

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/337959983>

# Passive Facebook Use and Depression: A Study of the Roles of Upward Comparisons, Emotions, and Friendship Type

Article in *Journal of Media Psychology Theories Methods and Applications* - December 2019

DOI: 10.1027/1864-1105/a000269

CITATIONS

0

READS

314

2 authors, including:



Pinar Tosun

Uludag University

11 PUBLICATIONS 348 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



body image and social media use [View project](#)



# Passive Facebook Use and Depression

## A Study of the Roles of Upward Comparisons, Emotions, and Friendship Type

Leman Pinar Tosun<sup>ID</sup> and Ezgi Kaşdarma

Department of Psychology, Uludag University, Bursa, Turkey

**Abstract:** In the current study we examined a psychological mechanism linking Facebook use to depression. A survey was conducted with 319 undergraduates about their passive Facebook use, their frequency of making upward social comparisons on Facebook, the emotions evoked through these comparisons, and their levels of depression. Half of the participants were given questions about the Facebook comparisons they made with their close friends, while the other half were given questions about the Facebook comparisons they made with acquaintances. Analysis of the whole sample revealed that upward Facebook comparison elicited assimilative emotions (inspiration, optimism, and admiration) more than contrastive emotions did (envy and resentment). A path model was developed in which passive use of Facebook predicted the frequency of making upward social comparisons, and, in turn, the frequency of making upward Facebook comparisons predicted depression through two routes: one through contrastive emotions and other through assimilative emotions. The results suggested that the model fits the data. As expected, the frequency of upward Facebook comparisons was associated with the increases in frequency of both contrastive and assimilative emotions, and the associations of these two types of emotions with depression were in opposite directions: Depression increased as the frequency of contrastive emotions increased, and it decreased as the frequency of assimilative emotions increased. The strength of the latter aforementioned association was stronger when the comparison targets were acquaintances rather than close friends.

**Keywords:** upward comparison, passive Facebook use, emotions, depression

The psychological effects of Facebook use have been a controversial issue. On the one hand, there are several studies demonstrating that Facebook use may provide psychological benefits to its users in such areas as enhanced social capital (Burke, Marlow, & Lento, 2010; Ellison, Steinfield, & Lampe, 2007), connectedness (Deters & Mehl, 2013), friendship quality (McEwan, 2013), as well as perceived social support and reduced stress (Nabi, Prestin, & So, 2013). On the other hand, there are several other studies demonstrating that Facebook use can be linked to some negative psychosocial variables such as loneliness (Kross et al., 2013; Lou, Yan, Nickerson, & McMorris, 2012; Tandoc, Ferrucci, & Duffy, 2015), negative mood (Sagioglou & Greitemeyer, 2014), anxiety (Verduyn et al., 2015), and reduced life satisfaction and low self-esteem (Chen, Fan, Liu, Zhou, & Xie, 2016; Chen & Lee, 2013).

Depression is one of six mental health domains that are related to Facebook use (Frost & Rickwood, 2017). Similar to many of the other aforementioned psychological health outcomes, the relationship of depression with Facebook use has been studied extensively, yet the empirical evidence is equivocal. In most studies (mostly with US

samples) a positive relationship with Facebook use and depression has been found, yet the effect sizes were generally small (Vahedi & Zannella, 2019). However, some have identified a negative relationship. For instance, Wright and colleagues (2013) found a negative association between social support satisfaction on Facebook and depression among American college students. Park, Lee, Kwak, Cha, and Jeong (2013) showed that there was a negative association between the number of Facebook friends and depression among Korean students. Furthermore, some research indicates no significant relationship at all: According to the findings of Banjanin, Banjanin, Dimitrijevic, and Pantic (2015), neither the time spent on social networking sites (SNSs) nor the SNS-related activities were related to depression in a Serbian student sample. This mixed pattern of findings was clarified when the distinctions between various types of Facebook usages were taken into account (for a review, see Verduyn et al., 2017). Broadly, Facebook uses could be categorized into two as active and passive. According to the literature, active usage is mostly related to positive psychological outcomes, while passive usage is mostly related to negative psychological outcomes.

In several studies, some psychological mechanisms have been offered to explain how passive Facebook use is related to negative outcomes (Appel, Gerlach, & Crusius, 2016). The level of involvement in upward social comparisons on Facebook and the level of feeling negative emotions (mainly envy) after making these comparisons are among the explanatory mechanisms. However, there are studies showing that not only negative emotions, but also positive ones are elicited by passive use of SNSs. For instance, social comparisons on those sites were shown to be related to the elicitation of inspiration (Meier & Schäfer, 2018), hope (Nabi & Keblusek, 2014), and pride (Utz & Muscanell, 2018). In a similar vein, in the current study, we pointed to the importance of examining the effects of each discrete emotion evoked by Facebook exposure on individuals' depression levels separately. We sought for how the emotions elicited by upward social comparisons mediate the relationship between passive Facebook use and depression. More specifically, we tested Smith's (2000) model of social comparison emotions in Facebook context. Smith suggested that upward comparisons may trigger either contrastive emotions (envy, resentment, and depression/shame) or assimilative ones (inspiration, optimism, and admiration). In the current study, we tested the idea that the frequency of upward comparisons made after passive Facebook use may be associated with either an increase or a decrease in students' depression levels depending on the emotions evoked after these comparisons. Furthermore, we argued that Facebook users feel assimilative emotions rather than contrastive ones. This is especially true when their comparison targets are close friends (strong ties) rather than acquaintances (weak ties). In order to test this, we asked half of the sample some questions about their comparisons with close friends and the other half about their comparisons with acquaintances. We also developed a hypothetical model in which passive Facebook use and depression were linked to each other through upward comparisons and comparison-based emotions (both assimilative and contrastive); we then tested it in both halves of the sample separately. We examined whether the effect sizes of assimilative and contrastive emotions on depression vary as a function of the comparison target.

## Theoretical Background

**Social Comparisons and Emotions as Mediators Between Facebook Use and Psychological Outcomes**  
In their offline life, people make many social comparisons; they compare themselves either with some established norms or with people similar to themselves (Corcoran, Crusius, & Mussweiler, 2011). These comparisons may be upward, downward, or nondirectional. In online life, social

comparisons are even more pervasive. Specifically, SNSs offer many opportunities for comparisons. Since they facilitate selective self-presentation (Kim & Lee, 2011; Lee-Won, Shim, Joo, & Park, 2014), SNSs provide many chances especially for upward comparisons with similar others. Several studies have shown that social comparisons mediate the relationship between Facebook use and some negative outcomes. For instance, according to Chou and Edge (2012), the longer people use Facebook, the stronger their belief that others are happier than themselves, and the weaker their acceptance of the idea that life is fair. According to the results of another study, Facebook comparisons (either upward, downward, or nondirectional) mediated the relationship between the number of daily Facebook logins and depressive symptoms (Steers, Wickham, & Acitelli, 2014). Vogel, Rose, Roberts, and Eckles (2014), however, provided evidence that upward and downward Facebook comparisons may differ in terms of some psychological health outcomes that they produce. According to their study, upward comparison was related to reduced self-esteem, while downward comparison was related to enhanced self-esteem.

