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THE IMPACT OF SOCIAL MEDIA USE ON LONELINESS THROUGH AN INTERPERSONAL-CONNECTION-BEHAVIOR FRAMEWORK (49 pp.)

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Globally, loneliness is rising at the same time that social media usage (SMU) (e.g., Facebook, Instagram, TikTok) is increasing. However, drawing conclusions about the impact of SMU on loneliness has been difficult due to: 1) a lack of focus on loneliness outcomes (as opposed to general well-being outcomes), 2) an overreliance on simplistic, time-based measurements, and 3) the lack of a single theoretical perspective that can make sense of contradictory findings from the literature. The current research aims to fill in these gaps by using loneliness as an outcome measure and measures that capture time usage, type of use, purpose of use, and online network familiarity, in conjunction with the interpersonal-connection-behaviors (ICB) framework proposed by Clark et al. (2018). The ICB framework suggests that when SMU is focused on promoting connection, it is linked with positive outcomes, but that when SMU is not focused on promoting connection, it is linked to negative outcomes. Using this theoretical approach, I will further our understanding of how SMU impacts loneliness using Facebook usage data of young adults living in Bangladesh in 2021. Since the majority of studies looking at the impact of SMU on mental health have been done on western populations (U.S and Europe), this research will help to further our understanding of how SMU may be impacting loneliness in a non-western context, allowing for comparison across different cultural environments. By better understanding which online behaviors are more likely to lead to connection as opposed to loneliness, this research could potentially help users maximize the benefits of social media and help to avoid its pitfalls.

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CHAPTER I

Introduction

Loneliness, defined as a perceived discrepancy between one's desired and one's actual level of social relationships (Peplau & Perlman, 1982), is increasing. Even before the onset of the global COVID-19 pandemic, approximately half of U.S. adults reported experiencing measurable levels of loneliness. Today, more than half of U.S. adults (58%) are considered lonely (The Cigna Group, 2023). This is not just an issue in the U.S., as one meta-analysis found that worldwide average loneliness in young adults increased between 1976 and 2019 (Buecker et al., 2021). Loneliness is a problem because it has major effects on our mental, physical, and societal health (Hawkley & Cacioppo, 2003; Erzen & Çikrikci, 2018; McClelland, Evans, Nowland, Ferguson & O'Connor, 2020; Li & Xia, 2020; Kanbay, Tanriover, Copur, Peltek, Mutlu, Mallamaci & Zoccali, 2023; Prescott, 2023; Hackett, Hamer, Endrighi, Brydon & Steptoe, 2012). In terms of mortality, loneliness and social isolation can be as harmful as smoking 15 cigarettes a day (Holt-Lunstad, Smith, Baker, Harris, Stephenson, 2015). Indeed, loneliness presents such a problem to health that in May of 2023, U.S. Surgeon General Dr. Vivek Murthy published an advisory on our epidemic of loneliness and isolation (U.S. Department of Health and Human Services, 2023). While loneliness is often associated with depression and social isolation, they are in fact separate constructs (Weeks, Michela, Peplau & Bragg, 1980; Lam et al., 2021): indeed, loneliness is a distinct psychological phenomenon in that it is uniquely a social pain (Hawkley & Cacioppo, 2010).

The rise of loneliness and lack of social connection is perplexing given the constant stream of new communication technologies that offer unlimited opportunities for socializing. Indeed, the global increase in loneliness is happening at the same time people are spending more time than ever before on

social media platforms, defined as communication technologies that provide opportunities to engage in social interactions with one or many audiences (e.g., Facebook, Instagram, TikTok and Twitter) (Bayer, Triệu,& Ellison, 2020). In the last ten years, the number of social media users has rapidly increased from 0.97 billion in 2010 to 3.40 billion in 2019 (eMarketer, 2017; Statista, 2021). Today, 60% of the world's population uses social media with the average daily usage at 2 hours and 24 minutes (April 2023, Statista; Digital 2023 Global Overview Report). It makes sense that people are turning to online platforms to stay connected with others, because humans are social creatures who require connection with others to thrive (Leary & Baumeister, 1995; Leary & Baumeister, 2000). But is social media helping to reduce loneliness or contributing to the problem? Early research on the connection between time spent on social media and well-being generally found a negative association between the two (Steers et al., 2014; Lin et al., 2016; Labrague 2014; Feinstein et al., 2013; Chou and Edge 2012; Twenge and Campbell 2019; Kross et al., 2013; Sagioglou and Greitemeyer, 2015). However, more recent reviews and meta- analyses, looking at the effects of social media use (SMU) on overall well-being have reported mixed or inconclusive results (Valkenburg et al., 2022; Valkenburg, 2022; Meier & Reinecke, 2021; Appel et al., 2020).

Why has previous research found such mixed results on the effect of SMU on overall well-being? The main reason is that much of the previous research has focused solely on measuring the *amount of time* spent on social media platforms without considering more nuanced measures of how people engage with social media. This is problematic because time does not capture the person-specific nuances that can have large effects on how SMU impacts well-being outcomes; for instance, nuances like the content being viewed, purpose and motivation for using social media, and person-specific susceptibilities (like personality traits, social skills, and offline social network support systems). For example, three hours spent on social media may have vastly different impacts on mental

health if the three hours are spent messaging family members and close friends, versus spending the same amount of time leaving hateful comments on stranger's posts. This has led to a growing consensus that SMU does not have an unambiguously good or bad impact on overall well- being, but rather that associations between SMU and well-being are inherently complex and nuanced and dependent upon person specific susceptibilities and the different ways people engage with social media.

Previous research on SMU is also limited in the conclusions that can be drawn about the connections between SMU and *loneliness* for three key reasons: a lack of focus on *loneliness* as an outcome (as opposed to general measures of ill-being), simplistic measures and associations (i.e., time spent online), and a dearth of a unifying theory. Firstly, most of the literature has been focused on measuring the impacts of SMU on overall well-being/ill-being outcomes (such as life satisfaction, happiness, self-esteem, anxiety, and depression) as opposed to loneliness. Given that loneliness is a distinct psychological phenomenon that is related to, but separate from, well-being or even ill-being (Meier & Reinecke, 2018; Valkenburg et al., 2021; Hawkley & Cacioppo, 2010), this represents a significant gap in our understanding of the relationship between SMU and loneliness.

Secondly, most of these studies use simplistic time-based measures without specifying how people interact with such sites when they are on them. This obscures differences in how individuals use social media, which may mediate the impact of time spent on SMU on well-being. For instance, one user may spend two hours on social media looking at and responding to photos of family members and close friends, while another spends two hours browsing posts from celebrities who portray an idealized lifestyle and unrealistic body standards. Thirdly, there is no single theoretical perspective that has organized the association of SMU and loneliness making it difficult to establish whether using SM is generally good or bad for mental health.

The current research proposes to fill in this gap–and further our understanding of the connection between SMU and loneliness–by using the interpersonal-connection-behaviors (ICB) framework proposed by Clark et al. (2018), in conjunction with measures that capture time usage, type of use (passive vs active), purpose of use, and online network familiarity (whether you personally know your online "friends"). The ICB framework offers a lens to better understand the mixed and contradictory findings of past research and offers direction for future research on SMU and its effects on loneliness. This framework suggests that when social media use is centered on promoting connection, it is linked with positive outcomes; when it is not centered on promoting connection, it is linked with negative outcomes. In other words, "whether behavior on social media platforms is good or bad for well-being depends on whether the behavior advances or thwarts innate human desires for acceptance and belonging" (Clark et al., 2018 p. 33). If connection-promoting use of social media is beneficial–but non-connection promoting use is detrimental–studying specific behaviors would allow researchers to better understand how the nuances of SMU impacts loneliness. I will use the ICB framework to make predictions about how SMU impacts loneliness outcomes using data about Facebook use and well-being for young adults living in Bangladesh. Facebook is still the most widely used social networking site globally, with over 2.9 billion monthly active users. As of 2022, 32.7 percent of Bangladesh's population were using Facebook and this number continues to grow (Statista, 2023).

