



Understanding the Impact of Social Intelligence on Problematic Social Media Usage

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Received Date: March 08, 2022; **Accepted Date:** March 24, 2022; **Published Date:** March 26, 2022

Citation: Anderson K, Pabian P, Mascia L, Understanding the Impact of Social Intelligence on Problematic Social Media Usage, J. Clinical and Medical Case Reports and Reviews, V (2)I(1).

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Abstract

The research on social media use, particularly with regard to adolescents and young adults, has been explored extensively with regards to depression, well-being and other mental health indicators with results varying greatly. Much of this work also focused on frequency as the primary indicator of social media use. However, recent research has delved more deeply into social media behaviors that may have negative consequences for users.

Keywords: Social media; self-esteem; social intelligence; active and passive use

Introduction

The active and passive use model purports passive use, including consumptive scrolling and social comparison activities, as having the most potential for negative consequences, including diminished self-esteem. Active use has not been as strongly associated with negative consequences and may have a positive effect, increasing social connectedness and providing opportunities for identity exploration online. Drawing upon survey data from older adolescents and adults, this study explored how social intelligence, including social skills, social information processing, and social awareness, social comparison orientation, age, and self-esteem may underlie active and passive social media use. Linear regression analyses revealed that social intelligence did not directly predict active and passive social media use. However, relationships between social comparison, self-esteem, and age were found with respect to active and passive social media use.

Communication through social media has become incredibly prevalent in recent years, with 72% of American adults reporting the use of at least one social media platform (Auxier & Anderson, 2021). Though this percentage increases for younger adults, with 84% of adults aged 18 through 29 and 81% of adults aged 30 through 49 reporting social media use. Social media refers any digital platforms that facilitate communication between people and groups and allows for curation of individual accounts, including Facebook, Instagram, and Snapchat. Further, younger adolescents and teens are using social media platforms at increasingly high rates, particularly resulting from the COVID-19 pandemic (Cauberghe, Van Wesenbeeck, De Jans, Hudders, & Ponnet, 2021).

For adolescents, social media use has been explored relatively extensively with regards to associations with depression, well-being, and other mental health indicators, with varying results (Valkenburg, Meier, & Beyens, 2022). This is also true for studies pertaining to adult social media usage and connection with these mental health indicators, however much of this work focuses on frequency of social media usage, which has been linked to mixed results in terms of mental health in adult or adolescent populations (Cunningham, Hudson, & Harkness, 2021). However, associations have been found when social media has been explored with regards to problematic use rather than time spent using

frequent social media use and low reported self-esteem. This relationship was moderated by problematic social media behaviors, defined here as addictive and comparative behaviors, when using social media.

As teens and adults continue to use social media at increasingly high rates, it is important to understand what factors, including self-esteem, social intelligence, and online social comparison, relate to social media behavior, specifically active and passive social media use, to gain a full understanding of the potential to limit or mitigate problematic outcomes. It is also vital to understand how these variables may change as individuals age.

1.1 Active and Passive Social Media Use

It is important to note, that there is not a consensus in the literature as to what constitutes problematic social media use. However, active and passive social media use have been explored as a potential model for the ways in which individuals engage with social media (Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante, & Sigfusdottir, 2019). Active and passive use may be indicators of positive and problematic social media use respectively, which may help researchers more fully explore the dynamic construct of social media use outside of measuring frequency. Further, understanding these behaviors may also help researchers to identify populations more likely to use social media passively and what time periods or events may precipitate this potentially more negative, passive use.