In the literature, not only a cognitive mechanism like social comparison, but also emotional ones have been offered as factors explaining why Facebook use is related to negative psychological outcomes. For instance, Krasnova, Wenninger, Widjaja, and Bruxmann (2013) found that the feeling of envy fully mediated the relationship between the intensity of passive Facebook use and reduced life satisfaction. Similarly, Tandoc et al. (2015) showed that Facebook surveillance (passive use) did not lead to depression unless it triggered feelings of envy. Also, Verduyn et al. (2015) found that when envy was controlled for, the association between passive Facebook use and the users' well-being was not significant. In all this research, it is consistently claimed that Facebook envy is derived from upward comparisons that individuals make while using Facebook passively (Krasnova et al., 2013; Tandoc et al., 2015; Verduyn et al., 2015). These studies have demonstrated the relationship of envy with the passive use of Facebook in general, rather than demonstrating that envy increases specifically with the increase in making upward comparisons on Facebook. Also, they exclusively focused on a negative emotion – envy – and its negative outcomes. In more recent studies, however, some researchers have shown that there are a variety of emotions that are consequences of social comparisons on SNSs – envy is only one of those potential emotions – and the outcome of social comparisons on Facebook might not be necessarily detrimental for the users. For instance, Lin and Utz (2015) showed that when Facebook users read positive news on Facebook, especially about someone whom they have strong ties with, they usually experience positive emotions, such as feelings of

happiness and “benign envy” (a desire to improve oneself by getting similar achievements to others’). In another study, Meier and Schäfer (2018) found that the frequency of making comparisons on Instagram increases both benign and malicious envy. According to their results, only benign envy increases inspiration, and through this way, the users’ general positive affect increases.

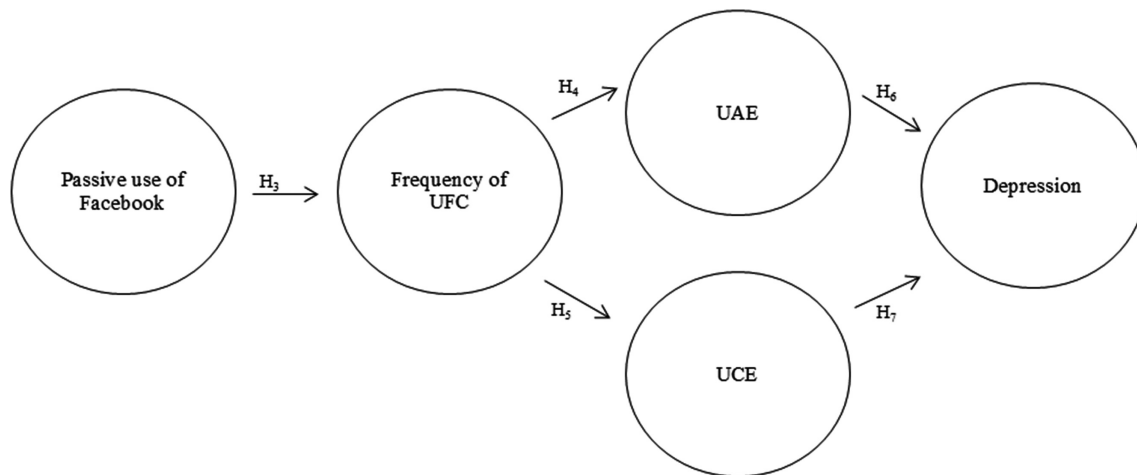
Smith (2000) developed a theory to explain individuals’ emotional reactions to social comparisons in an offline context. His theory is in harmony with Tesser’s (1991) self-evaluation model, which is a broadening of Festinger’s (1954) social comparison theory. According to Smith (2000), social comparison-based emotions may be differentiated using a number of distinctions. Each emotion can be categorized in terms of (a) whether it results from an upward or a downward comparison, and (b) whether it produces a positive or negative experience. Furthermore, he suggested that each emotion involves a characteristic focus of attention –either on the self, the other, or a dual focus on the self and the other. Smith’s (2000) typology suggests that the psychological consequences of comparisons depend on which types of emotions are evoked. In the current study, we aimed to test Smith’s ideas on online context. However, as most comparisons on Facebook are upward, we studied the emotions felt after upward comparisons only. Also, we ignored the differences of emotions in terms of desirability (positive vs. negative for self- vs. other) and focus of attention (self- vs. other-focused); rather, we concentrated on the distinction between assimilative and contrastive emotions. Therefore, the current study involves an investigation of upward assimilative emotions (which are positive) and upward contrastive emotions (which are negative). Previously, Park and Baek (2018) tested Smith’s idea in an online context. They collected data from a national survey sample in Korea, and their study showed that assimilative emotions felt after comparisons toward networked others on Facebook increase Facebook users’ life satisfaction, and contrastive ones decrease their life satisfaction. In the current study, different from Park and Baek (2018), we examined which networked others (close friends vs. acquaintances) make any difference in (a) which emotions are triggered more (assimilative vs. contrastive) and (b) the consequences of these emotions on depression.

### Facebook Friendship Types

There are various forms of relationships that people establish or maintain on Facebook: People may follow the posts of celebrities or public figures (Panger, 2014); they may maintain their relationships with close friends (strong ties); and/or they may activate relationships with casual acquaintances such as classmates, neighbors, or friends of friends (weak ties; Ellison et al., 2007; Tosun & Lajunen, 2010).

It is important to distinguish types of Facebook friendships because psychological outcomes of Facebook use may differ accordingly. For instance, Bessiere, Kiesler, Kraut, and Boneva (2008) found that initiating new friendships on the Internet is related to higher depression, whereas using the Internet to communicate with existing friends and family is related to lower depression. Similarly, a study on Instagram use has demonstrated that the frequency of Instagram use may be related to either increases or decreases in individuals’ depression levels depending on whether they follow Instagram posts of either strangers or friends (Lup, Trub, & Rosenthal, 2015). It should be noted that the use of Facebook for communicating with strangers is rare; Facebook is used more for communication with close friends and casual acquaintances rather than for communication with strangers (Ellison et al., 2007; Lampe, Ellison, & Steinfield, 2007; Tosun, 2012).