This research will expand our understanding on the contours of the relationship between SMU and loneliness by using more nuanced measures of SMU such as type of use (active vs. passive), specific purposes and motivations for use, and online network familiarity. It will also be, to the best of my knowledge, the first research to use the ICB framework to make predictions about how SMU is connected to loneliness outcomes. Finally, because most studies have focused on

western populations, this research will allow for a comparison of findings on the associations between SMU and loneliness between western and nonwestern contexts which could lead to more accurate generalizations of global trends in SMU and mental health.

Practically speaking, this research could potentially help users choose behaviors that avoid the pitfalls of social media and maximize its benefits. Social networking sites have fundamentally changed the nature of online communication and human interaction. If we want these platforms to serve as assets of social connection versus liabilities, researchers need to focus on identifying and differentiating beneficial and detrimental behaviors for users of these sites and publicize this information to inform their actions and decisions.

CHAPTER II

LITERATURE REVIEW

Social Media Use and Mental Health Overview

Until recently, research on the association between SMU and mental health has focused almost exclusively on how the duration of time spent on social media platforms is related to general measures of subjective well-being (e.g., life satisfaction, self-esteem, happiness, social trust), ill- being (depression, anxiety, addiction, loneliness, stress) or a combination of both. In general, studies have shown that time spent on social media is negatively associated with subjective well- being (Lin et al., 2016; Twenge and Campbell, 2019; Sampasa-Kanyinga & Lewis, 2015), with the vast majority of this research focusing on Facebook usage (Steers et al., 2014; Labrague 2014; Chou and Edge 2012; Kross et al., 2013; Sagioglou and Greitemeyer, 2015; Allcott, Hunt, Braghieri, Eichmeyer & Gentzkow. 2020; Twenge, 2019; Tromholt, 2016). Of particular note, a quasi-experiment by Braghieri et al. (2022) looked at the impact that the introduction of Facebook in 2004-2006 had on U.S. college students' mental health. The quasi-experimental nature of this study allowed researchers to not only look at associations between SMU and mental health, but to assess causality. They found that the rollout of Facebook had an overall negative effect on student's mental health and academic performance.

Why might SMU have a negative impact on well-being? Research suggests that upward social comparison and envy mediate the relationship between social media use and subjective well- being. There are two forms of social comparison–upward and downward comparison (Buunk & Gibbons, 1997; Wills, 1981). Upward comparisons occur when one perceives another as better on a particular dimension, whereas the opposite occurs for downward comparisons. Envy, defined as an unpleasant and often painful feeling characterized by inferiority, hostility, and resentment, is often a consequence

of upward social comparison and can result in decreases of subjective well-being (Smith & Kim, 2007; Verduyn et al., 2017; Cohen-Charash, 2009). SMU can foster upward comparison and envy when users compare themselves with others in terms of work, leisure, travel, health and/or appearance. As users typically present a positively-biased, or idealized version of themselves online (Schreurs, Meier, & Vandenbosch, 2023), upward comparisons are expected to be more frequent and harmful on social media (Verduyn, Gugushvili, Massar, Täht, Kross, 2020). This is supported by the aforementioned research by Braghieri et al. (2022) which suggested that the negative effects of Facebook usage were due to Facebook fostering unfavorable social comparisons. Another study by Steers et al. (2014) investigated how social comparison on Facebook impacted users' mental health and found that the relationship between the amount of time spent on Facebook and depressive symptoms was mediated by upward, nondirectional, and downward social comparisons. Feinstein et al. (2013) also found that negatively comparing oneself with others on Facebook may place individuals at risk for depressive symptoms.

Despite the evidence that SMU is correlated with ill-being, some research has found that SMU is associated with well-being. For instance, many studies have shown a positive correlation between Facebook use and subjective well-being (Ellison, Steinfield & Lampe, 2007; Deters & Mehl, 2013; Liu & Yu, 2013; Valenzuela, Park & Kee, 2009). Why might this be? Research suggests that SMU can increase social capital (sometimes referred to as social support) and social connectedness, both of which increase well-being (Steinfield et al., 2008; Burke & Kraut, 2014; Burke, Kraut & Marlow, 2011). Social capital is distinguished between two different types– bridging and bonding (Putnam, 2000). Bridging social capital refers to having access to new information, being exposed to diverse perspectives and feeling part of a broader community, whereas bonding social capital refers to receiving emotional support, instrumental support and companionship (Verduyn et al, 2017). One

way social media platforms provide opportunities for users to increase their social capital and feelings of social connection is by staying connected to friends, family, and romantic partners through social contact behaviors (Coundouris, Tyson, & Henry, 2021). These behaviors are communicative acts directed at specific people, such as reacting to their posts or commenting on them. This can help sustain satisfaction, commitment, and intimacy in close relationships because social contact behaviors signal a sense of presence and participation in each other's lives (Taylor et al., 2022). Social media platforms can also serve as 'virtual communities' where like-minded individuals form online social clubs and groups based around similar interests, hobbies, opinions and ideas which fosters a traditional sense of community and are not bound by geographic proximity (Hampton & Wellman, 2003). Fostering new relationships in this way enables total strangers to connect with others, creating the possibility of forming "new, long-term social ties" (Hampton, Sessions & Ja Her E, 2011, p.134) giving them a sense of belonging, friendship and support if needed (Delanty, 2018).

Thus, the existing research makes it clear that the relationship between SMU and mental health is nuanced and dependent upon how individuals engage with social media. Indeed, the evidence suggests that it is not the duration of time spent on social media that matters as much as *how* a person interacts with these platforms. (Valkenburg et al., 2022; Valkenburg, Meier & Beyens, 2022). This has led to a turn away from research that simply uses time spent on social media platforms to predict mental health outcomes and towards research that uses more nuanced measures of how individuals are engaging with social media, including passive vs. active use, purpose/ motivation for use, and online network familiarity.

Passive versus Active Social Media Use and Well-Being

Recently, more nuanced conceptualizations of the ways users spend their time on social media has led to differentiating between active social media use (ASMU) and passive social media use

(PSMU). ASMU refers to actions that promote social exchanges with others, such as sending direct messages, commenting on others' content, and broadcasting one's own (e.g., posting a status update). PSMU describes the consumption of social media content without direct engagement in social interactions, such as browsing other users' profiles, stories, or comments (Verduyn et al., 2017; Verduyn et al., 2020). Distinguishing between the different types of online engagement has allowed researchers to better predict which users are more likely to experience positive versus negative outcomes. Several cross-sectional studies have linked PSMU with reduced levels of subjective well-being (Krasnova et al., 2015, 2013; Tandoc, Ferrucci, and Duffy, 2015; Shaw, Timpano, Tran, & Joorman, 2015). In contrast, ASMU has been found to be positively correlated with subjective well-being (Kim and Lee, 2011; Kim, Chung & Ahn, 2013; Lee, Lee, & Kwon, 2011; Wang, 2013). In one diary study, active Facebook use was positively related to life satisfaction, whereas the opposite was found for passive Facebook use (Wenninger, Krasnova & Buxmann, 2014).

How might this play out on social media? For example, a user who actively shares parts of their life online by posting photos and status updates is in a position to receive feedback from their online network of friends. This kind of connection promoting behavior would put this user in a better position to perceive social support and a feeling of social connection, and therefore, more likely to increase their sense of well-being. In contrast, a user who spends lots of time passively browsing and viewing others' feeds, but never contributing or sharing their own, would be in a better position to experience social comparison and feelings of envy, thereby decreasing their sense of well-being. This kind of passive use would not be connection promoting, ultimately leading to worse outcomes than users who engage in connection promoting behavior.

Recently, studies have started to provide direct evidence for the mediating role that social capital and social connectedness play in the connection between ASMU and well-being. A study by

Frison and Eggermont (2015b) found that active Facebook use positively predicted perceived support, which in turn predicted a decrease in depressive symptoms at the following assessment. Similarly, Kim and Lee (2011) found that ASMU had a positive effect on subjective well-being mediated by perceived social support. This evidence suggests that the positive impact of ASMU on subjective well-being is partially due to an increase in social capital and the associated feelings of social connectedness. For PSMU, cross-sectional studies provide evidence of the role that upward social comparison and envy play in mediating the links between PSMU and decreased well-being (Krasnova et al., 2013, 2015; Tandoc et al., 2015). Moreover, a longitudinal study by Verduyn et al. (2015) found that the negative effect of passive Facebook use on subjective well-being is mediated by envy (Verduyn et al., 2017).