Active social media use is defined by sharing information regularly online and interacting with others' content through likes, comments, and shares (Escobar-Viera, Shensa, Bowman, Sidani, Knight, James, & Primack, 2018). This type of social media has been less associated with negative outcomes such as depression (Thorisdottir et al., 2019). In fact, a few researchers have linked active social media use with a variety of positive outcomes. For example, Zhao and Zhou (2021) found that during the COVID-19 pandemic, higher levels of stress were positively correlated with negative and addictive social media use in Chinese college students. Active social media use, including updating statuses and posting original content, mediated this relationship, potentially diminishing the negative effects of stress that may lead to poor social media use. These results support those of Thorisdottir et al. (2019), who found no association between active social media use and indicators of anxiety and depression in a large population of Icelandic adolescents. These results held after controlling for time spent on social media, further outlining the need to

explore social media use outside of the dimension of frequency.

these platforms. For example, in a recent meta-analysis, Saiphoo, Dahoah Halevi, and Vahedi (2019) found a significant correlation between more



Alternatively, passive social media involves consumption of others' content through scrolling without interaction, and is frequently referred to as "lurking". Passive social media use is typically used synonymously with problematic use, and includes addictive behaviors and social comparison. Researchers have proposed that increased passive social media use yields negative mental health outcomes, including anxiety, depression, decreased self-esteem and subjective well-being (Verduyn, Ybarra, Résibois, Jonides, & Kross, 2017). This hypothesis has been explored in the extant literature, but to mixed results. Many researchers argue that the hypothesis may be over-simplified and that passive social media use is more dynamic and problematic outcomes may relate to pre-existing states of the individual, leading to fluctuations in results (Valkenburg, van Driel, & Beyens, 2022). However, passive use may promote increased opportunities for online social comparisons, and in turn, more problematic outcomes amongst a variety of populations (Verduyn, Gugushvili, Massar, Täht, & Kross, 2020). Thus, it is important to understand the full scope of the construct of passive social media use, particularly as it relates to outcomes such as self-esteem fluctuations.

1.2 Online social comparison

Social comparison refers to the act of evaluating oneself through the presented images of others and is essential to understanding oneself and is measured by assessing one's social comparison orientation, or their tendency to engage in comparative activities and thoughts (Buunk & Gibbons, 2006; Festinger, 1954). Those higher in social comparison orientation (SCO) actively and frequently engage in comparison activities. Additionally, those higher in SCO often report higher frequency of social media use than those with lower SCO (Vogel, et al. 2015). Social media platforms tend to facilitate social comparison activities more readily than in offline settings (Verduyn, et al., 2020). There are different types of social comparison, upward comparisons in which one compares themselves to those performing better in a specific domain, and downward social comparisons in which individuals compare themselves to those they perceive to be doing more poorly along a certain domain (Festinger, 1954). When one engages in these comparison activities too frequently, particularly upward social comparisons, or begins to rely on these comparisons to boost their self-esteem, social comparison can have negative effects.

As social media platforms are designed to consume public images of others, the research concerning social comparison on social media platforms is growing steadily. In a large sample of adolescents and adults, mental health indicators, including loneliness, depression, and anxiety markers, were all positively correlated with social media use frequency (Reer, Tang, & Quandt, 2019). This relationship was mediated by social comparison orientation, in that those with high scores on the mental health scales and higher social comparison orientation in turn used social media more. Similarly, research has demonstrated a positive relationship between social comparison on social media platforms and suicidal thoughts amongst undergraduate students (Spitzer, Crosby, & Witte, 2022).

Though negative associations with increased social comparison orientation have been well-established in online settings, understanding the populations who more often engage in these activities is paramount to potentially off-setting negative effects of social media. As social comparison is a social activity that involves a certain level of social intelligence to make assumptions about others, understanding the relationship between social intelligence, active and passive use (most notably social comparison online) can be beneficial across a variety of fields.

1.3 Self-esteem and social media

Self-esteem refers to an individual's subjective assessment of themselves, including an overall determination of self-value and self-worth (Orth & Robbins, 2014). The construct can be domain specific, but is typically measured in psychological research using a global domain scale. Developmentally, self-esteem is typically lower amongst adolescents, but steadily increases to remain steady in adulthood (Orth, Maes, & Schmitt, 2015). The literature regarding self-esteem and social media is relatively mixed, though there have been some findings showing a connection between varied populations increased social media use and decreases in reported overall self-esteem (Cingel, Carter, & Krause, 2022). Much of the research surrounding social media and self-esteem assesses the potential connection between social media use frequency and self-esteem measures, finding increased use to be related to decreased social media usage (Tibber, Zhao, & Butler, 2020). Conversely, Subrahmanyam, Frison, and Michikyan (2020) looked more deeply at young adults social media interactions and self-esteem using a diary methodology, finding

short term fluctuations in self-esteem stemming from social media use. The results did not hold over a five-day period, indicating the effects on self-esteem may be temporary.