Although they are all called *friends*, Facebook users may feel psychologically closer to some of their Facebook friends (close friends) and feel more distant to others (acquaintances). The emotional outcomes of comparing oneself with close friends versus with acquaintances may be different especially for Facebook users from cultural contexts in which emotional interdependence is emphasized. In the current study, we collected data from a Turkish sample. Turkey is a culture of “emotional interdependence” (Kagitcibasi, 1996) different from Northern Europe and American societies in which independence is stressed. In cultures of interdependence, individuals are expected to define themselves in terms of their relationships and feel connected to in-group members (e.g., Triandis, 1989). Also, as compared with people from cultures of independence, they report higher levels of “inclusion of other in self” with the in-group members (Uskul, Hynie, & Lalonde, 2004). Being interdependent has some consequences for social comparison processes in interpersonal relationships. A study conducted in the offline context has shown that students having an interdependent cultural background or stronger interdependent self-construal feel worse after hearing about a fellow student’s difficulties, and better after hearing about his/her successes (White, Lehman, & Cohen, 2006). In the current study, we aimed to bring these issues into the online context. On the basis of the literature about comparisons in the offline context, we expected the upward comparisons on Facebook to produce assimilation effect, and to trigger assimilative emotions among Turkish students – especially when the comparison targets are close friends. Also, we examined whether assimilative and contrastive emotions felt after upward comparisons with networked others have similar consequences on depression when those “others” are psychologically close (close friends) or relatively remote (acquaintances).



**Figure 1.** Proposed conceptual model. UAE = upward-assimilative emotions. UCE = upward-contrastive emotions. UFC = upward Facebook comparisons.

## The Current Study

The main aim of the current study was to better understand the association between passive Facebook use and depression and the role of upward comparisons, and also the upward comparison emotions defined by Smith (2000) in this relationship. We expected social comparisons on Facebook to trigger a wide range of emotions including both assimilative and contrastive ones. More precisely, we expected upward-assimilative emotions (UAE) to be felt more often than upward-contrastive emotions (UCE) after upward Facebook comparisons (UFC). Also, we expected UAE to be triggered more often after making social comparisons with close friends rather than acquaintances.

*Hypothesis 1 (H1):* Users experience UAE more often than UCE when they make UFC.

*Hypothesis 2 (H2):* Users experience UAE more often when they make UFC with close friends rather than with acquaintances.

To refine our understanding of the process that relates individuals' Facebook-use patterns with their depression level, we put forward a conceptual model. As depicted in Figure 1, we hypothesized that a person's level of passive Facebook use would be positively related to the frequency of UFC (Hypothesis 3 (H3)). In turn, these comparisons would increase both UAE and UCE (Hypotheses 4 and 5 (H4, H5)). Furthermore, UAE would be negatively related to depression (Hypothesis 6 (H6)), while UCE would be positively related to it (Hypothesis 7 (H7)). Additionally, we tested whether the relationships between (a) UAE and depression and between (b) UCE and depression were moderated by the type of comparison target (close friends vs. acquaintances).

*Research Question 1 (RQ1):* Does the type of comparison target (close friends vs. acquaintances) moderate the relationship between UAE and depression, and does it moderate the relationship between UCE and depression?

## Method

### Procedure

The study made use of a cross-sectional survey design, for which two questionnaires were prepared. Each participant was given one questionnaire set. Although both sets involved the same items, they were slightly different in terms of the instructions given at the beginning of the three measurement instruments: passive Facebook use frequency, frequency of UFC, and the emotions felt after upward comparisons on Facebook. In one set, the respondents were instructed to think of their *close friends*, while in the other set, they were instructed to think of their *acquaintances* and rate the items accordingly. The difference between a close friend and an acquaintance was explained to the respondents as follows:

- *Close friends:* Those toward whom one feels emotionally close and behaves intimately.
- *Acquaintances:* Those toward whom one feels a lack of emotional closeness and behaves formally.

### Participants

The respondents were all volunteer students from a university in Turkey. The *close friends* sample comprised 154 students (69 male, 80 female, five unknown) with a



mean age of 20.72 years ( $SD = 2.48$ ). The acquaintances sample comprised 165 students (71 male, 85 female, nine unknown) with a mean age of 20.56 years ( $SD = 2.15$ ).

## Measures

### Passive Facebook Use Frequency

This measurement was adapted from Koroleva, Krasnova, Veltri, and Günther (2011). The participants were asked how frequently they use Facebook for given activities, involving indirect communications, with their close friends/acquaintances. Items were rated on a 5-point scale, ranging from 1 (= *almost never*) to 5 (= *almost every day*).

### Upward Social Comparison Frequency on Facebook

Respondents were asked how frequently they make upward comparisons with their close friends/acquaintances on Facebook on the following three domains: happiness, physical attractiveness, and academic or career success. A 5-point scale ranging from 1 (= *almost never or never*) to 5 (= *almost always*) was used for rating.

### Emotions Felt After Upward Social Comparisons on Facebook

Participants were asked how often they experience each of the following emotions after they make Facebook comparisons with people who are better than themselves: envy, resentment, admiration, inspiration, and optimism. Envy and resentment were representatives of UCE whereas admiration, inspiration, and optimism represented UAE.<sup>1</sup> Respondents rated the frequency of experiencing each of these emotions on a 5-point scale, ranging from 1 (= *never or almost never*) to 5 (= *almost always*).

### State-Trait Depression Inventory

Trait depression subscale of the State-Trait Depression Inventory was used. The scale was developed by Spielberger, Ritterband, Reheiser, and Brunner (2003). It was adapted to Turkish by Ozer and Ozer (2006). Trait depression subscale includes 10 items. Items were scored on a 4-point scale ranging from 1 (= *almost never*) to 4 (= *almost always*). An example item is "I feel hopeless."

### Inclusion-of-Other-in-the-Self-Scale (IOS)

We administered a one-item graphical measure developed by Aron, Aron, and Smollan (1992). IOS is a measure consists of seven pictures of two increasingly overlapping

circles, labeled *self* and *target person*. Respondents were asked to rate their emotional closeness to the target person (either close friend or acquaintance) by selecting one of the seven pictures. Previously, the IOS Scale was found to be an effective measure of [interpersonal] closeness as indicated by its correlations with the Relationship Closeness Inventory ( $r = .22$ ) and Sternberg's Intimacy Scale ( $r = .45$ ; Aron et al., 1992).

Reliability coefficients, mean values, and standard deviations for all scales used in the study are given in Table 1.