In sum, a sizable amount of the literature on SMU has found that active use generally leads to increased well-being whereas passive use leads to decreased well-being. However, researchers have begun to criticize the active/passive dichotomy, stating that these concepts may be too coarse to lead to meaningful associations with well/ill-being. Some critiques relate to a lack of valid instruments to measure ASMU and PSMU and lack of a standardized operationalization of each concept (Valkenburg & Beyens, 2022). Others argue that the active/passive dichotomy needs refinement due to findings that some types of ASMU lead to decreases rather than increases in well- being (Kross et al., 2021) and PSMU cannot only lead to envy but also to inspiration and other positive effects on well-being (Meier et al., 2020). So under what conditions would we expect ASMU and PSMU to predict well-being? The ICB framework offers insights into these relationships.

The ICB Framework and Social Media Use

The ICB framework can help us understand the nuances between SMU and its outcomes, as the ICB framework proposes that when SMU is centered on promoting connection it is more likely to be linked

to positive outcomes, whereas SMU that is not centered on promoting connection is more likely to be linked with negative outcomes. This framework suggests that, "...social network sites benefit their users when they are utilized to make meaningful social connections and harm their users through pitfalls such as social comparison when they are not," (Clark et al., 2018 p. 32). The evidence put forth for the passive/active hypotheses align with the ICB framework, as active use (e.g., promoting connection) is linked with positive outcomes, while passive use (e.g., not promoting connection) is linked with negative consequences (Clark et al., 2018).

In addition, this framework can help us predict the impacts of a specific type of SMU on well-being by forcing us to consider whether the usage is promoting connection or disconnection. For instance, frequently posting status updates and frequently commenting on other users' photos/statuses are both considered ASMU. However, this doesn't necessarily mean that both types of ASMU (frequent posting and frequent commenting) will both predict higher well-being outcomes. This is because one type of ASMU may be used to promote connection, while the other is motivated by promoting disconnection. For example, frequently posting status updates may be an attempt to keep family members updated on life events and offer them a chance to have daily social interactions with friends and family, thereby increasing connection and well-being. On the other hand, frequently making negative comments on others posts (another form of ASMU) may lead to disconnection and ill-being if the comments are negative and hateful.

SMU in Western vs. Non-Western Context

Of course, an important question is whether the research on SMU and well-being translates to a non-Western context, as the majority of studies on SMU and mental health outcomes have been done in Western countries. While there is far less research on the effect of SMU in non-Western populations, the existing research suggests that the effects of SMU on well-being are largely

consistent across cultural contexts. For instance, cross-sectional studies in non-western populations have examined the effects of problematic internet use (Islam, Sujan, Tasnim, Ferdous, Masud, Kundu & Griffiths, 2020; Bisen & Deshpande, 2020; Xu, Lok, Liu, Cao, Hall & Xiang, 2020) and Facebook addiction (Sayeed, Hassan, Rahman, El Hayek, Al Banna, Mallick & Kundu, 2020; Rajesh & Rangaiah, 2020; Ho, 2021) on various outcomes such as quality of life, loneliness, self- esteem, psychological distress, depression, and sleep quality. Results from these studies show similarities to Western populations, as they find a negative correlation between internet/ social media addiction and psychological outcomes.

While it is still unclear whether non-Western users will see the same effects as Western users in terms of loneliness outcomes, this existing evidence suggests that trends in the U.S. will carry over to non-Western contexts.

Passive/Active Social Media Use and Loneliness

While few studies have tested the passive/active use dichotomy on how SMU impacts *loneliness* specifically, the findings from these studies align with existing research on the connection between passive/ active SMU and well-being. Active Facebook use has been shown to be negatively related to loneliness, whereas passive Facebook use has been positively related to loneliness (Matook, Cummings & Bala, 2015; Ryan & Xenos, 2011). Another study that observed server logs of users' activity on Facebook found active use to be associated with greater feelings of bonding social capital and lower levels of loneliness (Burke et al., 2010). Finally, an experimental study by Deters and Mehl (2013) tested whether posting Facebook status updates increased or decreased levels of loneliness. For 1 week, participants in the experimental condition were asked to post more than they usually do, whereas participants in the control condition received no instructions. Results indicated that those in the experimental condition increased their feelings of social connectedness and reduced loneliness.

While all of these studies were based on Western populations (i.e., Americans and Europeans), I believe these results will generalize to the Bangladeshi population given the two studies I could find on internet use and loneliness in Bangladesh, as the results of these studies are consistent with results from Western populations. The first is a study from 2020 by Mamun et al., which examined the prevalence of problematic internet use and its associated risk factors including loneliness, self-esteem, and psychological distress. Results showed loneliness and psychological distress were positively correlated with problematic internet use. More recently, a study by Kumar & Islam (2023) looked at how in-person social networks and social media use are related to loneliness among university students in Bangladesh. Results showed a significantly positive relationship between SMU (Facebook use) and loneliness, and a significantly negative relationship between real life social network and loneliness.

Thus, I would expect that passive/ active SMU impacts loneliness in Bangladeshi and Western populations in similar ways, as the existing literature gives us no reason to believe that cultural differences would create differences in outcomes. More specifically, I propose the following hypothesis:

H1: People who use Facebook more actively (i.e. posting more frequently) will be less lonely than those who use it more passively

Purpose and Motivations of Social Media Use, Well-Being, and Loneliness

Beyond the active/ passive dichotomy, recent findings suggest that an individual's purpose and motivation for using social media may also be an important factor in determining how SMU impacts their well-being (Brandtzæg and Heim, 2009, Jung et al., 2007, Raacke and Bonds-Raacke, 2008). So why do people use social media? Some of the most commonly cited purposes for logging on to social media have been for social interaction, information seeking, passing time, entertainment, expression of

opinion, information sharing, and surveillance/knowledge about others (Whiting & Williams, 2013). But how might the reason for using social media impact well-being? Rae and Lonborg (2015) found that Facebook usage was associated with higher levels of subjective well-being when it was used to maintain existing relationships (e.g., keeping in touch with current friends) but was negatively associated with subjective well-being when used for the purposes of creating new relationships (e.g., making new friends). Moreover, a longitudinal study by Teppers, Luyckx, Klimstra & Goossens (2014) examined how Facebook motives and peer-related loneliness are associated longitudinally. Their study revealed that using Facebook for making new friends reduced peer-related loneliness over time, whereas using Facebook for social skills compensation increased peer-related loneliness over time. These findings suggest that well-being outcomes are influenced not only by how individuals engage with social media, but also *why* people are using social media.

Despite the plethora of possible motivations for SMU, Nadkarni and Hofmann (2012) argue that motivations for using Facebook can be boiled down to two basic social needs—the need to belong (i.e. the intrinsic drive to affiliate with others and gain social acceptance) and the need for self-presentation (i.e. the process by which we portray ourselves to others to make a desired impression (Strimbu & O'Connell, 2019). Using the lens of the ICB framework, we would expect that using social media to belong would lead to higher levels of well-being because using social media to belong is a connection-promoting motivation. Whereas motivations of portraying oneself in an idealized way–in order to form a desired impression–would more likely lead to lower levels of well-being because focusing on self-presentation is a non-connection promoting motivation. For example, an individual who uses Facebook to join a running club may participate online by staying up to date on meet up locations and times, as well as to communicate with group members outside of in-person meetings. The motivation to use Facebook in this case is to reinforce their sense of belonging in that

social group and therefore increase their sense of social connection. On the other hand, an individual who is motivated to use Facebook as a means to present themselves in a way they deem socially desirable–but not actually reflective of their offline life–is more likely to experience feelings of disconnection. For example, another individual may be motivated to join the same running group but with the purpose of presenting themselves online as someone who runs without actually engaging offline with group members. In this case, the main purpose is to present themselves in a socially desirable way to others that is not actually reflective of their lifestyle. The existing research suggests that this non-connection promoting purpose would lead to very different well-being outcomes compared to the first individual. In both these cases, we can see how the motivations associated with SMU could potentially have profound effects on well-being outcomes.