In a study of adolescents, Valkenburg, Beyens, Pouwels, van Driel, and Keijsers (2021) found little to no effect of social media usage on self-esteem over a three-week period, where participants checked in six times per day on their usage patterns and self-esteem. Research exploring social media use beyond frequency with relation to psychological outcomes such as self-esteem is growing to further illuminate these findings. For example, when assessing self-oriented social media use, or active social media use as used in the present study, no links with self-esteem were found amongst adolescent participants (Steinsbekk, Wichstrøm, Stenseng, Nesi, Hygen, & Skalická, 2021). Other-oriented, or passive social media use, only connected with lower levels of self-esteem amongst female participants. Taken as whole, there is a need to identify the variability in findings and understand which individuals may be more susceptible to self-esteem fluctuation from social media use.

Interesting, Vogel, Rose, Roberts, & Eckles (2014) found that self-esteem was lower for individuals who reported increased online social comparison amongst adults. Tibber et al., (2020) found similar results, with social comparison online indicating lower reported self-esteem amongst young adult populations. These findings, taken with the mixed nature of the self-esteem and social media literature, indicates a need to further investigate social comparison activities online, self-esteem, and the nature of this relationship amongst individuals.

1.4 Social intelligence and social media

Social intelligence is a multifaceted construct that differs from general intelligence (Marlowe, 1986). In fact, Marlowe (1986) identified five key areas of social intelligence, prosocial attitude, social skills, empathy skills, emotionality, and social anxiety, amongst adult participants. These domains in themselves were reflective of a multitude of skills and emotional capabilities that further supported social intelligence as a unique construct. Researchers have since seemed to isolate empathy, emotion, and social anxiety as their own individual constructs, particularly as they relate to human behavior, including aggression and bullying (Kaukiainen, Björkqvist, Lagerspetz, Österman, Salmivalli, Rothberg, & Ahlbom, 1999). Researchers continue to explore the constructs of social intelligence and how to accurately measure human capability along these domains.

Human interaction has changed greatly since these studies, as technology creates rapidly changing methods of communication, allowing increased global interaction. Silvera, Martinussen, and Dahl (2001) sought to unify the definitions of social intelligence in extant research. In three large-scale studies, the researchers identified three key factors of social intelligence – social skills, social awareness, and social information procession – representing how human being interpret and execute social information. Though many of the facets of these domains rely on in-person interactions, it remains that a multitude of contemporary communication happens online. Thus, it is imperative to understand how social intelligence impacts digital interactions.

The research surrounding social intelligence and social media is incredibly limited from a psychological standpoint. There have been studies mapping social intelligence and economic and analytic behavior on social networking sites (Harrysson, Metayer, & Sarrazin, 2012; Stone & Woodcock, 2013), indicating those users with higher social intelligence may make more informed decisions in online context. However, those studies are not necessarily transferrable to understanding the patterns of psychological behavior online. There have been a few studies exploring individual aspects of social intelligence, including social awareness and social skills. For example, in an international self-report survey of university students, social awareness and self-control were found to be inversely associated with addictive social media use (Ritonga & Kiram, 2018). Related constructs, specifically empathy and perspective taking, have been studied with regards to social media use, particularly amongst adolescents who are presumably in the midst of developing an understanding of social relationships. For example, in a large scale study of American adolescents, Riley, Thompson, Howard, Lorenzo-Luaces, and Rutter (2022) found that those participants who specifically used social media for social interactions and connectedness also reported higher levels of empathy and perspective-taking.