## Results

### Comparison of Emotional Closeness Felt Toward Close Friends Versus Acquaintances

In order to verify that the different instructions given to the two halves of the sample (think of your "close friends" vs. "acquaintances") were understood well by the respondents, we needed to check whether the instructions made a difference in terms of participants' mental representations of the comparison target in the expected way: Participants were expected to report higher level of emotional closeness toward close friends than toward their acquaintances. To test this, an independent-samples  $t$  test was conducted on the mean closeness score of two subsamples. As expected, there was a significant difference in the scores of closeness for close friends ( $M = 4.36$ ,  $SD = 1.79$ ) and acquaintances ( $M = 2.13$ ,  $SD = 1.37$ ),  $t(283) = 12.28$ ,  $p < .001$ ,  $d = 1.40$ .

### Comparisons of Frequency of Feeling UAE Versus UCE When the Target Person Is Close Friend Versus Acquaintance

A 2 (emotion type: assimilative vs. contrastive)  $\times$  2 (target person: close friend vs. acquaintance) repeated measures ANOVA was conducted in order to test whether UAE were felt more often than UCE after Facebook comparisons (H1), and also to test whether UAE were felt more often after Facebook comparisons when the target person was a close friend than when they were acquaintances (H2).

The main effect for the emotion type was significant,  $F(1, 152) = 122.629$ ,  $p < .001$ ,  $\eta_p^2 = .45$ . The two-way

<sup>1</sup> Smith (2000) has defined three basic UCE (depression/shame, envy, and resentment) and three basic UAE (admiration, inspiration, and optimism). Before the main study, we conducted preliminary tests in which we asked university students to what extent they felt each of those six emotions after UFC with close friends/acquaintances. We analyzed the responses to see whether those six emotions clustered into two as UCE and UAE, as suggested by Smith (2000). We observed that the mean value for the level of shame was significantly lower than all other emotions, and contrary to our expectations, shame was clustered with UAE rather than with UCE. We decided to exclude shame from the emotion list for the main study.

**Table 1.** Reliability coefficients, mean values, and standard deviations for the measurement instruments

	Close friends		Acquaintances		Total		<i>t</i>	<i>p</i>
	$\alpha$	Mean ( <i>SD</i> )	$\alpha$	Mean ( <i>SD</i> )	$\alpha$	Mean ( <i>SD</i> )		
Passive use	.79	2.91 (0.67)	.76	2.73 (0.66)	.78	2.81 (0.67)	2.35	.02
UFC	.72	2.33 (0.79)	.79	2.31 (0.87)	.76	2.32 (0.83)	0.27	.79
UCE	.78	1.75 (0.92)	.80	1.95 (1.02)	.80	1.85 (0.98)	1.77	.08
Envy		1.79 (1.05)		1.99 (1.10)			1.61	.11
Resentment		1.71 (0.98)		1.91 (1.13)			1.61	.11
UAE	.77	2.86 (0.93)	.79	2.47 (0.87)	.79	2.47 (0.86)	3.85	.00
Inspiration		3.00 (1.03)		2.64 (1.02)			3.16	.01
Admiration		2.73 (1.14)		2.31 (1.00)			3.51	.01
Optimism		2.84 (1.16)		2.47 (1.07)			2.95	.01
Depression	.86	2.17 (0.40)	.87	2.67 (0.44)	.87	2.43 (0.49)	10.77	.00

Note. UAE = upward-assimilative emotions; UCE = upward-contrastive emotions; UFC = upward Facebook comparisons.

interaction was also significant,  $F(1, 152) = 9.847, p < .01, \eta_p^2 = .06$ . According to the results of post hoc pairwise Bonferroni comparisons, UAE ( $M = 2.66, SD = 0.92$ ) were felt more than UCE ( $M = 1.85, SD = 0.98$ ) after UFC. The UAE were felt more for close friends ( $M = 2.85, SD = 0.93$ ) than for acquaintances ( $M = 2.47, SD = 0.87$ ). Therefore, H1 and H2 were supported.

A series of independent-samples *t* tests were conducted to examine which emotions were reported to be felt significantly more for one type of target person than another. According to the results, each of the three UAE was felt more when the target person was close friends than when they were acquaintances,  $t(317) = 3.16, p < .01, d = .35$  for inspiration,  $t(305) = 3.51, p < .01, d = .33$  for admiration, and  $t(317) = 2.95, p < .01, d = .37$  for optimism. For none of the UCE, however, was a significant difference found,  $t(317) = 1.61, p = .11$ , for both envy and resentment. Means and standard deviations for each emotion for each target person are presented in Table 1.

## Correlational Analyses

The inter-correlations among the study variables for the whole sample were calculated and are presented in Table 2.

In order to get a more detailed picture, inter-correlations among study variables were also calculated separately for the two subsamples: for the participants who answered the “close friends” question set and for the ones who answered the “acquaintances” question set. In both subsamples, the frequency of UFC was found to be positively correlated with both UCE ( $r_{\text{close friends}} = .23, p < .01$  and  $r_{\text{acquaintances}} = .35, p < .01$ ) and UAE ( $r_{\text{close friends}} = .35, p < .01$  and  $r_{\text{acquaintances}} = .26, p < .01$ ). In turn, UAE ( $r_{\text{close friends}} = .33, p < .001$ ;  $r_{\text{acquaintances}} = .27, p < .001$ ) and UCE ( $r_{\text{close friends}} = -.24, p < .01$ ;  $r_{\text{acquaintances}} = -.38, p < .01$ ) were significantly correlated with depression in

**Table 2.** Correlations among study variables for the whole sample

Variable	1	2	3	4	5	6
(1) Passive use	–					
(2) UFC	.38***	–				
(3) UAE	.32***	.30***	–			
(4) UCE	.23***	.29***	–.12*	–		
(5) Depression	–.06	.10	.30***	–.37***	–	
(6) Target <sup>+</sup>	.13*	.01	–.10	.21***	–.52***	–

Note. <sup>+</sup> Code 1: acquaintances, code 2: close friends. UAE = upward-assimilative emotions; UCE = upward-contrastive emotions; UFC = upward Facebook comparisons. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 3.** Correlations among study variables for two subsamples.