So how might motivations for using social media be linked with loneliness outcomes? Currently, there remains a lack of research on how the purpose and motivation of social media use is associated with *loneliness*. Indeed, the previously mentioned longitudinal study by Teppers, Luyckx, Klimstra & Goossens (2014) on Facebook motives and loneliness in adolescents is the only one I could find. However, given what we know from the previous studies and what we would predict using the ICB framework, we would expect that users with motivations to stay connected with people (e.g., connection promoting purpose) would result in lower levels of self-reported loneliness when compared to users whose motivations for using social media are not motivated by belonging or focused on social connection such as viewing entertainment or passing time. Again, there is no reason to believe that cultural differences between Western societies and Bangladesh would impact the aforementioned social processes. Thus, I hypothesize that SMU purpose and loneliness will be related in the following ways:

H2: People who use Facebook to promote connection (i.e., staying connected to people, making new friends) will be less lonely than people who use Facebook in a non-connection promoting way (i.e., updates on current affairs, entertainment, time passing).

SMU, Offline Social Networks, Well-Being, and Loneliness

Beyond the active/ passive dichotomy and motivation of use, there is also reason to believe that the interaction between a user's online and offline social networks may play an important role in mediating the effects of SMU on loneliness, as users may not reap the benefits of SMU unless there is overlap between their online and offline social interactions. Why might this be the case? Firstly, one of the consistent benefits of social media use is increasing social capital by maintaining contact with friends and family when in person interaction is not possible (Kross et al., 2013; Lampe, Ellison & Steinfield, 2006; Winstone et al., 2021; Marciano et al., 2022c). There is often a vast overlap between online and offline social networks (Amichai-Hamburger & Hayat, 2011; Jacobson & Forste, 2011; Valkenburg & Peter, 2007b), and evidence suggests that communication technologies can offer opportunities to enrich one's face-to-face social life. But if you do not know most of your online contacts in an offline context, you would not receive the benefits of strengthening existing offline relationships.

Secondly, since individuals only have a given number of hours in a day, online SMU may displace meaningful offline relationships (Hood, Creed, & Mills, 2018; Nowland et al., 2018; Reissmann et al., 2018; Wang et al., 2018). This is supported by research by Pollet, Roberts, and Dunbar (2010), which suggested that SMU may be negatively impacting our social relationships by displacing the time and energy we put into our offline relationships. The study examined the relationships between social media use, network size, and emotional closeness. They found that time spent using social media was associated with a larger number of online social network "friends." However, time spent using social media was not associated with larger offline networks, or feeling

emotionally closer to offline network friends. Social media users, as compared to non- users, did not have larger offline networks and were not emotionally closer to offline network friends. This is problematic because offline relationships may be more protective against loneliness than online relationships (Pea et al., 2012; Steptoe et al., 2013), while online relationships may be lower quality and less fulfilling forms of interaction (Pittman & Reich, 2016) and provide less robust social support (Rains, Brunner, Akers, Pavlich & Goktas, 2017) than in-person relationships. Indeed, about 65 percent of the social meaning of a situation in a two-person setting is conveyed nonverbally (Birdwhistell, 1970), which makes up a very large part of information in any human communication. "Without sufficient support of nonverbal cues, digital communication cannot fully perform the function of face-to-face communication (Lee, Leung, Lo, Xiong, & Wu, 2010, p. 385). In sum, offline relationships may offer more protection against loneliness than online relationships, and SMU may increase loneliness by displacing offline relationships with online relationships.

And indeed, existing research suggests that individuals may only receive the full benefits of social connection through SMU when used in combination with in-person social interactions (Nowland et al., 2018). A study by Liu et al. (2020) with a sample of 872 Chinese adolescents found that active social media use positively influenced adolescents' flourishing, but this effect was mediated by online and offline social capital, suggesting that social capital has evolved in two forms today (Marciano, & Viswanath, 2023). According to the authors, "the online environment still needs to find a foothold in offline life to influence individuals," (Liu et al. (2020, p. 6). Another study found that people who spend more time on Facebook and have more strangers as Facebook "friends" are more likely to engage in upward social comparison, which in turn is associated with higher levels of depression (Blease, 2015). While loneliness was not measured as an outcome in this study, we can infer that if users have more strangers as Facebook 'friends' as opposed to online friends they know personally, they may be

more likely to engage in upward social comparison and therefore suffer from higher levels of loneliness.

Given this evidence on the interaction between a user's online and offline social networks in impacting loneliness, we can infer that users who personally know more of their online friends (i.e. have an offline relationship with them) would be less likely to experience loneliness than those who do not personally know the majority of their online friends. Moreover, using the ICB framework as a lens, we can hypothesize that individuals who use social media to enhance or supplement their offline social relationships (connection promoting behavior) would be less likely to experience loneliness than individuals who do not (non-connection promoting behavior). Again, there is no reason to believe that cultural differences between Western societies and Bangladesh would impact the aforementioned social processes. Therefore, I propose the following hypotheses:

H3: People who have more overlap between their on-line and off-line networks (i.e., personally knowing more of your Facebook friends) will be less lonely than those who have less overlap between their on-line and off-line networks

CHAPTER III

Analytic Approach and Methods

To examine the impact of SMU on loneliness outcomes, I will utilize data collected from Bangladeshi adults in 2021 about their Facebook use. I will use regression analysis to predict loneliness (i.e., the dependent variable) controlling for activeness of use, purpose of use, network familiarity, daily time spent on Facebook, network size, age, marital status, and gender. This will allow me to test the aforementioned hypotheses; namely, 1) Does active social media use predict loneliness? 2) Does the purpose of use predict loneliness? 3) Does network familiarity predict loneliness?

Data

This research will utilize data from a 2021 cross-sectional study about the associations between the use of social networking sites and mental health in Bangladesh (Islam, Jannath, Moona, Akter, Hossain & Islam, 2021). Data was collected from February 4, 2021, to March 18, 2021 using a self-reported questionnaire that was sent to participants through email, Facebook, Messenger, WhatsApp, Instagram, etc. Inclusion criteria were social media users. This sample includes responses from 791 people (369 men, 422 women) between the ages of 15 and 40 who were of Bangladeshi ethnicity and living in Bangladesh. Responses were collected in order to examine the relationship between social networking site (SNS) use and four dimensions of psychological distress (including depression, anxiety, loneliness, and sleep disturbances). The survey contained items focusing on usage patterns of social networking sites, assessment of mental health problems, and demographics. Responses were collected from all across the country regardless of sociodemographic background.

Measures

Loneliness (dependent variable): Loneliness is measured using the UCLA Loneliness Scale-8 (Russell, 1996). Respondents were asked to indicate their agreement with eight statements (exemplary item: in the last 30 days, I lack companionship) on a 5-point Likert-type scale ranging from 1 = "never" to 5 = "often." Responses were averaged to create a loneliness index with a mean value of 18.2 and an alpha of .82

Activeness of SMU (independent variable): Active use is conceptualized using the variable for frequency of posting. Frequency of posting was a single-item question asking respondents how frequently do you post (update status or add photos/videos) on social media? I recoded their responses to create four dummy variables:

Less than 1 per day (reference category) includes those who responded to the question with, "less than once a day" (recoded as '1'; all other responses recoded as '0'). The mean value was .50.

1-2 times per day includes those who responded to the question with, "1-2 times per day," (recoded as '1'; all other responses recoded as '0'). The mean value was .19.

3-5 times per day includes those who responded to the question with, "3-5 times per day," (recoded as '1'; all other responses recoded as '0'). The mean value was .16.

More than 5 times per day includes those who responded to the question with, "more than 5 times per day" (recoded as '1'; all other responses recoded as '0'). The mean value was .15.

Purpose of SMU (independent variables): Respondents were asked "What is your main purpose for using social media?"[1] I recoded their responses to create three dummy variables:

Connection-promoting purpose (reference category) includes those who responded to the question with, "to make new friends," or "to stay connected with people," (recoded as '1'; all other responses recoded as '0'). The mean value was .70.

Non-connection purpose includes those who responded to the question with, “to pass time,” (recoded as ‘1’; all other responses recoded as ‘0’). The mean value was .26.

Running a business purpose includes those who responded to the question with, “running a business,” (recoded as ‘1’; all other responses recoded as ‘0’). The mean value was .03.

Online Network Familiarity (independent variable): To assess participants' personal familiarity with their online social network, respondents were asked “How many friends do you know personally?” Responses included “few of them” (recoded as ‘1’), “many of them” (recoded as ‘2’), and “all of them” (recoded as ‘3’). The mean value was 1.97.

