect was found to be significant (Effect =

**Table 3.** Test of Significance of the Index of Moderated Mediation (n = 271)

Variable		Effect	Boot S.E.	95% CI		
				LLCI	ULCI	
Self-compassion		-0.001	0.001	-0.003	-0.000	
Level	Low (M-1SD)	63.27	0.050	0.022	0.014	0.099
	Middle (M)	80.30	0.028	0.015	0.002	0.060
	High (M+1SD)	97.32	0.006	0.016	-0.027	0.038

Note. Bootstrap samples were extracted 10,000 times. Boot S.E. = Standard error calculated by the bootstrap method; LLCI, ULCI = the lower and upper limits within the 95% confidence interval.

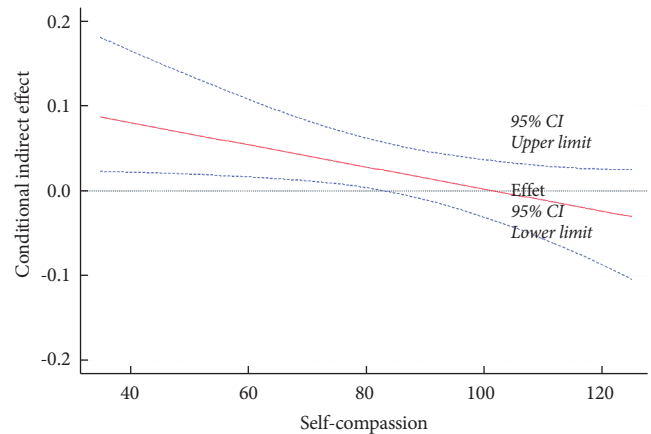
-0.001, 95% CI = [-0.003, -0.000]). Figure 2 shows how the conditional indirect effect changes depending on the level of self-compassion. As self-compassion increases, the conditional indirect effect shows a decreasing trend. It can be seen that when self-compassion exceeds approximately 80 points, the effect is no longer significant.

### Discussion

This study examined the mediating effect of OBC on the relationship between SNS addiction tendency and depressive symptoms, as well as the moderating effect of self-compassion in this relationship. Our main findings are as follows: First, the results revealed that OBC significantly mediated the relationship between SNS addiction tendency and depression, indicating that excessive SNS use predicts individuals to experience OBC, which consequently leads to depressive symptoms.

Furthermore, we found that self-compassion was a significant moderator in the relationship between OBC and depression, indicating that self-compassion significantly moderated the effect of OBC and further prevented the manifestation of depressive symptoms. This finding aligns with previous literature that has demonstrated the beneficial impact of self-compassion on psychological well-being (e.g., Körner et al., 2015). Overall, it suggests that self-compassion may be a promising concept for preventing depression in individuals struggling with OBC.

More importantly, this study confirmed that the indirect relationship between SNS addiction tendency and depression through OBC was influenced by the level of self-compassion. The finding suggests that individuals with higher self-compassion are less like-



**Figure 2.** Conditional indirect effect. Note. The red solid line is the point estimate, and the blue dotted line is the upper and lower limits of the confidence interval.

ly to experience depressive symptoms, even in the presence of a higher level of OBC. Therefore, promoting self-kindness and non-judgmental attitudes towards oneself may be beneficial in intervening with individuals experiencing depressive symptoms resulting from patterns of excessive SNS use with high OBC.

### Implications

This study has implications from the revealing that SNS addiction can trigger depressive symptoms, and this relationship is mediated by OBC. The results suggest that interventions targeting OBC could potentially prevent future depressive symptoms in individuals with SNS addiction tendencies. Practical interventions for individuals with depression who exhibit maladaptive SNS usage patterns may involve assessing and addressing distorted beliefs related to body objectification.

Furthermore, the results indicate that SNS addiction may lead to depression through OBC, and that self-compassion can moderate this effect, presenting an integrated perspective on SNS addiction, OBC, depression, and self-compassion. Clinicians may enhance treatment efficacy by facilitating the development of self-compassion in relevant populations. Additionally, the results may be beneficial in designing interventions for individuals with maladaptive SNS usage patterns by examining their attitudes toward themselves (i.e., OBC and self-compassion) to mitigate the risk of emotional difficulties. However, further research is necessary to establish the underlying mechanisms.

## Limitations

While this study has important implications, it is not without limitations. This study examined various SNS uses among participants but did not differentiate between various platforms. It has been found that each SNS platform has its own characteristics due to differences in functionality and forms of content sharing (Saiphoo & Vahedi, 2019). Future studies should investigate the dysfunctional effects of specific SNS platforms.

Additionally, since this study relied on self-report questionnaires to measure the relevant variables, the findings may be subject to various forms of bias, such as recall bias, social desirability bias, or reporting only average levels. To address these limitations, future research should employ research designs that capture momentary experiences (i.e., Ecological Momentary Assessment) and assess individual differences to minimize bias and evaluate maladaptive cognitive beliefs.

Another potential limitation is the study's cross-sectional design, which may not capture the developmental trajectory of OBC and depression over time. Future studies should consider adopting a longitudinal design to better understand the directionality of these relationships.

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## Author contributions statement

Sooyeon Kim conducted literature searches and wrote the first draft and contributed to and have approved the final manuscript. Changhyeon Lee contributed to statistical analysis and writing and to and have approved the final manuscript. There are no funding sources to report. All authors provided critical feedback, participated in revision of the manuscript, and approved the final submission.

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