

Social Comparison on Facebook, its Influence on State Self-Esteem and the Role of Public Self-Consciousness

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Abstract

With the pervasive use of Facebook, users are exposed to others' information and are prone to make social comparison, as per the Social Comparison Theory, influencing their self-evaluation. This study hypothesized that teenagers make more upward social comparison with superior others, than downward, causing them to have lower state self-esteem. This study also posited that high public self-conscious teenagers, who are concerned about their self-portrayal, make more upward comparison, and experience lower state self-esteem. Further, this study posited that the positive association between upward comparison and lower state self-esteem increases by high public self-consciousness. The survey data was gathered from a purposive sample (N = 183) of students from five secondary schools. The results supported all the hypotheses: namely, a negative association between social comparison and state self-esteem; and the moderating role of high public self-consciousness in this association. Findings were discussed, implications, limitations and suggestions for future research stated.

Keywords: Social comparison, state self-esteem, public self-consciousness, teenagers, Facebook

1. Introduction

Since social networking sites (SNSs) have become prevalent with significant impact on social lives. The leading and most influential SNS Facebook, with an average of 1.37 million daily users (Facebook, 2018), is the SNS employed in this study. Facebook enables users to create profiles with self-descriptions and pictures to present themselves to others, to give and receive feedback (Valkenburg, Peter, & Schouten, 2006). Users also write status updates, upload attractive photos, about their interesting lives, express their beliefs, and observe others' profiles (boyd & Ellison, 2007).

Notably, viewing the refined profiles and pictures of people on SNSs, that offer an ideal platform for comparing with others (Haferkamp & Kramer, 2011), gives the impression that they are happier and living better lives (Chou & Edge, 2012). An evident result is social comparison; the process which people undertake to fulfill needs like self-evaluations (Festinger, 1954), self-enhancement (Wills, 1981), and self-improvement (Lockwood & Kunda, 1997).

Thus, understanding the potential influence of social comparison on SNSs users' state self-esteem is important, because people base their self-perceptions, at least partially, by making comparison to others (Festinger, 1954). Reviewing extant literature showed that comparison, particularly on Facebook, can impact self-esteem in positive and negative ways. Despite the frequent comparison on Facebook, research has not examined its direction with its impact on state self-esteem: since self-esteem level can be temporary and changeable. Hence, this study performs this investigation based on the Social Comparison Theory (Festinger, 1954).

Also, it is unclear whether other influences play a role in this relationship. In this context, Hemphill and Lehman (1991) proposed researchers' need to recognize that people may compare with others to different degrees, depending on individual difference variables. Also, as per Lee, Moore, Park, and Park (2012), moderators between self-esteem and Facebook use should be included; such as public self-consciousness - the focus on how they are viewed by others.

No research to date has investigated the role played by the individual difference variable of public self-consciousness in this association. Hence, as an attempt to fill the gap in the literature, and report on the propositions made, this study develops two central research questions:

RQ1: How is social comparison direction on Facebook associated with state self-esteem?

RQ2: What role does public self-consciousness play in this association?

Particularly, the social comparison influence on state self-esteem is most significant for teenagers on Facebook, which plays a fundamental role in their life and frequently use it for social comparison (Valkenburg et al., 2006), to examine their identities and to know about themselves through feedback from online friends. Consequently, for this study, a sample of teenage students was chosen because they regularly make social comparison more than adults (Stipek & Tannatt, 1984). Also, teenage years are a major growth phase of the self and its sustaining neural structures (Sebastian, Burnett, & Blakemore, 2008). As such, neurocognitive development might affect certain behaviors: as higher self-consciousness, increased focus on the self and comparison with others, sensitivity to peer influence, greater concern that others are observing and making judgments about them; which are critical SNS features.

This study anticipated that teenagers make more upward, than downward, social comparison on Facebook, which will be negatively related to higher state self-esteem. This study also suggested that higher public self-consciousness is positively associated with upward comparison, as well as with lower state self-esteem. Furthermore, this study predicted that public self-consciousness plays a moderating role in the association between upward social comparison and lower state self-esteem.

2. Literature review

2.1. Social comparison theory

This theory, proposed by Festinger in 1954, is the process where people, by comparing themselves to others, form personal appraisals of themselves, make conclusions about themselves and defines their selves. Social comparison is an essential individual drive (Vogel, Rose, Roberts, & Eckles, 2014) and pervasive process that influences the individuals' decisions, experiences, choices and behaviors (Corcoran, Crusius, & Mussweiler, 2011). Festinger (1954) proposed two directions for social comparison: the choice to make upward comparison with others who individuals consider superior to themselves, or to make downward comparison with others who they consider inferior to themselves. Since individuals vary in their tendency to compare themselves with others, the social comparison direction is decided by their motives, which could either be self-enhancement or self-improvement. The former motive (Wills, 1981) is related to the need to keep a positive self-image; as such, individuals make downward comparison by selecting others who are inferior, unsuccessful or less fortunate to compare themselves to which helps enhance their self-concept, boost their self-esteem (Gibbons & Buunk, 1999), and restore positive feelings and well-being (Wills, 1981).