Online Network Size (control): To assess the size of one's online social network, respondents were asked “How many friends do you have on social media?” Responses included “less than 500” (recoded as ‘1’), “between 500 and 4,000” (recoded as ‘2’), and “more than 4000” (recoded as ‘3’). The mean value was 1.60.

Daily time spent on Facebook (control): To assess daily time spent on Facebook, respondents were asked “How much time do you spend daily on social media?” Responses included “less than 1 hour” (recoded as ‘1’), “between 1-3 hours” (recoded as ‘2’), “between 3-5 hours” (recoded as ‘3’), and “more than 5 hours” (recoded as ‘4’), with a mean value of 2.6 hours.

Age (control): Age may be an important factor for loneliness, with the most recent research suggesting that young people may be at the highest risk for loneliness today. A 2018 study by Cigna Group found that Generation Z had the highest loneliness levels, versus people 72 and older who had the lowest levels of loneliness. Ages ranged from 14 to 65, with a mean value of 24.6.

Woman (control): Gender will be included as a control, as gender has been found to predict loneliness, albeit with mixed results. Statistically significant gender differences, when found, generally show men

having typically higher levels of loneliness when compared to women However, in terms of self-labeling, women more frequently admit to being lonely than men. This supports the view that women are more likely to acknowledge their loneliness than men because the negative consequences for admitting loneliness are less for women (Borys & Perlman, 1985).

Gender will be dummy coded with men coded as '0' and women coded as '1,' as respondents were only given two gender options. The mean value is 0.53.

Married (control): Marital status will be included as a control, as marriage has been associated with substantially less loneliness for both men and women (Stack, 1998). Marital status will be dummy coded with unmarried people coded as '0' and married people coded as '1.' The mean value is 0.29.

Table 1: Descriptive Statistics

Variable	**Obs.**	**Mean**	**S.D.**	**Min.**	**Max.**
Loneliness	781	18.3	4.97	8	32
Active Facebook Use					
less than 1 per day	781	.50	.50	0	1
1-2 per day	781	.19	.39	0	1
3-5 per day	781	.16	.16	0	1
more than 5 per day	781	.15	.35	0	1
Purpose of Facebook Use					
connection-promoting	781	0.71	0.46	0	1

use					
non-connection promoting use	781	0.26	0.44	0	1
running a business purpose	781	0.03	0.18	0	1

Online Network Familiarity	781	1.97	0.54	1	3
Online Network Size	781	1.6	0.54	1	3
Daily Time Spent on Facebook (hours)	781	2.6	1	1	4
Age (years)	781	24.6	6.4	14	65
Woman	781	0.53	0.5	0	1
Married	781	0.29	0.45	0	1

Table 2: Linear Regression Model Examining the Effects of Social Media Use on Loneliness

(n=781)	Coefficient (Std. Dev.)
Activeness of Use (reference category = less than 1 per day)	
1-2 posts per day	.82 (.49)
3-5 posts per day	1.1* (.52)
more than 5 per day	.49 (.54)
Purpose of Use (reference category = connection-promotion)	
non-connection	.29 (.41)
run a business	-1.1 (.97)
Network familiarity	-.36 (.33)
Network size	-.25 (.34)
Daily time spent on Facebook	.48* (.19)
Age	.13*** (.03)
Woman (reference category = man)	.88* (.37)
Married (reference category = not married)	-1.4** (.44)

Intercept	14.4
R Squared	.05
Adjusted R Squared	.04

p≤.05* p≤.01** p≤.001**

CHAPTER IV

Results

I did not find support for my three main hypotheses; however, results showed that demographic characteristics, including age, being married, and being a woman were all positively associated with loneliness. Daily time spent on Facebook was also a significant predictor of loneliness in a non-western context which lends evidence that time spent on social media may be negatively associated with well-being, despite differences in cultural context.

H1: People who use Facebook more actively (i.e posting more frequently) will be less lonely than those who use it more passively

I did not find any evidence that supports Hypothesis 1 and even found some evidence against it. Results suggest a curvilinear relationship between active Facebook use and loneliness, as I found that individuals posting 3-5 times per day are significantly lonelier than those posting less than once a day. This is the opposite of what I expected to find. However, there are no statistically significant differences in loneliness between those posting less than 1 time per day, 1-2 times per day, or more than 5 times per day. In other words, I find some evidence that as active Facebook posting increases, loneliness may also increase, but that loneliness may decrease once at high levels of posting activity.

H2: People who use Facebook to promote connection (i.e., staying connected to people, making new friends) will be less lonely than people who use Facebook in a non- connection promoting way (i.e., updates on current affairs, entertainment, time passing).

I did not find evidence to support Hypothesis 2, as there is no statistically significant difference in loneliness between people who use Facebook for a non-connection promoting purpose or to run a business in comparison to those who use it for a connection-promoting purpose.

H3: People who have more overlap between their on-line and off-line networks (i.e., personally knowing more of your Facebook friends) will be less lonely than those who have less overlap between their on-line and off-line networks

I did not find evidence that supports hypothesis 3, as results showed a non-significant relationship between both network familiarity, network size, and loneliness.

Effects of Controls

Results showed that demographic characteristics, including daily time spent on social media, were more important predictors of loneliness in this dataset than the specific ways people use social media. I found a statistically significant, positive relationship between daily time spent on Facebook and loneliness. This means that the more time a user spends on Facebook, the lonelier they are. In terms of demographic effects, I found a statistically significant positive relationship between age and loneliness, meaning that older individuals tend to be lonelier than younger individuals. I also found that women were significantly lonelier than men. Finally, married people were significantly less lonely than people who were not married.

CHAPTER V

Discussion

This study used the ICB Framework to evaluate whether the ways people use Facebook in terms of their activeness, purpose, network familiarity and network size would influence levels of loneliness. I did not find evidence to support my three hypotheses or the ICB framework—specifically, I did not find evidence that activeness of use, purpose of use, online social network familiarity and size are factors that influence the loneliness of Facebook users in Bangladesh. I actually found some evidence against my hypothesis, as users who post 3-5 times per day are significantly lonelier than users who post less than once a day. This is the opposite of what I predicted using the ICB framework, which would predict that more active use would reduce loneliness. While this result does not support the hypothesis that people who use more actively will be less lonely than those who use more passively, I did find some evidence for a curvilinear relationship between active use and loneliness. This would mean that as active Facebook posting increases, loneliness also increases, but only up to a certain point, after which as posting continues to increase, loneliness may start to decrease.

However, while my hypotheses were not supported, I did replicate an important finding on SMU in a non-western context. I found that the relationship between daily time spent on Facebook and loneliness was positive, replicating findings from the U.S. and Europe in a non-western context. This suggests that, broadly speaking, more time spent on social media may be negatively affecting the well-being of users regardless of cultural differences and/or where they live. This is important because it suggests that increasing time spent on social media may not be a sufficient way to fulfill needs for social interaction in any cultural context. This supports the previous research that suggests individuals may only receive the full benefits of social connection through SMU when used in combination with

in-person social interactions (Nowland et al., 2018). In other words, increasing time spent on social media may not be an adequate way to deal with the rise in loneliness for individuals in both western and non-western countries.

I was also able to replicate the effect that marriage has on loneliness in a non-western context; however, my findings on the effects of age and gender on loneliness were less consistent with findings in western contexts. I found that married individuals were significantly less lonely than non-married individuals, which lends further support that marriage provides an important buffer against loneliness, likely due to the extra social support marriage offers (Stack, 1998).

However, this study found that older individuals tend to be lonelier than younger individuals, which does not align with previous age studies in the U.S., which found that loneliness is highest in young adults and then declines throughout adulthood until the very oldest age (85+) at which time it increases and can surpass the prevalence and frequency seen in young adults (e.g., Cigna U.S. Loneliness Index, 2018; Perlman, 1990; Pinquart & Sörensen, 2003; Qualter et al., 2015). And finally, while results from previous research on gender differences in loneliness are consistently mixed (Maes et al., 2019), this study found evidence that women were significantly lonelier than men, perhaps because men in a non-western context are particularly unlikely to admit being lonely.