Social intelligence has also been explored with relation to cyberbullying. Pabian and Vandebosch (2016) found adolescent cyber and traditional bullying profiles to include lower levels of overall social intelligence in early adolescents. In the same vein, social intelligence may also serve as a protective factor for victims of bullying through social media,



particularly during adolescence (Agus, Mascia, L., Zanetti, Perrone, Rollo, & Penna, 2021). These findings were supported by Carter (2013) who also found the protective impact of social intelligence, namely social awareness, amongst university students. Though not directly related to the scope of this study, understanding social intelligence in a more comprehensive way in terms of social media use, may provide researchers with a clearer view of factors relating to individual social media use patterns.

1.5 The present study

The present study investigated the relationships between age, self-esteem, social comparison, frequency of social media use, and active and passive social media usage. Specifically, the following exploratory research questions guided the study:

RQ1: How does age, social media use frequency, social comparison and self-esteem influence social media behaviors, specifically active and passive social media use?

RQ2: How does social intelligence, including social skills, social awareness, and social information processing relate to social media use behaviors (active and passive use), age, self-esteem, social comparison, and frequency of social media use?

H1: Those higher in reported social comparison orientation and age will also report lower total self-esteem.

H2: Age will predict a decrease in social comparison orientation and passive social media use.

H3: Higher social intelligence, including the dimensions of social awareness, social skills, and social information processing, will be predictive of decreased passive social media use and increased active social media use.

H4: Those higher in reported social comparison orientation will also report higher passive social media use.

H5: Those with higher reported self-esteem will also report lower instances of passive social media use.

2. Materials and Methods

2.1. Sample and Procedure

An online survey housed through Qualtrics was administered to adolescent and adult participants to gather data for the present study. University students, research contacts, and snowball participants from mass emails and social media requests served to recruit participants. Participation was voluntary and complete anonymity was ensured. The survey was administered in English and required parental consent for those participants under 18 to move forward with the questionnaire. Demographic information was assessed via a Qualtrics baseline demographics survey.

Participants were recruited from social media, researcher contacts, and snowball sampling. Upon completion of data collection, 215 overall responses were obtained. Blank or partial responses, indicating user abandonment of survey were deleted. Of the remaining data, participants who did not complete full measures were also deleted. Appropriate sample size was calculated for a .80 effect size, for eight independent variables using a rule outlined by Green (1991), which indicated the number of independent variables added to 104 would be substantial for linear and sequential regression analyses.

A final sample containing 183 participants, aged 16-72 ($M = 33.67$; $SD = 12.24$) representing the adolescents and adults were included in the study. The age of participants was slightly skewed to represent an older population (.65) All were fluent in English and identified as social media users, reporting use of at least one social platform.

2.2. Self-esteem

Self-esteem was measured through the Rosenberg Self-esteem Scale (Rosenberg, 1979). The 10-item scale is scored on a four point Likert scale with responses ranging from strongly agree to strongly disagree. Items were coded in accordance with the manual, with five items reverse coded. Aggregate scores were calculated to represent the self-esteem variable with a maximum score of 40. This measure has repeatedly demonstrated high levels of internal consistency ($\alpha = .92$).

2.3. Social Media Usage Survey

Social media usage, including platform preference and frequency were measured using a self-report survey adapted from Pagnotta, Blumberg, Ponterotto, and Alvord (2018) (see Appendix D). Three questions retained assessed the availability of technology with social media capabilities (i.e., computer, smartphone), questions regarding social media platform usage (i.e., "which social media sites do you currently use? Choose all that apply") and preference (i.e. "which social networking sites do you mainly use? Choose one"). Two questions pertaining to

frequency of social media use and were used independently to assess how often participants visit social media during the week and how often they check social media sites daily, with higher scores indicating higher levels of social media use. For purposes of analysis, the variable pertaining to how often one uses social media during the day was retained to assesses social media frequency. The scale demonstrated high levels of internal consistency in the present study ($\alpha = .84$), consistent with Pagnotta et al. (2018).