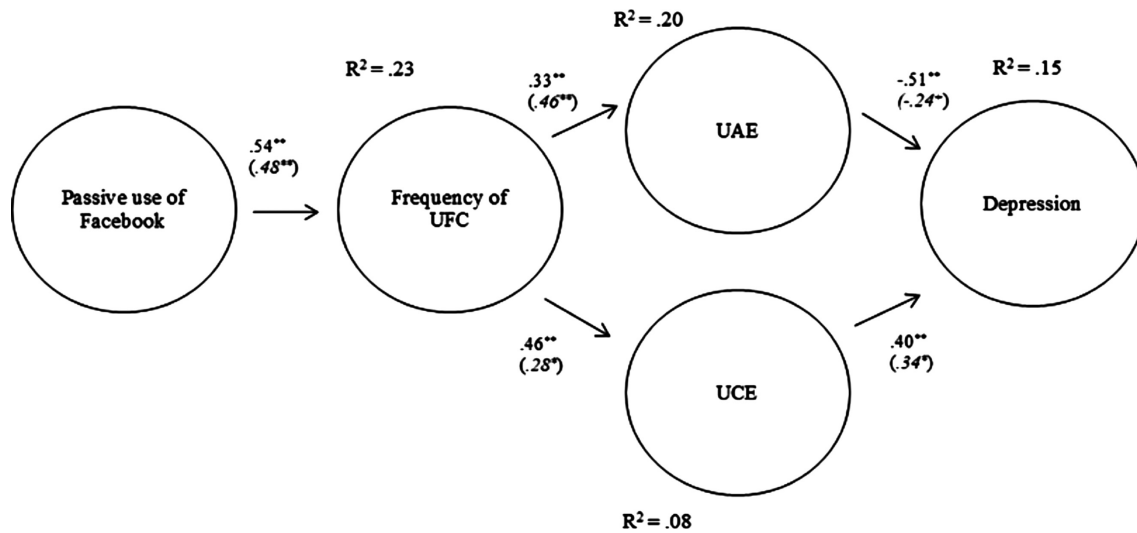
Variable	1	2	3	4	5
(1) Passive use	–				
(2) The frequency of UFC	.39**	–			
(3) UAE	.30**	.35**	–		
(4) UCE	.14	.23**	–.23**	–	
(5) Depression	.12	.20*	–.24**	.33***	–

Note. The values below the diagonal are from the close friends subsample, the values above the diagonal are from the acquaintances subsample. UAE = upward-assimilative emotions. UCE = upward-contrastive emotions. UFC = upward Facebook comparisons. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

the expected directions. The correlations are presented in Table 3.

## Model Tests

First, the measurement model was tested to assess the extent to which the latent variables were represented by predefined indicators. Second, a structural model in which passive use of Facebook was linked to the frequency of UFC, and the frequency of UFC was linked to both UAE



**Figure 2.** Results of SEM analysis with the variables of passive Facebook use, UFC frequency, UAE, UCE, and depression. Values outside brackets indicate acquaintances sample, between brackets indicate close friendship sample. UAE = upward-assimilative emotions. UCE = upward-contrastive emotions. UFC = upward Facebook comparisons. <sup>+</sup> $p < .06$ ; \* $p < .05$ ; \*\* $p < .001$ .

and UCE, and, in turn, both UAE and UCE were linked to depression was tested with multigroup moderation analysis for the acquaintances and close friends samples (Model 1a and 1b, respectively). AMOS 16 was used for testing.

### Testing the Measurement Models

Measurement model specified five latent constructs, namely, passive use of Facebook, frequency of UFC, UAE, UCE, and depression. Because the depression scale consists of two dimensions, these dimensions were employed as the observed variable.

The model-fit indices for the measurement model with the variables of Facebook use, comparison frequency, UAE, UCE, and depression indicated that the model fit the data reasonable well. The normed chi-square ( $\chi^2/df$ ) is 1.47 and Root Mean Square Error of Approximation (RMSEA) is 0.04, which indicate good fit. The model's Goodness-of-Fit Index is 0.91, Adjusted Goodness-of-Fit Index (AGFI) is 0.87, and Comparative Fit Index (CFI) is 0.95, which are sufficient (Schermelleh-Engel, Moosbrugger, & Müller, 2003; Schumacker & Lomax, 2010, p. 76).

### Testing the Structural Model

The model-fit indices for the structural model with the variables of passive Facebook use, comparison frequency, UAE, UCE, and depression provided evidence of a good model fit ( $\chi^2/df = 1.70$ , GFI = .90, AGFI = .85, CFI = .92, RMSEA = .05). As can be seen in Figure 2, passive use of Facebook (for Model 1a:  $\beta = .54$ ,  $p < .001$ ; for Model 1b:  $\beta = .48$ ,  $p < .001$ ) was found to be associated positively with the frequency of upward comparisons on Facebook.

According to the findings, when the frequency of upward comparisons increases, both UAE (for Model 1a:  $\beta = .33$ ,  $p < .001$ ; for Model 1b:  $\beta = .46$ ,  $p < .001$ ) and UCE (for Model 1a:  $\beta = .46$ ,  $p < .001$ ; for Model 1b:  $\beta = .28$ ,  $p < .05$ ) increase. Finally, as UAE increase, the level of depression decreases (for Model 1a:  $\beta = -.51$ ,  $p < .001$ ; for Model 1b:  $\beta = -.24$ ,  $p < .06$ ). On the other hand, as UCE increase, depression also increases (for Model 1a:  $\beta = .40$ ,  $p < .001$ ; for Model 1b:  $\beta = .34$ ,  $p < .05$ ). Thus, hypotheses H3–H7 were all supported.

### Moderating Effects of Comparison Target

A two-group SEM analysis was used to test the moderating effects of the comparison target by comparing the two subgroups (acquaintances vs. close friends). First, the free model and the constraint model were compared by testing the  $\chi^2$  difference. If the groups were found to be significantly different at the model level, then the difference of each path was tested.

For the two subgroups, the free model provided a chi-square value of 288.771 ( $df = 170$ ,  $p < .001$ ). The fully constrained model provided a chi-square value of 309.821 ( $df = 185$ ,  $p < .001$ ). The chi-square difference ( $\Delta\chi^2 = 21.050$ ,  $p < .001$ ) was statistically significant, suggesting that the groups are different at the model level. Therefore, we tested the significance of the difference of each path. According to the results, the only significant moderation effect was between UAE and depression ( $p < .01$ ). More specifically, the negative association between participants' assimilative emotional response to UFC and their depression level was higher when the comparison targets



were acquaintances ( $\beta_{\text{acquaintances}} = -.51$ ) than when they were close friends ( $\beta_{\text{close friends}} = -.24$ ).

## Discussion

As SNSs are being used extensively by a large number of people in contemporary society, it is important to understand the potential benefits and drawbacks of their use. In the present study, we aimed to understand the psychological mechanisms that connect Facebook use to depression: making upward comparisons and eliciting social comparison-based emotions. We did not find a direct relationship between passive Facebook use and depression; rather our results provided support for a model that explains the relationship between passive Facebook use and depression through different pathways.

In previous studies, envy (malicious type) was suggested as the main emotional outcome of upward comparisons on Facebook. Furthermore, the elicitation of envious feelings was offered as an explanation for the link between upward comparisons and increased depression (Krasnova et al., 2013; Tandoc et al., 2015; Verduyn et al., 2015). Other studies have demonstrated that passive use of social media elicited positive emotions as well as negative ones (Lin & Utz, 2015; Meier & Schäfer, 2018; Nabi & Keblusek, 2014; Utz & Muscanell, 2018). Consistent with previous studies, we have demonstrated that passive Facebook use has a capacity to trigger a wide range of emotions. We have categorized these emotions as assimilative and contrastive emotions, as Smith (2000) suggested. According to our results, Facebook users experience UAE (inspiration, optimism, admiration) more frequently than UCE (envy, resentment). Also, we found that UAE are felt more frequently when the comparisons are made with close friends rather than with acquaintances.