Limitations

This study has a few important limitations to address. The first is the lack of control variables available in the data set to account for other factors that may be influencing social media users' levels of loneliness. The lack of control variables reduced my ability to discern the effects of how SMU impacts loneliness, as a very small portion of loneliness was explained by my model (adjusted r-square value of .04). In particular, there was no measure of perceived social support which is problematic as research finds that social support is an important predictor of subjective well-being (Hombrados-

Mendieta et al., 2013; Wang et al., 2018; Hutten et al., 2021; Caba Machado et al., 2023). Thus, my inability to account for users' social support networks was a crucial limitation of the analysis. Secondly, the cross-sectional nature of the data does not allow for conclusions to be made about causality. Future studies on SMU and loneliness could benefit from more longitudinal data in order to assess causality between variables. And finally, the study only included individuals who use social media, which means I was not able to make any comparisons between those who used and those who abstained from SMU.

Conclusion and Future Considerations

We are living in a time of rapid technological advancement which has created more opportunities for communication and social connection across time and space, and yet we are in the midst of an epidemic of loneliness. Social media is one of the most prevalent forms of digital communication used today, especially among younger generations, making it crucial that research continues to analyze its impacts on loneliness. The goal of this study was to identify and differentiate beneficial versus detrimental behaviors in order to better inform user's actions and decisions when using social networking sites. While results did not find evidence to support the ICB framework, as activeness of use, purpose of use, online social network familiarity and size were not found to impact loneliness levels, there was some evidence that more time spent on social media may affect how lonely its users feel in their day to day lives. Given that this study was done in a non-western context, this lends some evidence that more time spent on social media may negatively affect well-being regardless of cultural context. More research is needed in non-western contexts to determine whether the effects of SMU are consistent with mental health outcomes in western contexts. Furthermore, given that rates of loneliness have steadily been increasing, especially among young people (Pearce et al., 2021), who are coincidentally the same group who are most likely to use social media, it is important that researchers continue to study loneliness as its own separate construct in order to create

more effective interventions for its users.

References

Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). “Loneliness and Internet use.” *Computers in Human Behavior*, 19(1), 71-80.

Amichai-Hamburger, Y., & Hayat, Z. (2011). “The Impact of the Internet on the Social Lives of Users: A Representative Sample From 13 Countries.” *Computers in Human Behavior*, *27*(1), 585-589.

Allcott, Hunt, Luca Braghieri, Sarah Eichmeyer, and Matthew Gentzkow. 2020. "The Welfare Effects of Social Media." *American Economic Review*, 110 (3): 629-76

Berryman, C., Ferguson, C. J., & Negy, C. (2018). “Social Media Use and Mental Health Among Young Adults.” *Psychiatric Quarterly*, 89, 307-314.

Best, P., Manktelow, R., & Taylor, B. (2014). “Online Communication, Social Media and Adolescent Wellbeing: A Systematic Narrative Review.” *Children and Youth Services Review*, 41, 27-36.

Bowman, N. D., Rieger, D., & Lin, J. H. T. (2022). “Social Video Gaming and Well-being.” *Current Opinion in Psychology*, 101316.

Braghieri, Luca, Ro'ee Levy, and Alexey Makarin. 2022. "Social Media and Mental Health." *American Economic Review*, 112 (11): 3660-93.

Blease, C. R. (2015). “Too Many ‘Friends’ Too Few ‘Likes’? Evolutionary Psychology and Facebook Depression.” *Review of General Psychology*, *19*(1), 1-13

Burke, M., & Kraut, R. E. (2014). “Growing Closer on Facebook: Changes in Tie Strength Through Social Network Site Use.” In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 4187-4196).

Borys, S., & Perlman, D. (1985). “Gender Differences in Loneliness.” *Personality and Social Psychology Bulleti*n, 11(1), 63-74.

Bisen, S. S., & Deshpande, Y. (2020). “Prevalence, Predictors, Psychological Correlates of Internet Addiction Among College Students in India: A Comprehensive Study.” *Anatolian Journal of Psychiatry/Anadolu Psikiyatri Dergisi*, 21(2).

Caba Machado, V., Mcilroy, D., Padilla Adamuz, F. M., Murphy, R., & Palmer-Conn, S. (2023). “The Associations of Use of Social Network Sites with Perceived Social Support and Loneliness.” *Current Psychology*, 42(17), 14414-14427.

Cacioppo, J. T., & Hawkley, L. C. (2009). “Perceived Social Isolation and Cognition.” *Trends in Cognitive Sciences*, *13*(10), 447-454.

Cacioppo, J. T., & Patrick, W. (2008). *Loneliness: Human Nature and the Need for Social Connection*. WW Norton & Company.

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, and Social Networking,* 15(2), 117-121.

Caplan, S. E. (2006). “Relations Among Loneliness, Social Anxiety, and Problematic Internet Use.” *Cyber Psychology & Behavior*, *10*(2), 234-242.

Caplan, S. E. (2003). “Preference For Online Social Interaction: A Theory of Problematic Internet Use and Psychosocial Well-being.” *Communication Research, 30*(6), 625-648.

Carden, R., & Rettew, S. (2006). “Internet Chat Room Use, Satisfaction with Life, and Loneliness.” *Psychological Reports*, *98*(1), 121-122.

Casale, S., & Fioravanti, G. (2011). “Psychosocial Correlates of Internet Use Among Italian Students.” *International Journal of Psychology*, *46*(4), 288-298.

Coundouris, S. P., Tyson, C. L., & Henry, J. D. (2021). “Social Networking Site Use and Relationship Quality: A Double Edged Sword.” *Computers in Human Behavior*, 123, 106871.

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.

Delanty, G. (2018). “Virtual Community: Belonging as Communication (Chapter9).” Community 3rd edition. Routledge.

Dienlin, T., & Johannes, N. (2022). “The Impact of Digital Technology Use on Adolescent Well-being.” *Dialogues in Clinical Neuroscience*.

El-Khoury, J., Haidar, R., Kanj, R. R., Ali, L. B., & Majari, G. (2021). “Characteristics of Social Media ‘Detoxification’ in University Students.” *Libyan Journal of Medicine*, 16(1).

Ellison, N. B., Triệu, P., Schoenebeck, S., Brewer, R., & Israni, A. (2020). “Why We Don’t Click: Interrogating the Relationship Between Viewing and Clicking in Social Media Contexts by Exploring

the “Non-Click”. *Journal of Computer-Mediated Communication, 25*(6), 402-426.

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.

Escobar-Viera, C. G., Shensa, A., Bowman, N. D., Sidani, J. E., Knight, J., James, A. E., & Primack, B. A. (2018). “Passive and Active Social Media Use and Depressive Symptoms Among United States Adults.” *Cyberpsychology, Behavior, and Social Networking*, 21(7), 437-443

Feinstein, B. A., Hershenberg, R., Bhatia, V., Latack, J. A., Meuwly, N., & Davila, J. (2013). “Negative Social Comparison on Facebook and Depressive Symptoms: Rumination as a Mechanism.” *Psychology of Popular Media Culture,* 2(3), 161–170

Giumetti, G. W., & Kowalski, R. M. (2022). “Cyberbullying Via Social Media and Well-being.” *Current Opinion in Psychology*, 101314.

Gross, E. F. (2004). “Adolescent Internet Use: What We Expect, What Teens Report.” *Journal of Applied Developmental Psychology*, *25*(6), 633-649.

Hall, J. A., & Liu, D. (2022). “Social Media Use, Social Displacement, and Well-being.” *Current Opinion in Psychology*, 101339.

Hall, J. A., Kearney, M. W., & Xing, C. (2019). “Two Tests of Social Displacement Through Social Media Use.” *Information, Communication & Society*, *22*(10), 1396-1413.

Hardie, E., & Tee, M. Y. (2007). “Excessive Internet Use: The Role of Personality, Loneliness and Social Support Networks in Internet Addiction.” *Australian Journal of Emerging Technologies & Society*, *5*(1).

Hardy, B. W., & Castonguay, J. (2018). “The Moderating Role of Age in the Relationship Between Social Media Use and Mental Well-being: An Analysis of the 2016 General Social Survey.” *Computers in Human Behavior*, 85, 282-290.

Hampton, K., & Wellman, B. (2003). “Neighboring in Netville: How the Internet Supports Community and Social Capital in a Wired Suburb.” *City & Community*, 2(4), 277-311.