2.4. Social Intelligence

The Tromsø Social Intelligence Scale (TSIS) was used to assess the dimensions of social intelligence in participants (Silvera et al., 2001). Each item on the 21-item scale is assessed on a seven-point Likert scale, with responses ranging from "describes me extremely poorly" to "describes me extremely well". Eleven items on the scale were presented negatively, requiring reverse coding. Higher scores indicated higher levels of perceived social intelligence. There are three sub-scales in the measure, assessing social awareness, social information processing, and social skills. Aggregate scores for overall social intelligence were calculated as well as scores for each of the subscales.

2.5. Online Social Comparison

The Iowa-Netherlands Scale for Social Comparison Orientation (Gibbons & Buunk, 1999) is an 11 item scale which measures the extent participants engage in different social comparison activities and their interests in comparing themselves to others. For the present study, the abridged version containing six items was used. A sample item is, "If I want to find out how well I have done something, I compare what I have done with how others have done online." Statements were modified to include the word "online" to adapt the measure for social media use. Participants rated each item on a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). Higher total scores equated to more instances and greater value in comparing oneself to others. Aggregate scores were calculated and used to assess social comparison orientation. The scale demonstrated high levels of internal consistency ($\alpha = .78$), which compares to the high internal consistency ($\alpha = .83$) when piloted and used by Gibbons and Buunk (1999) and by others who have shown internal consistencies ranging from .78 to .85 (see Gibbons & Buunk, 1999).

2.6. Active and Passive Social Media Use

To measure behavior on social media, a general seven item scale for measuring social media use was adapted from Escobar-Viera et al. (2018). Questions assessed how often in which participants demonstrated behaviors through social media associated with both active and passive. The questions were not site-specific. Passive use questions pertained to more consumptive behavior such as scrolling and reading, while active behaviors concerned sharing and commenting behavior more outwardly directed. Participants were asked to rate statements "never", "less than once a week", "once a week", "two-six times a week", "once a day", and "several times a day". Aggregate scores for each were calculated for statistical analysis. Strong internal consistency was found for both active social media usage ($\alpha = 0.80$) and passive social media usage ($\alpha = 0.72$) (Escobar-Viera et al., 2018).

2.7. Data Analysis

One-way ANOVA tests were used to ascertain any differences between groups for the gender, race, and ethnicity factors. Linear regressions were used to test the proposed hypotheses and to explore the relationships between the variables and social intelligence measures. Multiple regressions were also used to analyze relationships between variables and illuminate a more comprehensive view of these relationships. All analyses were conducted through SPSS for IBM Version 28.0.1.0.

3.2 Correlational Analyses

A full matrix of correlations between the study variables is summarized. Findings revealed that active social media use was negatively correlated with frequency of social media use, in that those who reported using social media more actively, also reported less overall use ($r = -.34$, $p < .001$). Those who reported more passive social media use also reported more frequent social media use overall ($r = .35$, $p < .001$). As expected, self-esteem and social comparison were moderately negatively correlated ($r = -.27$, $p < .001$). Interestingly, passive social media use was negatively correlated with self-esteem, indicating that those who engage more passively with social media were also more likely to report lower self-esteem ($r = -.18$, $p < .05$).

The three social skills subsets (social awareness, social information processing, and social skills) were not correlated with active or passive



use. Overall social intelligence, using the entire measure, was negatively correlated with social comparison in that those with higher social intelligence reported lower social comparison ($r = -.17, p < .05$). Social intelligence was also correlated with self-esteem in that those with higher social intelligence also reported higher self-esteem ($r = .37, p < .05$). Developmental correlations revealed that age was correlated with passive use, social comparison and self-esteem. Older participants also reported less passive use ($r = -.17, p < .05$), lower social comparison orientation ($r = -1.62, p < .05$), and higher self esteem ($r = .26, p < .001$).

3.3 Investigation of hypotheses

Though the literature establishing connections between the variables, particularly social intelligence variables, are mixed, a few hypotheses were offered based on established research through two research questions. Findings will be discussed in relation to each hypothesis.

H1: Those higher in reported social comparison orientation and age will also report lower total self-esteem.