Unsurprisingly, in the current study, the psychological outcomes of UAE and UCE were found to be opposite to each other. More specifically, UAE were found to be related to lower depression whereas UCE were found to be related to higher depression. Theoretically, this finding confirms Smith's (2000) insights. Practically, there might be an implication of this finding to clinicians and educators who are required to provide recommendations for individuals' Facebook use. These professionals might inform their clients/students about how to regulate their emotional reactions to UFC so that they can be protected from getting depressed. In many previous studies of the psychological outcomes of Facebook comparisons, "Facebook friends" were considered as monolithic, with no consideration of the varied relationships with those on the friends' list (Krasnova et al., 2013; Steers et al., 2014; Tandoc et al.,

2015; Verduyn et al., 2015; Vogel et al., 2014). By contrast, we examined how the outcomes of Facebook comparisons differ depending on whether comparison targets were close friends or acquaintances. First, we examined whether the frequencies of experiencing UAE and UCE depend on who the target persons are. According to our results, UAE are felt more frequently for close friends than for acquaintances. The frequency of feeling UCE however, was not found to depend on the target person.

Furthermore, in the current study, we tested our model that explains the relationship between passive Facebook use and depression through UAE and UCE for these two conditions: when the comparison target is close friends, and when it is acquaintances. To us, the most interesting finding is that the negative relationship between the frequency of UAE and depression is higher when the target person is an acquaintance than when they are a close friend. These results are inconsistent with Lin and Utz's (2015) findings. According to their research, American participants become happier when the good news comes from their closer friends. According to our findings, the inconsistency may stem from one of these two methodological differences between the two studies: (a) the differences regarding what the independent and dependent variables are exactly and how they are measured, and (b) the differences regarding the samples. More specifically, Lin and Utz's (2015) study and the current study are different in terms of the measurement of dependent variables: While they used happiness as dependent variable and measured participants' happiness felt after reading a specific post, in the current study the independent variable was trait depression. Also, the two studies are different in terms of their independent variables too. Lin and Utz (2015) asked their participants to report the emotions evoked by the most recent posts sent by their Facebook friends. However, we asked participants to report how frequently they feel several emotions after making upward comparisons on Facebook. An alternative explanation for the inconsistent results of the two studies is as follows: Cultures differ in terms of the social norms that prescribe how people should feel in specific situations (Eid & Diener, 2009). Our data come from a culture of interdependence where maintaining harmonious relationships with in-group members is important. In these cultures, experiencing UAE rather than UCE might be seen as proper when the target person is close friends. Since the cultural norms do not put strong pressure on people to report feeling UAE after comparisons with acquaintances, when people report to feel UAE toward acquaintances, it is more likely to be genuine. This might be why feeling UAE after comparisons is found to be more strongly related to lowered depression when the target person is an acquaintance. In Lin and Utz's (2015) study, however, the data are collected from the

United States – a culture of independence. In such cultures people might feel much less cultural pressure about reporting positive feelings after receiving good news about close friends. In that sample, when people report that they feel UAE after reading positive news from their closer friends, it is likely to be genuine. It is no surprise that UAE emotions are more strongly related to lower depression when the target person is a closer friend.

## Limitations

This study has some limitations regarding both the internal and external validity. First, it was a cross-sectional survey, and therefore the direction of causality between variables is unknown. This is problematic in interpreting the results. For instance, we found that UAE are significantly related to depression only when the target persons are acquaintances. We interpreted this to mean that social comparisons with acquaintances have a larger impact. However, an equally reasonable alternative explanation is that depressed people might be less likely to get inspired from reading acquaintances' posts. Previously, this idea that causality of effects might be in the opposite direction was supported by the findings of a cross-lagged longitudinal study with two waves spaced 1 year apart (Scherr, Toma & Schuster, 2019). According to those findings, depression predicts Facebook envy, and envy predicts Facebook surveillance. Relatedly, there is evidence that the relationship between depression and media use might not necessarily be linear (Scherr, 2018). Further studies are needed in order to better clarify the strength of causality between passive Facebook use, emotions, and depression. There is need for more longitudinal and experimental studies in order to shed more light on the relationship between these variables. Besides, in future studies, it would be a better idea to examine the intensity of emotions, rather than the frequency of emotions. Also, in the current study, only UAE and UCE are examined although assimilation and contrast are not the only dimensions of social comparison-based emotions in Smith's categorization system. Self- and other-focused emotions, and emotions felt after downward comparisons, may be examined in online contexts in future studies. Another limitation regarding the internal validity is the lack of measurement of state depression. If state depression had been measured, it would be possible to see whether being reminded about upward comparisons with acquaintances triggers depressive symptoms.

With regard to external validity, it is a limitation that our sample comprised a group of young adults from a single university setting in a single country. For the generalizability of results, the study should be replicated with diverse demographic groups and in different cultural contexts.

In particular, whether the interaction between emotion type and tie strength would be replicated in other cultures is an open question.

## Conclusion

Many individuals spend a considerable amount of time on Facebook, and this can be either a depressing or gratifying experience. In most previous research, it has been stressed that passive Facebook use has a potential to lead to depression. In some others, however, it has been shown to be associated with positive psychological outcomes. With the current study, we provided new evidence that passive Facebook usage may either enhance or reduce depression depending on the emotions evoked. Our study is one of very few that tested Smith's (2000) categorization of emotions in the context of Facebook. We showed that UAEs are more common than UCEs – especially when the comparison targets are close friends. Also, with this study we demonstrated that while examining how UAE and UCE are related to depression, it is important to take into account the level of closeness of the comparison target and the comparer. We believe that our study makes a valuable contribution to the literature in that it not only reports direct associations between Facebook use and psychological outcomes, but also tries to explain the mechanisms that may account for these associations.