Hampton, K. N., Sessions, L. F., & Her, E. J. (2011). “Core Networks, Social Isolation, and New Media: How Internet and Mobile Phone Use is Related to Network Size and Diversity.” *Information, Communication & Society*, 14(1), 130-155.

Hawkley, L. C., & Cacioppo, J. T. (2010). “Loneliness Matters: A Theoretical and Empirical Review of Consequences and Mechanisms.” *Annals of Behavioral Medicine*, *40*(2), 218-227.

Hawkley, L. C., Buecker, S., Kaiser, T., & Luhmann, M. (2022). “Loneliness from Young Adulthood to Old Age: Explaining Age Differences in Loneliness.” *International Journal of Behavioral Development*, 46(1), 39-49.

Hassan, T., Alam, M. M., Wahab, A., & Hawlader, M. D. (2020). “Prevalence and Associated Factors of Internet Addiction Among Young Adults in Bangladesh.” *Journal of the Egyptian Public Health Association*, 95, 1-8.

Ho, T. T. Q. (2021). “Facebook Addiction and Depression: Loneliness as a Moderator and Poor

Sleep Quality as a Mediator." *Telematics and Informatics*, 61, 101617.

Hombrados-Mendieta, I., García-Martín, M. A., & Gómez-Jacinto, L. (2013). "The Relationship Between Social Support, Loneliness, and Subjective Well-Being in a Spanish Sample From a Multidimensional Perspective." *Social Indicators Research*, 114, 1013-1034.

Hutten, E., Jongen, E. M., Vos, A. E., van den Hout, A. J., & van Lankveld, J. J. (2021). "Loneliness and Mental Health: The Mediating Effect of Perceived Social Support." *International Journal of Environmental Research and Public Health*, 18(22), 11963.

Islam, M. S., Sujan, M. S. H., Tasnim, R., Ferdous, M. Z., Masud, J. H. B., Kundu, S., ... & Griffiths, M. D. (2020). "Problematic Internet Use Among Young and Adult Population in Bangladesh: Correlates with Lifestyle and Online Activities During the COVID-19 Pandemic." *Addictive Behaviors Reports*, 12, 100311.

Islam, M. R., Jannath, S., Moona, A. A., Akter, S., Hossain, M. J., & Islam, S. M. (2021). "Association Between the Use of Social Networking Sites and Mental Health of Young Generation in Bangladesh: A Cross-Sectional Study." *Journal of Community Psychology*, 49(7), 2276-2297.

Internet World Statistics. (2020). *Asia Internet Usage Stats Facebook and 2020 Population Statistics*. Retrieved 25 July, 2020, from: https://www.internetworldstats.com/stats3.htm.

Jacobsen, W. C., & Forste, R. (2011). "The Wired Generation: Academic and Social Outcomes of Electronic Media Use Among University Students." *Cyberpsychology, Behavior, and Social Networking*, *14*(5), 275-280.

Jelenchick, L. A., Eickhoff, J. C., & Moreno, M. A. (2013). "Facebook Depression?" Social

Networking Site Use and Depression in Older Adolescents." *Journal of Adolescent Health*, 52(1), 128- 130.

Kim, J., LaRose, R., & Peng, W. (2009). "Loneliness as the Cause and the Effect of Problematic Internet Use: The Relationship Between Internet Use and Psychological Well-being." *Cyberpsychology & behavior*, *12*(4), 451-455.

Krasnova, H., Wenninger, H., Widjaja, T., & Buxmann, P. (2013). "Envy on Facebook: A Hidden Threat to Users' Life Satisfaction?" *Wirtschaftsinformatik Proceedings* 2013, 92

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis, W. (1998). "Internet Paradox: A Social Technology That Reduces Social Involvement and Psychological Well-being?" *American Psychologist*, *53*(9), 1017.

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), e69841.

Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). "Social Media and Well-being: Pitfalls, Progress, and Next Steps." *Trends in Cognitive Sciences*, *25*(1), 55-66.

Kumar, B. & Islam, M. A. (2023). "Nexus Between Social Network, Social Media Use, and Loneliness: A Case Study of University Students, Bangladesh." In I. Management Association (Ed.), Research Anthology on Applying Social Networking Strategies to Classrooms and Libraries (pp. 1482-1497). *IGI Global*. https://doi.org/10.4018/978-1-6684-7123-4.ch079

Lampe, C., Ellison, N., & Steinfield, C. (2006). “A Face (Book) in the Crowd: Social Searching vs. Social Browsing.” In *Proceedings of the 2006 20th Anniversary Conference on Computer Supported Cooperative Work* (pp. 167-170).

Lam, J. A., Murray, E. R., Yu, K. E., Ramsey, M., Nguyen, T. T., Mishra, J., ... & Lee, E. E. (2021). “Neurobiology of Loneliness: A Systematic Review.” *Neuropsychopharmacology*, *46*(11), 1873-1887.

Labrague, L. J. (2014). “Facebook Use and Adolescents' Emotional States of Depression, Anxiety, and Stress.” *Health Science Journal*, 8(1), 80

Lemieux, R., Lajoie, S., & Trainor, N. E. (2013). “Affinity-seeking, Social Loneliness, and Social Avoidance Among Facebook Users.” *Psychological Reports*, *112*(2), 545-552.

Lin, L. Y., Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., ... & Primack, B. A. (2016). “Association Between Social Media Use and Depression Among US Young Adults.” *Depression and Anxiety*, 33(4), 323-331.

Maes, M., Qualter, P., Vanhalst, J., Van den Noortgate, W., & Goossens, L. (2019). “Gender Differences in Loneliness Across the Lifespan: A Meta–Analysis.” *European Journal of Personality*, 33(6), 642-654.

Matsuba, M. K. (2006). “Searching For Self and Relationships Online.” *CyberPsychology & Behavior*, *9*(3), 275-284.

Mamun, M. A., Hossain, M. S., Moonajilin, M. S., Masud, M. T., Misti, J. M., & Griffiths, M. D. (2020). “Does Loneliness, Self-Esteem and Psychological Distress Correlate with Problematic

Internet Use? A Bangladeshi Survey Study." *Asia-Pacific Psychiatry,* 12(2), e12386.

Meier, A., & Reinecke, L. (2021). "Computer-mediated Communication, Social Media, and Mental Health: A Conceptual and Empirical Meta-Review." *Communication Research*, *48*(8), 1182-1209.

Meier, A., & Johnson, B. K. (2022). "Social Comparison and Envy on Social Media: A Critical Review." *Current Opinion in Psychology*, 101302.

Morahan-Martin, J., & Schumacher, P. (2003). "Loneliness and Social Uses of the Internet." *Computers in Human Behavior*, *19*(6), 659-671.

Nie, N. H., & Hillygus, D. S. (2002). "The Impact of Internet Use on Sociability: Time-Diary Findings." *It & Society*, *1*(1), 1-20.

Nowland, R., Necka, E. A., & Cacioppo, J. T. (2018). "Loneliness and Social Internet Use: Pathways to Reconnection in a Digital World?" *Perspectives on Psychological Science*, *13*(1), 70-87.

Orben, A., & Przybylski, A. K. (2019). "Screens, Teens, and Psychological Well-being: Evidence From Three Time-Use-Diary Studies." *Psychological Science,* 30(5), 682-696.

Orben, A., & Przybylski, A. K. (2019). "The Association Between Adolescent Well-being and Digital Technology Use." *Nature Human Behaviour*, 3( ), 173-182.

Pearce, E., Myles-Hooton, P., Johnson, S., Hards, E., Olsen, S., Clisu, D., ... & Shafran, R. (2021). "Loneliness as an Active Ingredient in Preventing or Alleviating Youth Anxiety and Depression: A Critical Interpretative Synthesis Incorporating Principles From Rapid Realist Reviews." *Translational Psychiatry*, 11(1), 628.

Qualter, P., Vanhalst, J., Harris, R., Van Roekel, E., Lodder, G., Bangee, M., ... & Verhagen, M. (2015). “Loneliness Across the Life Span.” *Perspectives on Psychological Science*, *10*(2), 250-264.

Quandt, T., Klapproth, J., & Frischlich, L. (2022). “Dark Social Media Participation and Well-being.” *Current Opinion in Psychology*, *45*, 101284.