Alternatively, the self-improvement motive (Lockwood & Kunda, 1997) is when people have a continuous desire to improve themselves and are motivated to make upward comparisons by identifying with superior others (Festinger, 1954), without seeing them as threat to their self-esteem, but as an opportunity to self-improve, and provide motivation, stimulation and information on how to advance (Corcoran et al., 2011). However, in contrast, the opposite effect is also apparent; upward comparison may lead individuals to question their self-image and reveal their limitations, cause them to have negative emotions and self-doubt, damage their well-being and lower their self-esteem (Festinger, 1954; Gibbons & Buunk, 1999; Wills, 1981), make them feel incompetent and have inferior self-evaluations (Lockwood & Kunda, 1997), and to experience negative feelings and discouragement (Wills, 1981).

2.2. Social networking sites and their impact on social comparison direction

SNSs provide platforms for users to connect with others, share their information and pictures, and perform presentation of themselves, their appearance, achievements, careers, relationships and activities via online profiles, thus, convey important social cues from which others form opinions about them (boyd & Ellison, 2007). As such, these sites provide rich affordances for social comparison (Haferkamp & Kramer, 2011; Vogel et al., 2014), where people access information about others more easily compared to previous personal encounters (Lee, 2014). SNSs have expanded the range, opportunities and desire for social comparison, with family and friends, and even with strangers.

More so, whereas people have control over their self-presentation in real life, this ability is greater over their self-presentations on SNSs; where users manage the impression they portray via their profiles by deliberately emphasizing their most favorable traits, displaying alluring information, selecting and editing their pictures (Papacharissi, 2002), revising status updates, removing negative comments, untagging unappealing photos posted by others, checking-in at certain places, in order to reveal their ideal rather than their actual selves and traits (Pempek, Yermolayeva, & Calvert, 2009).

In a similar vein, Mehdizadeh (2010) showed that Facebook is used to highlight users' most interesting identities, while personal interactions do not facilitate the same ease and extent of deliberation to do so (Ellison, Heino, & Gibbs, 2006). Consequently, many scholars (Feinstein, Hershenberg, Bhatia, Latack, Meuwly, & Davila, 2013; Lee, 2014; Vogel et al., 2014) suggest that SNSs mostly entail upward comparison, limiting peoples' ability to make downward comparison.

Since this research aims to study teenagers' comparison influence, SNSs - being ingrained in their daily lives - offer an opportunity to make continual comparison with friends; radically shaping their self-concept. As per Pempek et al. (2009), the majority of students are interested in knowing about others, as most networking activity consists of glancing through others' profiles, observing their actions, and using SNSs for comparison rather than interacting with others.

However, social comparison direction differs across SNS users; hence, its examination enables this research to understand what effects users might experience. Consequently, research on the impact of social comparison direction among teenagers on Facebook is essential, since it may play an important role in their state self-esteem. Extant research on real life social comparisons is ample; however, research on how users make social comparison on Facebook is rare. Thus, since one of this study aims is examining the direction of comparison, this study hypothesizes that: **H1**. Teenagers would make more upward, than downward, social comparisons on Facebook.

2.3. Self-esteem: Trait versus state

Self-esteem is the overall evaluation of individuals' self-concept, their feelings of self-worth or value of themselves (Rosenberg, 1965). According to Brown and Marshall (2006), there is a difference between trait and state self-esteem. Trait self-esteem is the personality variable that represents the way people generally feel about themselves; it is also referred to as global self esteem, and is relatively enduring and unchanging across time and situations. State self-esteem, however, is the emotional reaction to life events; also referred to as feelings of self-worth, and is temporary and changeable depending on the situation.

The Self-Esteem Scale (RSES) was developed by Rosenberg in 1965 that measures trait-related characteristics by requesting from respondents to indicate their agreement with "a list of statements dealing with your general feelings about yourself". Yet, given this study focus on the short-termed changes in self-esteem following comparison on Facebook, this study utilized the Current Thoughts Scale – a State Self-Esteem Scale (SSES), developed by Heatherton and Polivy (1991), which is sensitive to thoughts, feelings and behaviors that temporarily change self-esteem.

2.4. Social comparison on Facebook and its relation to state self-esteem

Social comparison can cause imbalance in conception of the self (Wills, 1981), and influence individuals in many ways (Lee, 2014); and this influence can be strongly experienced on SNSs. Yet, little research exists on the impact of social comparison on SNSs on users' state self-esteem. Given that this necessitates increased research, particularly among teenagers whose state self-esteem is more easily affected (Valkenburg et al., 2006), this study aims to examine state self-esteem following the comparison direction on SNS by teenagers. Applying the Social Comparison Theory (Festinger, 1954), and depending on whether teenagers compare themselves with others in an upward or downward direction, their self-esteem is raised or lowered (Wills, 1981).

The limited extant literature on the impact of comparison on self-esteem has resulted in inconclusive outcomes. On the one hand, examining upward comparison, some scholars (Wills, 1981) have focused on its adverse effects on self-esteem, claiming that it leads to destructive emotions, lower self-esteem and self-views, and higher anxiety. In this context, studies on social comparison on the different media postulate that the media paints a distorted picture of successful and attractive people (Haferkamp & Kramer, 2011), that eventually leads people to make upward comparisons, and leaves them dissatisfied with their lives because what is portrayed in the media appears to be unachievable.