## References

- Appel, H., Gerlach, A. L., & Crusius, J. (2016). The interplay between Facebook use, social comparison, envy, and depression. *Current Opinion in Psychology*, 9, 44–49. <https://doi.org/10.1016/j.copsyc.2015.10.006>
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63(4), 596. <https://doi.org/10.1037/0022-3514.63.4.596>
- Banjanin, N., Banjanin, N., Dimitrijevic, I., & Pantic, I. (2015). Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. *Computers in Human Behavior*, 43, 308–312. <https://doi.org/10.1016/j.chb.2014.11.013>
- Bessiere, K., Kiesler, S., Kraut, R., & Boneva, B. S. (2008). Effects of Internet use and social resources on changes in depression. *Information, Community & Society*, 11(1), 47–70. <https://doi.org/10.1080/13691180701858851>
- Burke, M., Marlow, C., & Lentz, T. (2010). Social network activity and social well-being. In ACM. (Ed.), *Proceedings of the CHI 2010: Conference on Human Factors in Computing Systems*, Atlanta, GA (pp. 1902–1912). New York, NY: ACM. <https://doi.org/10.1145/1753326.1753613>
- Chen, W., Fan, C. Y., Liu, Q. X., Zhou, Z. K., & Xie, X. C. (2016). Passive social network site use and subjective well-being: A moderated mediation model. *Computers in Human Behavior*, 64, 507–514. <https://doi.org/10.1016/j.chb.2016.04.038>

- Chen, W., & Lee, K. H. (2013). Sharing, liking, commenting, and distressed? The pathway between Facebook interaction and psychological distress. *Cyberpsychology, Behavior, and Social Networking*, 16(10), 728–734. <https://doi.org/10.1089/cyber.2012.0272>
- Chou, H. T. G., & Edge, N. (2012). "They are happier and having better lives than I am": The impact of using Facebook on perceptions of others' lives. *Cyberpsychology, Behavior, & Social Networking*, 15, 117–121. <https://doi.org/10.1089/cyber.2011.0324>
- Corcoran, K., Crusius, J., & Mussweiler, T. (2011). Social comparison: Motives, standards, and mechanisms. In D. Chadee (Ed.), *Theories in social psychology* (pp. 119–139). Oxford, UK: Wiley-Blackwell.
- Deters, F. G., & Mehl, M. R. (2013). Does posting Facebook status updates increase or decrease loneliness? An online social networking experiment. *Social Psychological and Personality Science*, 4(5), 579–586. <https://doi.org/10.1177/1948550612469233>
- Eid, M., & Diener, E. (2009). Norms for experiencing emotions in different cultures: Inter- and intranational differences. In E. Diener (Ed.), *Culture and well-being* (pp. 169–202). New York, NY: Springer.
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook friends social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication*, 12(4), 1143–1168. <https://doi.org/10.1111/j.1083-6101.2007.00367.x>
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7(2), 117–140. <https://doi.org/10.1177/001872675400700202>
- Frost, R. L., & Rickwood, D. J. (2017). A systematic review of the mental health outcomes associated with Facebook use. *Computers in Human Behavior*, 76, 576–600. <https://doi.org/10.1016/j.chb.2017.08.001>
- Kagitcibasi, C. (1996). The autonomous-relational self. *European Psychologist*, 1(3), 180–186. <https://doi.org/10.1027/1016-9040.1.3.180>
- Kim, J., & Lee, J. E. R. (2011). The Facebook paths to happiness: Effects of the number of Facebook friends and self-presentation on subjective well-being. *Cyberpsychology, Behavior, and Social Networking*, 14(6), 359–364. <https://doi.org/10.1089/cyber.2010.0374>
- Koroleva, K., Krasnova, H., Veltri, N., & Günther, O. (2011). *It's all about networking. Empirical investigation of social capital formation on social network sites*. Paper presented at the 32nd International Conference on Information Systems, Shanghai, China. <https://doi.org/10.7892/boris.47120>
- Krasnova, H., Wenninger, H., Widjaja, T., & Bruxmann, P. (2013, February). *Envy on Facebook: A hidden threat to users' life satisfaction?* Paper presented at the 11th International Conference (Wirtschaftsinformatik), Leipzig, Germany. <https://doi.org/10.7892/boris.47080>
- Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., & Ybarra, O. (2013). Facebook use predicts declines in subjective well-being in young adults. *PLoS One*, 8(8). <https://doi.org/10.1371/journal.pone.0069841>
- Lampe, C., Ellison, N., & Steinfield, C. (2007). A familiar face(book): Profile elements as signals in an online social network. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. San Jose, CA (pp. 435–444). New York, NY: ACM. <https://doi.org/10.1145/1240624.1240695>
- Lee-Won, R. J., Shim, M., Joo, Y. K., & Park, S. G. (2014). Who puts the best "face" forward on Facebook? Positive self-presentation in online social networking and the role of self-consciousness, actual-to-total Friends ratio, and culture. *Computers in Human Behavior*, 39, 413–423. <https://doi.org/10.1016/j.chb.2014.08.007>
- Lin, R., & Utz, S. (2015). The emotional responses of browsing Facebook: Happiness, envy, and the role of tie strength. *Computers in Human Behavior*, 52, 29–38. <https://doi.org/10.1016/j.chb.2015.04.064>
- Lou, L. L., Yan, Z., Nickerson, A., & McMorris, R. (2012). An examination of the reciprocal relationship of loneliness and Facebook use among first-year college students. *Journal of Educational Computing Research*, 46(1), 105–117. <https://doi.org/10.2190/EC.46.1.e>
- Lup, K., Trub, L., & Rosenthal, L. (2015). Instagram #instasad? Exploring associations among Instagram use, depressive symptoms, negative social comparison, and strangers followed. *Cyberpsychology, Behavior, and Social Networking*, 18(5), 247–252. <https://doi.org/10.1089/cyber.2014.0560>
- McEwan, B. (2013). Sharing, caring, and surveilling: An actor-partner interdependence model examination of Facebook relational maintenance strategies. *Cyberpsychology, Behavior, and Social Networking*, 16(12), 863–869. <https://doi.org/10.1089/cyber.2012.0717>
- Meier, A., & Schäfer, S. (2018). Positive side of social comparison on social network sites: How envy can drive inspiration on Instagram. *Cyberpsychology, Behavior, and Social Networking*, 21(7), 411–417. <https://doi.org/10.1089/cyber.2017.0708>
- Nabi, R. L., & Keblusek, L. (2014). Inspired by hope, motivated by envy: Comparing the effects of discrete emotions in the process of social comparison to media figures. *Media Psychology*, 17(2), 208–234. <https://doi.org/10.1080/15213269.2013.878663>
- Nabi, R. L., Prestin, A., & So, J. (2013). Facebook friends with (health) benefits? Exploring social network site use and perceptions of social support, stress, and well-being. *Cyberpsychology, Behavior, and Social Networking*, 16(10), 721–727. <https://doi.org/10.1089/cyber.2012.0521>
- Ozer, A. K., & Ozer, S. (2006). Factorial structure of State-Trait Depression Scales. *Dogus Universitesi Dergisi*, 7(2), 210–217. Retrieved from <http://journal.dogus.edu.tr/index.php/duj/issue/view/10>
- Panger, G. (2014, April). Social comparison in socialmedia: A look at Facebook and Twitter. In ACM (Ed.), *CHI'14 Extended Abstracts on Human Factors in Computing Systems* (pp. 2095–2100). New York, NY: ACM. <https://doi.org/10.1145/2559206.2581184>
- Park, S. Y., & Baek, Y. M. (2018). Two faces of social comparison on Facebook: The interplay between social comparison orientation, emotions, and psychological well-being. *Computers in Human Behavior*, 79, 83–93. <https://doi.org/10.1016/j.chb.2017.10.028>
- Park, S., Lee, S. W., Kwak, J., Cha, M., & Jeong, B. (2013). Activities on Facebook reveal the depressive state of users. *Journal of Medical Internet Research*, 15(10), e217. <https://doi.org/10.2196/jmir.2718>
- Sagioglou, C., & Greitemeyer, T. (2014). Facebook's emotional consequences: Why Facebook causes a decrease in mood and why people still use it. *Computers in Human Behavior*, 35, 359–363. <https://doi.org/10.1016/j.chb.2014.03.003>
- Schermelele-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research – Online*, 8(2), 23–74. Retrieved from <https://www.dgps.de/fachgruppen/methoden/mpronline/>
- Scherr, S. (2018). Traditional media use and depression in the general population: Evidence for a non-linear relationship. *Current Psychology*, 1–16. Advance online publication. <https://doi.org/10.1007/s12144-018-0020-7>
- Scherr, S., Toma, C. L., & Schuster, B. (2019). Depression as a predictor of Facebook surveillance and envy: Longitudinal evidence from a cross-lagged panel study in Germany. *Journal of Media Psychology*, 31, 196–202. <https://doi.org/10.1027/1864-1105/a000247>