Rajesh, T., & Rangaiah, B. (2020). “Facebook Addiction and Personality.” *Heliyon*, 6(1).

Riva, G., Wiederhold, B. K., & Cipresso, P. (2016). “Psychology of Social Media: From Technology to Identity.” *In The Psychology of Social Networking Vol. 1* (pp. 4-14). De Gruyter Open Poland.

Sacco, D. F., & Ismail, M. M. (2014). “Social Belongingness Satisfaction as a Function of Interaction Medium: Face-to-face Interactions Facilitate Greater Social Belonging and Interaction Enjoyment Compared to Instant Messaging.” *Computers in Human Behavior*, *36*, 359-364.

Sadagheyani, H. E., & Tatari, F. (2021). “Investigating the Role of Social Media on Mental Health.” *Mental Health and Social Inclusion*, 25(1), 41-51.

Sampasa-Kanyinga, H., & Lewis, R. F. (2015). “Frequent Use of Social Networking Sites is Associated with Poor Psychological Functioning Among Children and Adolescents.” *Cyberpsychology, Behavior, and Social Networking*, 18(7), 380-385.

Schreurs, L., Meier, A., & Vandenbosch, L. (2023). “Exposure to the Positivity Bias and Adolescents’ Differential Longitudinal Links with Social Comparison, Inspiration and Envy Depending on Social Media Literacy.” *Current Psychology*, 42(32), 28221-28241.

Schouten, A. P., Valkenburg, P. M., & Peter, J. (2007). “Precursors and Underlying Processes of

Adolescents' Online Self-Disclosure: Developing and Testing an “Internet-Attribute-Perception” model.” *Media Psychology, 10*(2), 292-315.

Sheldon, K. M., Abad, N., & Hinsch, C. (2011). “A Two-Process View of Facebook Use and Relatedness Need-Satisfaction: Disconnection Drives Use, and Connection Rewards it.” *Journal of Personality and Social Psychology*, 100(4), 766.

Skues, J. L., Williams, B., & Wise, L. (2012). “The Effects of Personality Traits, Self-esteem, Loneliness, and Narcissism on Facebook Use Among University Students.” *Computers in Human Behavior, 28*(6), 2414-2419.

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.

Stack, S. (1998). “Marriage, Family and Loneliness: A Cross-National Study.” *Sociological Perspectives,* 41(2), 415-432.

Strimbu, N., & O'Connell, M. (2019). “The Relationship Between Self-concept and Online Self-Presentation in Adults.” *Cyberpsychology, Behavior, and Social Networking*, 22(12), 804-807.

Stieger, S., & Lewetz, D. (2018). “A Week Without Using Social Media: Results from an Ecological Momentary Intervention Study Using Smartphones.” *Cyberpsychology, Behavior, and Social Networking*, *21*(10), 618-624.

Taylor, S. H., Zhao, P., & Bazarova, N. N. (2022). “Social Media and Close Relationships: A Puzzle of Connection and Disconnection.” *Current Opinion in Psychology*, *45*, 101292.

Trepte, S., Dienlin, T., & Reinecke, L. (2014). “Risky Behaviors: How Online Experiences Influence Privacy Behaviors.” *Von Der Gutenberg-Galaxis Zur Google-Galaxis. From the Gutenberg Galaxy to the Google Galaxy*, p-225.

Trifiro, B. M., & Gerson, J. (2019). “Social Media Usage Patterns: Research Note Regarding the Lack of Universal Validated Measures for Active and Passive Use.” *Social Media+ Society*, *5*(2), 2056305119848743.

Tromholt, M. (2016). “The Facebook Experiment: Quitting Facebook Leads to Higher Levels of Well-being.” *Cyberpsychology, Behavior, and Social Networking*, 19(11), 661-666.

Twenge, J. M., & Campbell, W. K. (2019). “Media Use is Linked to Lower Psychological Well-being: Evidence from Three Datasets.” *Psychiatric Quarterly*, 90, 311-331.

Twenge, J. M. (2019). “More Time on Technology, Less Happiness? Associations Between Digital-Media Use and Psychological Well-being.” *Current Directions in Psychological Science*, 28(4), 372-379

Valenzuela, S., Park, N., & Kee, K. F. (2009). “Is There Social Capital in a Social Network Site?: Facebook Use and College Students' Life Satisfaction, Trust, and Participation.” *Journal of Computer-Mediated Communication,* 14(4), 875-901.

Valkenburg, P. M., & Peter, J. (2007). “Online Communication and Adolescent Well-being: Testing the Stimulation Versus the Displacement Hypothesis.” *Journal of Computer-Mediated Communication*, *12*(4), 1169-1182.

Valkenburg, P. M., & Peter, J. (2009). “The Effects of Instant Messaging on the Quality of

Adolescents' Existing Friendships: A Longitudinal Study." *Journal of Communication*, *59*(1), 79-97.

Valkenburg, P. M., van Driel, I. I., & Beyens, I. (2022). "The Associations of Active and Passive Social Media Use with Well-being: A Critical Scoping Review." *New Media & Society*, *24*(2), 530-549.

Valkenburg, P. M., Meier, A., & Beyens, I. (2022). "Social Media Use and its Impact on Adolescent Mental Health: An Umbrella Review of the Evidence." *Current Opinion in Psychology*, *44*, 58-68.

Vandenbosch, L., Fardouly, J., & Tiggemann, M. (2022). "Social Media and Body Image: Recent Trends and Future Directions." *Current Opinion in Psychology*, *45*, 101289.

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.

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.

Verduyn, Gugushvili, Massar, Täht, Kross. (2020). "Social Comparison on Social Networking Sites." *Current Opinion in Psychology* 36, 32–37.

Vorderer, P., Krömer, N., & Schneider, F. M. (2016). "Permanently Online–Permanently Connected: Explorations Into University Students' Use of Social Media and Mobile Smart Devices." *Computers in Human Behavior*, 63, 694-703.

Walther, J. B. (2022). "Social Media and Online Hate." *Current Opinion in Psychology*.

Wang, H., & Wellman, B. (2010). "Social Connectivity in America: Changes in Adult Friendship Network Size from 2002 to 2007." *American Behavioral Scientist*, *53*(8), 1148-1169.

Wang, J., Mann, F., Lloyd-Evans, B., Ma, R., & Johnson, S. (2018). "Associations Between Loneliness and Perceived Social Support and Outcomes of Mental Health Problems: A Systematic Review." *BMC Psychiatry*, 18, 1-16.

Weeks, D. G., Michela, J. L., Peplau, L. A., & Bragg, M. E. (1980). "Relation Between Loneliness and Depression: A Structural Equation Analysis." *Journal of Personality and Social Psychology*, *39*(6), 1238.

Winstone, L., Mars, B., Haworth, C., & Kidger, J. (2021). "Social Media Use and Social Connectedness Among Adolescents in the United Kingdom: A Qualitative Exploration of Displacement and Stimulation." *BMC Public Health*, *21*(1), 1-15.

U.S Department of Health and Human Services. 2023. *New Surgeon General Advisory Raises Alarm about the Devastating Impact of the Epidemic of Loneliness and Isolation in the United States.* U.S. Government Printing Office. Retrieved May 3, 2023. https://www.hhs.gov/about/news/2023/05/03/new-surgeon-general-advisory-raises-alarm-about-devastating-impact-epidemic-loneliness-isolation-united-states.html

Sarker, L. K. (2021). "Pattern of Friends and Family Communication through Social Media among the HSC Level Students: A Study on a Selected Government College in Rajshahi City." *Journal of Social Science*, 1711, 15.

Sayeed, A., Hassan, M. N., Rahman, M. H., El Hayek, S., Al Banna, M. H., Mallick, T., ... & Kundu, S. (2020). "Facebook Addiction Associated with Internet Activity, Depression and Behavioral

Factors Among University Students of Bangladesh: A Cross-Sectional Study." *Children and Youth Services Review,* 118, 105424

Xu, D. D., Lok, K. I., Liu, H. Z., Cao, X. L., An, F. R., Hall, B. J., ... & Xiang, Y. T. (2020). "Internet Addiction Among Adolescents in Macau and Mainland China: Prevalence, Demographics and Quality of Life." *Scientific Reports,* 10(1), 16222.