Other studies (Feinstein et al., 2013; Lee, 2014; Mehdizadeh, 2010; Vogel et al., 2014) indicated that the self-presentation on Facebook leads users to comparing their actual selves to others' idealized online selves, which is detrimental to state self-esteem. Further, constantly observing others' positive lives and joyful pictures gives Facebook users an impression that others are happier and having better lives (Chou & Edge, 2012). Thus, the more people view others' optimal, refined and favorable presentation on Facebook, the more likely others' false perception results in upward social comparison (Ellison et al., 2006) increasing negative thoughts and symptoms of depression (Feinstein et al., 2013). Also, individuals' upward comparison frequency on Facebook was negatively correlated with self-esteem and social competence (Lee, 2014).

In contrast, Lockwood and Kunda (1997) suggested that individuals do not see upward comparison as a threat to self-esteem, but an opportunity to self-enhance, which can motivate them to achieve objectives and sustain their positive self-appraisals. In sum, in certain instances, superior others have shown to be inspiring and self-enhancing, and, in other cases, they appear to be self-deflating. This study proposes that an increase or decrease in state self-esteem will depend on the social comparison direction on Facebook by teenagers, and, thus, proposes the following hypothesis: **H2**. Upward social comparisons on Facebook will be positively related to lower state self-esteem among teenagers in Lebanon.

2.5. Self-consciousness: Public versus private

Self-consciousness refers to peoples' tendency to constantly direct their attention to self-related aspects, either inward or outward (Fenigstein, Scheier, & Buss, 1975). These authors differentiated between two self-consciousness types: private and public. The former is the degree to which individuals focus and react upon their internal thoughts, feelings and motives. Contrarily, the latter is the degree to which individuals focus on the visibly displayed aspects of themselves (Scheier & Carver, 1985). And, whereas high private self-conscious people adjust their behavior based on inner beliefs and values privately held by the self; high public self-conscious people are other-directed, preoccupied with self-presentation, concern about how they are viewed by others, are highly aware of themselves and their appearances so as to portray socially proper behavior and comply with social norms (Lee et al., 2012), and are inclined to expose and manipulate the information and pictures they reveal on SNSs to maximize approval (Papacharissi, 2002). As such, public self-consciousness, rather than private, is more applicable to the current study.

2.6. The relationship between social comparison and public self-consciousness

Whereas upward social comparison is comparing oneself with superior others for self-evaluation; public self-consciousness is focusing on the visible aspects of the self for adjusting behaviors to those who are socially acceptable. Yet, according to Sharp, Voci, and Hewstone (2011) both of these variables concern the extent to which people compare and relate themselves to others, both have the common aim of evaluating the disposition to which an individual is aware of others with reference to the self, and both are related to dependence on social norms that guide behavior.

There are social situations when the tendency to make comparisons would increase (Wood, 1989) leading to an increase in uncertainty, competition or anxiety. An example is SNSs, when used as platforms for self-presentation (Mehdizadeh, 2010) and for obtaining feedback. One of the major public self-consciousness outcomes is that these individuals can be stimulated according to situations, and have great desire to act in ways that others would approve (Scheier & Carver, 1985). As such, high public self-conscious SNS users care more about how others comment on their updates, posts and pictures (Lee, 2014) that are observable to a numerous users. Similarly stated, since high public self-consciousness is associated with self-presentation in online communication (Peter, Valkenburg, & Schouten, 2007), social comparison on Facebook may arise from a tendency of these individuals to project idealized portrayals of them. As mentioned, some scholars (Hemphill & Lehman, 1991; Lee et al., 2012) suggest that individual differences impact social comparison effects. Others (Gibbons & Buunk, 1999; Stapel & Tesser, 2001) also found that individuals who are self-conscious in the presence of others tend to make more upward social comparisons. However, limited studies have examined the relationship between individuals' public self-consciousness and social comparison direction, especially on SNSs. Particularly, this study posited that teenagers who have high public self-consciousness about their appearance, performance or ability, and have uncertainty over social norms concerning how to think, feel and act, would make more upward social comparison on Facebook. Thus, this study proposes the following hypothesis: **H3**. A higher level of public self-consciousness among teenagers will be positively associated with upward social comparison on Facebook.

2.7. The relationship between public self-consciousness and state self-esteem

Since a number of different factors impact state self-esteem, this study also seeks to examine if public self-consciousness is related to it. To Fenigstein et al. (1975), individual differences in self-consciousness has implications for individuals' self-esteem. As per Skues, Williams, and Wise (2012), controlling information to influence others' opinions of oneself is closely related to one's self-esteem. Also, public self-conscious individuals have higher anxiety levels, lower self-esteem, are more sensitive to social rejections, and perform self-presentation to gain approval and reduce negative evaluations by others (Doherty & Schlenker, 1991).