Using a hierarchical regression, social comparison orientation explained variance in self-esteem ($\beta = -.22, p = .002$). When age was added, further variance in self-esteem was explained ($\beta = .22, p = .003$). This hypothesis was not supported by the data. Results of a linear regression revealed that age did not explain variance in social comparison orientation ($R^2 = .02, F(1, 183) = 4.9, p = .03$) or passive social media use ($R^2 = .2, F(1, 183) = 5.2, p = .00$). It should be noted that as outlined, social comparison and age were mildly correlated ($r = -.16, p < .05$). Age was also correlated with passive social media use ($r = -.18, p < .05$).

H3: Higher social intelligence, including the dimensions of social awareness, social skills, and social information processing, will be predictive of decreased passive social media use and increased active social media use.

A series of simple and multiple regressions were conducted. First, a simple regression was used to test the predictive nature of overall social intelligence on active social media use. The results were not significant ($R^2 = .00, F(1, 183) = .08, p = .77$). Similarly, overall social intelligence did not have a significant effect on passive social media use ($R^2 = .00, F(1, 183) = .03, p = .87$). Using a hierarchical regression, social awareness ($\beta = .02, p = .82$), social information processing ($\beta = .22, p = .003$), and social skills ($\beta = -.05, p = .55$) did not explain variance in passive social media activity.

4. Discussion

The present study enriches the extant body of literature examining the multifaceted nature of social interactions through social media. Social intelligence has not been widely explored outside of empathy and perspective taking with regards to social media use. Similarly, it has not been explored widely with regards to social media behaviors, including active and passive use, and has been mostly limited to examining problematic outcomes such as cyberbullying. Though active and passive social media has been debated as a paradigm in terms of specificity, it remains that passive consumption of content may have some relationship to negative outcomes than the more prosocial behaviors including posting and interacting with others (Valkenburg et al., 2022). This study adds to the knowledge of how social media usage, both active and passive, relate to other aspects of individual behavior. Specifically, results of this study shed light on the relationship between social comparison and social media behavior. As social comparison has been more widely explored in the research, it is helpful to understand how this construct relates to social media behavior and may underlie the negative associations in the literature with passive use.

Understanding active and passive use of social media is important as researchers are still exploring the dimensions of social media use that may determine negative or positive outcomes. Though problematic social media use has been explored, a clear definition does not exist in the literature. Similarly, there is not a strong consensus as to what causes certain individuals to use social media more problematically than others. Results did not confirm the hypothesis that higher social intelligence would predict decreased passive social media use and increased active social media use. This study utilized a simple measure of active and passive use that may not fully capture the dynamic nature of these domains. Additionally, relying on self-report measures may not be the most accurate way to evaluate multiple social media behaviors.

However, individual behaviors, often associated with active or passive use were found to be indicative of increased frequency of active and

passive use. It was hypothesized that those higher in social comparison orientation would also report higher passive use, as literature firmly establishes that those high in comparison tend to scroll and compare online more frequently. Results confirmed this hypothesis. Similarly, those with higher self-esteem were also found to also report less passive social media use.

In line with extant research, results supported the predictive nature of social comparison orientation on self-esteem. Similarly, results confirmed that age would be a predictor of self-esteem. As self-esteem develops over time and steadies in adulthood, this finding supports existing research (Orth, et al., 2015). Interestingly, age was not predictive of social comparison orientation or passive social media use. There was a large range of ages represented in the relatively small sample, which may have contributed to weakness of these results. There were moderate correlations between social comparison and age and age and passive social media use, indicating the existence of a relationship that warrants further exploration. Age also did not correlate or predict social intelligence as an overall measure or within each of the three subsets, social skills, social awareness, and social information processing. Further investigation of the relationship among passive social media use, social comparison online, and self-esteem may help researchers in understanding how individuals are using social media and how certain psychosocial factors may impact or be impacted by this use. Additionally, this study may have been limited in the scope of exploration of social media use frequency, particularly as it pertains to individual platforms. Thus, exploring this relationship further, with consideration for specific platform frequency, may be fruitful in illuminating this relationship. This study adds to the growing body of research exploring active and passive use of social media.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of *** University(220220428)

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declare no conflict of interest

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