- Schumacker, R. E., & Lomax, R. G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). New York, NY: Routledge.
- Smith, R. H. (2000). Assimilative and contrastive emotional reactions to upward and downward social comparisons. In J. Suls & L. Wheeler (Eds.), *Handbook of social comparison: Theory and research* (1st ed., pp. 173–200). New York, NY: Plenum.
- Spielberger, C. D., Ritterband, L. M., Reheiser, E. C., & Brunner, T. M. (2003). The nature and measurement of depression. *International Journal of Clinical and Health Psychology*, 3, 209–234. Retrieved from <https://dialnet.unirioja.es/revista/2852/A/2003>
- Steers, M. L. N., Wickham, R. E., & Acitelli, L. K. (2014). Seeing everyone else's highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social and Clinical Psychology*, 33(8), 701–731. <https://doi.org/10.1521/jscp.2014.33.8.701>
- Tandoc, E. C., Ferrucci, P., & Duffy, M. (2015). Facebook use, envy, and depression among college students: Is facebooking depressing? *Computers in Human Behavior*, 43, 139–146. <https://doi.org/10.1016/j.chb.2014.10.053>
- Tesser, A. (1991). Emotion in social comparison and reflection processes. In J. Suls & T. A. Wills (Eds.), *Social comparison: Contemporary theory and research* (pp. 115–145). Hillsdale, NJ: Erlbaum.
- Tosun, L. P. (2012). Motives for Facebook use and expressing "true self" on the Internet. *Computers in Human Behavior*, 28(4), 1510–1517. <https://doi.org/10.1016/j.chb.2012.03.018>
- Tosun, L. P., & Lajunen, T. (2010). Does Internet use reflect your personality? Relationship between Eysenck's personality dimensions and Internet use. *Computers in Human Behavior*, 26(2), 162–167. <https://doi.org/10.1016/j.chb.2009.10.010>
- Triandis, H. C. (1989). The self and social behavior in differing cultural contexts. *Psychological Review*, 96(3), 506–520. <https://doi.org/10.1037/0033-295X.96.3.506>
- Uskul, A. K., Hynie, M., & Lalonde, R. N. (2004). Interdependence as a mediator between culture and interpersonal closeness for Euro-Canadians and Turks. *Journal of Cross-Cultural Psychology*, 35(2), 174–191. <https://doi.org/10.1177/0022022103262243>
- Utz, S., & Muscanell, N. L. (2018). Your co-author received 150 citations: Pride, but not envy, mediates the effect of system-generated achievement messages on motivation. *Frontiers in Psychology*, 9, 435–444. <https://doi.org/10.3389/fpsyg.2018.00628>
- Vahedi, Z., & Zannella, L. (2019). The association between self-reported depressive symptoms and the use of social networking sites (SNS): A meta-analysis. *Current Psychology*. <https://doi.org/10.1007/s12144-019-0150-6>
- Verduyn, P., Lee, D. S., Park, J., Shablack, H., Orvell, A., Bayer, J., & Kross, E. (2015). Passive Facebook usage undermines affective well-being: Experimental and longitudinal evidence. *Journal of Experimental Psychology: General*, 144(2), 480–488. <https://doi.org/10.1037/xge0000057>
- Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review*, 11(1), 274–302. <https://doi.org/10.1111/sipr.12033>
- Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, 3(4), 206–222. <https://doi.org/10.1037/ppm0000047>
- White, K., Lehman, D. R., & Cohen, D. (2006). Culture, self-construal, and affective reactions to successful and unsuccessful others. *Journal of Experimental Social Psychology*, 42(5), 582–592. <https://doi.org/10.1016/j.jesp.2005.10.001>
- Wright, K. B., Rosenberg, J., Egbert, N., Ploeger, N. A., Bernard, D. R., & King, S. (2013). Communication competence, social support, and depression among college students: A model of Facebook and face-to-face support network influence. *Journal of Health Communication*, 18(1), 41–57. <https://doi.org/10.1080/10810730.2012.688250>

### History

Received October 2, 2018

Revision received July 26, 2019

Accepted October 2, 2019

Published online December 16, 2019

### Publication Ethics

This research was approved by the Institutional Review Board of the Bursa Uludag University, Turkey.

### Open Data


The authors are willing to share their data, analytic methods, and study materials with other researchers. The materials will be available upon request.

### Preregistration Statement

The authors *have not* preregistered this research.

### ORCID

Leman Pinar Tosun

 <https://orcid.org/0000-0003-1635-6629>

### Leman Pinar Tosun

Department of Psychology

Uludag University

Görükle Kapüsü

Bursa 16059

Turkey

[pinart@uludag.edu.tr](mailto:pinart@uludag.edu.tr)



Leman Pinar Tosun is an associate professor of social psychology in the Psychology Department at Bursa Uludag University, Turkey. Her research interests include interpersonal relationships and social behaviors in various context, such as social networking sites.



Ezgi Kaşdarma (MD, Bursa Uludag University) is a PhD student and a research assistant in the Psychology Department at Bursa Uludag University, Turkey. Her research interests include gender stereotypes, social identity, and social media use.