Specifically, in online communication among the young, public self-consciousness is associated with self-presentation (Peter et al., 2007); this is because an increasing awareness of others' opinions of them provides information from which teenagers construct their self-concept (Sebastian et al., 2008). Further, as per the Sociometer Theory of Self-Esteem by Leary (1999), self-esteem is a measure of efficacy in social interactions that observes the degree to which others value them and approve of them. This theory states that public incidents, as opposed to private experiences, have stronger influence on individuals' state self-esteem. Accordingly, this study argues that, since public self-consciousness is related to the tendency to conform to social norms, and SNSs provide a platform for users with the inclination to adjust behavior with what is socially accepted, high public self-conscious teenagers would have reduced levels of state self-esteem on Facebook. Thus, this study proposes the following hypothesis: **H4**. A higher level of public self-consciousness among teenagers will be positively associated with lower state self-esteem on Facebook.

2.8. The role of public self-consciousness as a moderator

This study considers that social comparison direction can affect different psychological outcomes depending on individual differences. Specifically, the relation between social comparison and state self-esteem appears to be complex. Notably, as stated, individuals differ in their social comparison direction on Facebook and the state self-esteem they experience. Since public self-consciousness is individuals' concern about others' view of them, this explains why it may play a role in the relationship between social comparison and state self-esteem of some SNS users and not others.

As stated, social comparison on Facebook is related to state self-esteem in both negative and positive ways, depending on the comparison direction. However, literature has not shown what might be inducing this relationship. Hence, to tackle this gap in the literature, this study further investigated the effect of comparison on Facebook by examining the role played by the individual difference variable - public self-consciousness - on state self-esteem. The rationale is that, high public self-conscious people who make social comparisons, consciously and intentionally choose the people they want to compare themselves with; hence, the direction of social comparison. Therefore, this study suggests the following hypothesis to test the moderating role of public self-consciousness in the previously postulated second hypothesis (H2): **H5**. The positive association between upward social comparison and lower state self-esteem on Facebook will become more evident among high public self-conscious teenagers.

3. Method

3.1. Sample and participants

This study data were gathered through a cross-sectional survey with a purposive sample of 183 high school students (58% female, 42% male) recruited from five secondary schools across Lebanon, allowing for geographical and social diversity, in order to provide a practical and varied representation of the teenage population.

As stated, teenagers were studied in this research because Facebook use among teenagers is pervasive, teenagers make more social comparison than adults (Stipek & Tannatt, 1984; Sebastian et al., 2008), and have higher self-consciousness and susceptibility to peer influence (Sebastian et al., 2008; Valkenburg et al., 2006).

3.2. Procedure

Paper-based closed-ended survey questionnaires were distributed to high school students in December 2017. The participants were given an introduction, informed about the study purpose and assured of its anonymity by the researcher, who remained present during the survey to answer queries, collected the questionnaires after 6 to 8 minutes of completion, and debriefed the participants.

3.3. Measures

Participants were asked if they used Facebook, and if they answered yes, they were presented with questions to respond to about the duration and main purpose of their Facebook use, their number of Facebook friends, and their social comparison direction on Facebook. They were asked to assess the Current Thoughts and the Public Self-Consciousness Scales. Alongside, participants indicated their gender and age. This section describes how the variables used in this study were measured.

3.3.1. Facebook usage duration

The amount of time teenagers spend on Facebook was answered by: "How many hours per day do you spend on Facebook?" and replies were measured on a 5-point scale (0=1-2; 1=3-4; 2=5-6; 3=7-8; 4=I am constantly logged on).

3.3.2. Number of Facebook friends

To measure the number of Facebook friends the participants have, they were asked: "How many Facebook friends do you have?" and responses were measured on a 6-point scale (0=0-50; 1=51-250; 2=251-500; 3=501-750; 4=751-100; 5=More than 1001).

3.3.3. Main purpose of Facebook usage

The purpose for using Facebook was determined by providing four major Facebook activities, in addition to an open-ended space for filling in, in case of another purpose (0=Connecting with existing friends; 1=Meeting new people online; 2=Entertainment; 3=Information; 4=Other).

3.3.4. Social comparison direction

To identify respondents' Facebook social comparison direction, they were asked to report the extent they agreed or not that they look at friends who are better or worse than them, with the response options consisting of a 5-point Likert scale items ranging from 1=Strongly agree to 4=Strongly disagree.

3.3.5. State self-esteem (SESS) or current thoughts scale

To assess participants' feelings of their current self-worth following comparison on Facebook, "designed to measure what you are thinking at this moment", the SESS developed by Heatherton and Polivy (1991) was employed. The SESS is a self-rating scale that measures state-related changes in self-esteem, which trait self-esteem measures - using the 10-item RSES - fail to identify. The 20-item SSES includes three correlated subscales: performance, social and appearance self-esteem. The former measures the extent respondents feel their performance is superior. The second measures the extent to which respondents are public self-conscious about their image. The latter measures the degree respondents are sensitive about their physical appearance. Responses were made on a 5-point scale items ranging from 1=Not at all to 5=Extremely. Reverse scoring was done for the thirteen negatively worded items, and higher score indicated increased self-esteem.

3.3.6. Public self-consciousness scale

Public self-consciousness level was measured with five items from the Self-Consciousness Scale developed by Scheier and Carver (1985), an example of which is: "I'm concerned about the way I present myself". Participants rated these items on a 5-point scale items ranging from 1=Extremely uncharacteristic to 4=Extremely characteristic, with higher scores reflecting higher public self-consciousness.

3.3.7. Demographic questions

Teenage participants indicated their gender and their age.

4. Results

Data collection was followed by applying descriptive and inferential statistical methods. The results were assembled into a spreadsheet to perform data analysis using the Statistical Package for the Social Sciences (SPSS) software to examine the two research questions stated. Accordingly, the major variables of social comparison, state self-esteem and public self-consciousness were involved in hypothesis testing; and correlation analysis was used to identify patterns in the correlations among these variables. For the other variables, descriptive results were given to understand the phenomena. Finally, regression analysis was used to measure the moderating function of public self-consciousness in the path between social comparison and state self-esteem.

4.1. Preliminary data analysis

From the 187 participants who completed the survey, four respondents were excluded because they did not use Facebook. The final total sample, thus, consisted of 183 respondents. The participants' ages ranged from 13 to 19; 2.7% were 13 years old, 14.8% were 14, 33.9% were 15, 7% were 16, 21.9% were 17, 11.5% were 18 and 8.2% were 19 years old. The majority (46.5%) spent between 3-4 hours on Facebook, followed by 10.9% who spent between 5-6 hours, 8.7% between 7-8 hours, and 2.7% who stated to be constantly logged on. More so, the majority (26.8%) have between 51-250 Facebook friends; closely followed by 27.8% who have between 251-500, 18.6% between 501-750, 10.4% between 751-1000, and 16.4% who have more than 1001 Facebook friends.

In order to know teenagers' main purpose for using Facebook, participants were given four options to select from, or provide another purpose they might have. 18% use Facebook to connect with exciting friends, 6% to meet new people online, 17.5% for information, and the most chosen reason (58.5%) is for entertainment. To reveal the respondents' comparison direction on Facebook, teenagers were asked if they make more upward than downward comparison, a total of 62.3% stated that they strongly agree and agree that they focus on superior others, and 37.7% strongly agree and agree that they focus on inferior others. It can be stated that these results support H1.

4.2. Descriptive statistics and bivariate correlations of variables

Table 1 shows the means, standard deviations, the descriptive statistics for the independent and dependent variables and correlations, and bivariate correlation coefficients for all of the study variables that are of numeric type, together with their p-values, for the final analytic sample. Important patterns of significant correlations came forth in the bivariate correlations among the variables, and all correlations were in the hypothesized directions. To examine the first research question (RQ1: How is social comparison direction on Facebook associated with state self-esteem?), and to test the second hypotheses by describing the linear relationship between these two variables: upward social comparisons on Facebook and state self-esteem, this study first used bivariate correlation test (Table 1). As a result of the correlation analysis, a significant negative correlation between social comparison and state self-esteem was verified (- 0.551, $p < 0.01$); thus, the data supported H2.

Table 1 Descriptive statistics and bivariate correlations of variables

	M	SD	1	2	3	4	5	6	7
1-Facebook friends	3.61	1.40	-	-	-	-	-	-	-
2-Hours on Facebook daily	2.05	1.01	-.117	-	-	-	-	-	-
3-Purpose for Facebook use	2.75	0.95	.337**	.209**	-	-	-	-	-
4-Social Comparison	2.21	1.05	.007	-.032	-.002	-	-	-	-
5-State Self-Esteem Scale	2.49	0.94	.102	.030	.149*	-.551**	-	-	-
6-Public Self Consciousness	2.37	0.99	.002	-.064	-.116	.566**	-.711**	-	-
7-Gender	1.58	0.49	.035	.345**	.331**	-.150*	.128	-.105	-

N= 183

* $p < 0.05$

** $p < 0.01$

Also, to test H3, which postulated a higher level of public self-consciousness among teenagers will be positively associated with upward social comparison on Facebook, the study examined the relationship between these two variables, and the results show a significant positive association between these two variables (+0.566, $p < 0.01$); therefore, the data also supported H3. Additionally, to test H4, which posited a higher level of public self-consciousness among teenagers will be positively associated with lower state self-esteem on Facebook, the study examined the relationship between these two variables. The results indicate that there is a significant negative association between the two variables (-0.711, $p < 0.01$); hence, H4 is also supported by the data.

4.3. Regression analysis

To examine the second research question (RQ2: What role does public self-consciousness play in the influence of social comparison direction on Facebook on state self-esteem?), to see the contribution of each independent variable to explaining state self-esteem on Facebook, and to test this study hypotheses, this study conducted a hierarchical multiple regression analysis. State self-esteem was regressed on public self-consciousness, social comparison, and the interaction term between social comparison and public self-consciousness. The variables entering the interaction term were centered before the multiple regression analysis, as recommended by Cohen, Cohen, West, and Aiken (2003), to improve interpretational advantages.

Table 2 Hierarchical regression on state self-esteem

Independent Variables	Model 1 β	Model 2 β
Public Self-Consciousness	-0.552*	-0.491*
Social Comparison	-0.196*	-0.193*
Social Comparison x Public Self-Consciousness		-0.136*
R ²	0.538	0.564
R ² change		0.026*

Note: The betas denote unstandardized regression coefficients before entry
*p<0.01

This study hypotheses (H2, H4 and H5) were tested based on the second model. In Model 2, $R^2 = 0.564 > 0.5$, therefore the regression line is marginally suitable to explain the behavior of the set of points in question, and the variation of the independent variables explain the variation of the dependent variable: state self-esteem. Also in Model 2, social comparison shows a significant negative association with state self-esteem ($\beta = -0.193, p < 0.01$), indicating upward comparison by teenagers will lead to lower state self-esteem, and vice versa; thus the data also supported H2. More so, public self-consciousness shows a significant negative association with state self-esteem ($\beta = -0.491, p < 0.01$), indicating that teenagers who have higher public self-consciousness experience lower state self-esteem; thus, the data also supported H4.

Further, the study examined the hypothesized interaction between social comparison and public self-consciousness in H5. The analysis showed that the social comparison x public self-consciousness interaction term was significant ($\beta = -0.136, p < 0.01$). That is to say, the interaction between these two variables accounted for significantly more variance than only public self-consciousness and social comparison by themselves shown by R² change between Models 1 and 2 (0.026, $p < 0.01$). Therefore, this indicates that public self-consciousness plays a potentially significant moderating role between social comparison and state self-esteem, by further increasing the negative association between upward social comparison and higher state self-esteem.

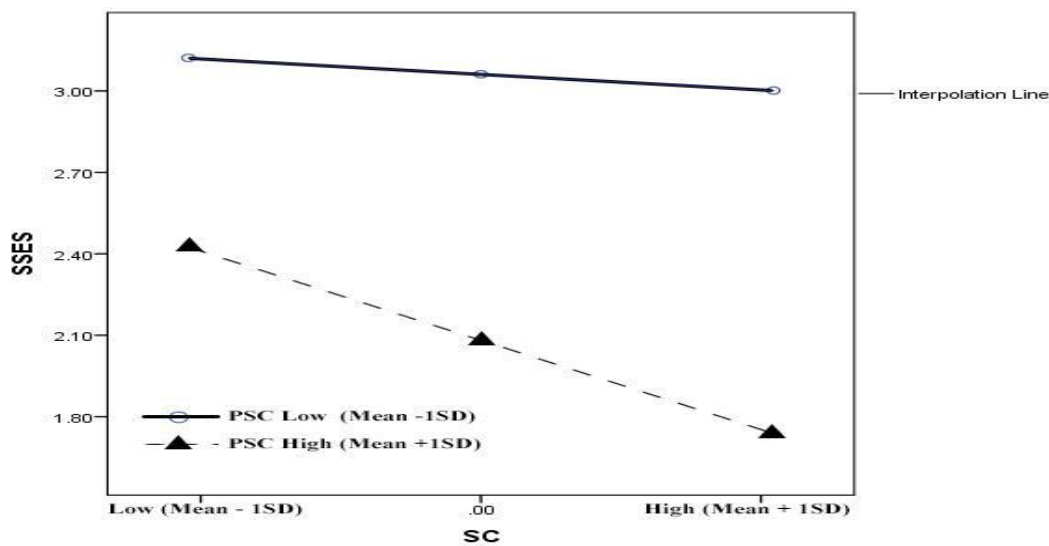


Figure 1 Interaction between social comparison and public self-consciousness

To plot the interaction among the variables and to test H5, two values: low versus high for public self-consciousness were set; and three values: low versus medium versus high for social comparison, as suggested by Cohen et al. (2003): the low value was set at one standard deviation below the mean, the medium value was set at the mean, and the high value was set at one standard deviation above the mean. Subsequently, simple regression lines were plotted, as shown in Figure 1 based on these values (Lee et al., 2012). To further look into the interaction effect, several simple slope tests were also conducted, pursuing the process suggested by Cohen et al. (2003).

While the negative slope for high public self-consciousness ($t = -4.87, p < 0.001$) was significantly different from zero, the slope for low public self-consciousness ($t = 0.84, p = 0.40$) did not significantly differ from zero; thus, the data supported H5.

5. Discussion

5.1. Summary of key findings

This study provides the first evidence to date and builds on this paper by answering both research questions and finding apparent support for the hypotheses made. To start with, H1 postulated that upward comparison on Facebook is more common by teenagers. The result that 62.3% of the participants made upward comparison, supports this study rationale that Facebook may impel users to compare to superior others, since it creates a platform of ideal selves. This finding is supported by many scholars (Feinstein et al., 2013; Haferkamp & Kramer, 2011; Lee, 2014; Vogel et al., 2014) who state that social comparison on SNSs is mostly upward. This research also investigated how comparison direction on Facebook influences state self-esteem (RQ1). Taken together, there is evidence of both higher and lower consequences of social comparison on Facebook for state self-esteem depending on the comparison direction: thus, supporting H2. This finding is in line with Festinger's Social Comparison Theory (1954), and also supports the view of studies that show upward comparison may reveal one's shortcomings, thus causing lower self-esteem (Chou & Edge, 2012; Haferkamp & Kramer, 2011; Vogel et al., 2014).

With regard to the study suggestion that teenagers whose behavior is more directed by self-presentational concerns, were more likely to make upward comparison on Facebook, this study provided findings for this association and thus approves H3. These findings are consistent with the findings of scholars (Gibbons & Buunk; 1999; Hemphill & Lehman, 1991; Stapel & Tesser, 2001; Lee et al., 2012) who found that high public self-conscious individuals make more upward comparisons.

Also, the reported results lend support to the hypothesized relationship between high public self-consciousness and lower state self-esteem, as such approves H4. This relationship explanation is in line with the Sociometer Theory of Self-Esteem (Leary, 1999) and supports the rationale that state self-esteem is lower for those who score higher on individual differences that suggest sensitivity to social norms, and is also consistent with the finding of Fenigstein et al. (1975) who claim that public self-consciousness is associated with individuals' low self-esteem.

Last but foremost, interestingly, this study findings revealed a significant interaction between social comparison and public self-consciousness. As expected, the significant negative association between upward comparison and state self-esteem was found only among high public self-conscious teenagers; thus an additional route was identified through which upward comparison lowers state self-esteem via the moderating variable: public self-consciousness. This finding answers RQ2 and supports H5 by showing how teenagers' upward comparison correlates with the awareness of the self in social situations in determining lower state self-esteem. Although it is found that most teenagers make comparisons to others on SNS, it may be that, those who are publicly self-conscious, would be using idealistic comparisons when evaluating themselves, which may explain why they make upward comparison, and experience even lower state self-esteem.

5.2. Implications

These results have practical implications for social comparison on Facebook. The influence of comparison on teenage Facebook users' state self-esteem, with their individual differences of public self-consciousness playing a role - an important variable to consider - has not received attention to date. As such, this quantitative study builds on past studies by showing this relationship and the findings extend preceding research and contribute to the literature by linking the varying aspects of social comparison, public self-consciousness and state self-esteem in the context of SNSs. This study also advances our understanding about two aspects: first, about the different directions in which comparison on Facebook - the central SNS, particularly in the lives of the young - can affect state self-esteem positively or negatively. Second, about the kind of teenagers - the highly public self-conscious - who mainly experienced a significant reduction in state self-esteem when making upward comparison on Facebook. Though the majority of the participants make upward comparison on Facebook, certainly, this study is not implying that upward comparison on SNSs be evaded. Rather, it believes that, by being aware of the psychological effects involved in upward comparison, and that the majority of SNS users often make ideal self-presentation (Mehdizadeh, 2010) teenagers shall be mindful when they experience reduced state self-esteem.

Also, they should be motivated to make comparisons with superior others for self-improvement (Lockwood & Kunda, 1997).

5.3. Limitations

Despite the fact that the data supported all this study hypotheses and the findings provided interesting insights; as with any study, there are few limitations to this study that should be noted. First, because the data collected was of cross-sectional nature, it impedes the study to accurately establish causal relationships among the key variables. As such, a reverse explanation for the findings may also be probable; it may be possible that teenagers with lower state self-esteem will be more inclined to make upward comparisons on Facebook: thus, state self-esteem acting as a predictor and not an outcome of comparison. It may also be possible that the association is prone to be reciprocal as the two may feed each other. This methodological limitation can be addressed in the future, by pursuing a longitudinal approach, to address the direction of the influence.

Also, it should be acknowledged that the data was collected from a non-random sample of high school students in Lebanon. Although teenagers make more social comparison than adults (Stipek & Tannatt, 1984; Valkenburg et al., 2006), the focus on high school teenagers limits the research generalizability to other age groups; since teenagers represent a unique developmental period in the life cycle. Nonetheless, these results may have important implications for the most frequent SNS users (Pempeck et al., 2009).

Further, due to the nature of self-report measures of respondents' state self-esteem and public self-consciousness, the responses may not be a fully precise representation of their evaluations, who may have answered with more socially desirable answers, accordingly causing possible biases.

More so, only one SNS, Facebook, was examined, limiting the generalization of the findings to other similar sites. Nevertheless, this limitation is lessened by the huge popularity and constant Facebook use among teenagers. Despite these limitations however, this study results make noteworthy contributions.

5.4. Future directions

Some directions for future research can be stated. Future studies are required use simple random sampling method, which provides the study with data from different teenage backgrounds. Research in the future, could investigate whether the correlations identified in our research are also applicable to other specific age groups, as college-age students, since Facebook was primarily used by them in its early phase (boyd & Ellison, 2007), in addition to teenagers not in schools or older adults, that would further uncover individual differences in social comparison directions. Also, as stated, future research should conduct longitudinal research which would give an indication of the causal direction of the association between social comparison on Facebook and state self-esteem. This study would also recommend exposure to Facebook profiles in experimental settings by giving participants the chance to browse and view Facebook profiles to compare to, so as to extract teenage users' actual Facebook comparison direction and subsequent self-evaluations.

Also, future research is required to extend these findings beyond Facebook to other SNSs as Instagram: a widely used social networking application specifically made for sharing photos and videos from a smartphone. In addition to LinkedIn: a social network popular for business purposes, in addition to the microblogging site Twitter, and others SNSs that are becoming popular as Google Plus and Snapchat. Each site has some distinctive features, wherein social comparison direction might influence state self-esteem differently.

6. Conclusion

Teenagers' social world is dramatically affected by social comparison on SNSs. This research represents a step toward understanding the implications of social comparison direction on Facebook and its consequences. The present study examined the degree to which upward and downward social comparison on Facebook increases or decreases teenagers' state self-esteem.

Significantly, this research is the first to suggest that high public self-consciousness among teenagers augments the unfavorable effect of lower state self-esteem due to upward social comparison, and provides an investigation of whether the theoretically possible individual difference variable, public self-consciousness, moderates the impact on state self-esteem following social comparison on Facebook. This is notable because SNSs are remarkably suitable for examining the state self-esteem consequences of social comparison by teenagers depending on their individual public self-consciousness, which was found to be at play.

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Appendix A

Table A.1: Cross tabulation between social comparison direction and state self-esteem

		Social Comparison				Total
		Focus on People who are better than you		Focus on people who are worse than you		
		Freq	% (62.32)	Freq	% (37.68)	
State Self-Esteem	Very high State Self-Esteem	2 _a	1.11%	33 _b	18.01%	35 (19.12%)
	High State Self-Esteem	25 _a	13.66%	20 _a	10.94%	45 (24.60%)
	Low State Self-Esteem	73 _a	39.89%	8 _b	4.37%	81 (44.26%)
	Very Low State Self-Esteem	14 _a	7.65%	8 _a	4.37%	22 (12.02%)
Total		114		69		183

Cross tabulation was run to investigate the relationships between the variables. In Table A.1, the results show that 47.6% of the teenage respondents who make upward comparison on Facebook have low and very low state self-esteem. On the other hand, 29% of the respondents who make downward comparison have high and very high state self-esteem. The results also supported H2.

Table A.2: Correlation between social comparison direction and state self-esteem

		Social Comparison	State Self-Esteem
Social Comparison	Pearson Correlation	1	-.551**
	Sig. (2-tailed)		.000
	N	183	183
State Self-Esteem	Pearson Correlation	-.551**	1
	Sig. (2-tailed)	.000	
	N	183	183

** . Correlation is significant at the 0.01 level (2-tailed).

These results show that social comparison was negatively associated with state self-esteem among teenagers on Facebook. This correlation, shown in Table A.2, also supports H2.

Table A.3: Cross tabulation between public self-consciousness and social comparison

		Social Comparison				Total
		Focus on people who are better than you		Focus on people who are worse than you		
		Freq	% (62.3%)	Freq	% (37.7%)	
Public Self-Consciousness	Very High Public Self-Consciousness	27 _a	14.75%	13 _a	7.1%	40 (21.86%)
	High Public Self-Consciousness	63 _a	34.43%	0 _b	0%	63 (34.43%)
	Low Public Self-Consciousness	23 _a	12.57%	28 _b	15.3%	51 (27.86%)
	Very Low Public Self-Consciousness	1 _a	0.55%	28 _b	15.3%	29 (15.85%)
Total		114		69		183

The results in Table A.3 show that 49.2% of the respondents who make upward comparison have high and very high public self-consciousness. On the other hand, 30.6% of respondents who make downward comparison have low and very low public self-consciousness. These results show that a higher number of public self-conscious teenagers make upward social comparison on Facebook, supporting H3 also.

Table A.4: Correlation between public self-consciousness and social comparison

		Social Comparison	Public Self-Consciousness
Social Comparison	Pearson Correlation	1	.566**
	Sig. (2-tailed)		.000
	N	183	183
Public Self-Consciousness	Pearson Correlation	.566**	1
	Sig. (2-tailed)	.000	
	N	183	183

** . Correlation is significant at the 0.01 level (2-tailed).

The findings show that high public self-consciousness was also associated with an increase in the extent to which teenagers reported making upward comparisons on Facebook. This correlation, shown in Table A.4, also supports H3.

Table A.5: Cross tabulation between public self-consciousness and state self-esteem

		State Self-Esteem								Total
		Very High State Self Esteem		High State Self Esteem		Low State Self Esteem		Very Low State Self Esteem		
		Freq	%	Freq	%	Freq	%	Freq	%	
Public Self-Consciousness	Very High Public Self-Consciousness	3 _a	1.64%	6 _a	3.28%	10 _a	5.46%	21 _b	11.47%	40 (21.85%)
	High Public Self-Consciousness	0 _a	0	8 _b	4.37%	55 _c	30.06%	0 _a	0	63 (34.43%)
	Low Public Self-Consciousness	6 _a	3.28%	29 _b	15.85%	16 _a	8.74%	0 _c	0	51 (27.87%)
	Very Low Public Self-Consciousness	26 _a	14.21%	2 _b	1.09%	0 _b	0	1 _b	0.55%	29 (15.85%)
Total		35		45		81		22		183

Furthermore, to prove H4 by examining the relationship between public self-consciousness and state self-esteem, results in table A.5 show that 34.5 % of the respondents who have very low and low public self-consciousness, have high and very high state self-esteem. On the other hand, 47% of respondents who have high and very high public self-consciousness have low state self-esteem. The findings also support H4.

Table A.6: Correlations between public self-consciousness and state self-esteem

		State Self-Esteem	Public Self-Consciousness
State Self-Esteem	Pearson Correlation	1	-.711**
	Sig. (2-tailed)		.000
	N	183	183
Public Self-Consciousness	Pearson Correlation	-.711**	1
	Sig. (2-tailed)	.000	
	N	183	183

** . Correlation is significant at the 0.01 level (2-tailed).

The findings also show that high public self-consciousness was also positively associated with a decrease in state self-esteem among teenagers. This correlation, shown in Table A.6, also supports H4.