The Protective Influence of Mindfulness Facets on the Relationship Between Negative Core Beliefs and Social Media Addiction Among Latinx College Students

Mariany Gainza Perez
The University of Texas at El Paso

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THE PROTECTIVE INFLUENCE OF MINDFULNESS FACETS ON THE RELATIONSHIP BETWEEN NEGATIVE CORE BELIEFS AND SOCIAL MEDIA ADDICTION AMONG LATINX COLLEGE STUDENTS

MARIANY A. GAINZA PEREZ

Master’s Program in Clinical Psychology

APPROVED:

Theodore V. Cooper, Ph.D., Chair

Craig A. Field, Ph.D.

Jennifer L. Eno Louden, Ph.D.

Gabriel A. Frietze, Ph.D.

Stephen L. Crites, Jr., Ph.D.
Dean of the Graduate School
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Mariany Gainza Perez
2022
**Dedication**

Dedicated to my mother, Leida Perez, for taking the risk of starting a new life for us in this country and broadening my opportunities. I would also like to dedicate this work to my animal companions Ruby, Forest, and Benjamin. Thank you for reminding me to approach moments throughout my day with gratitude and wonder.
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by

MARIANY A. GAINZA PEREZ, B.S.

THESIS

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Finally, I wish to thank my mother, Leida Perez, for her unfailing and unconditional love and support.
Abstract

Social media use has continued to rise over the last decade. This behavioral addiction shares essential components with substance addictions (e.g., mood modification, withdrawal). Dysfunctional core beliefs have recently been investigated in relation to Internet addiction and problematic Facebook use, but not with social media addiction specifically. Similarly, mindfulness-based interventions have been developed for various types of technology-related behavioral addictions, yet the relationship between dispositional mindfulness and social media addiction remains unexplored. This study investigated the relationships between these constructs among Latinx undergraduates within the context of social cognitive theory. Participants (n=386; 80.3% female) completed an online survey that assessed social media use frequency, mindfulness practice, social media addiction, positive and negative core beliefs of self and others, and mindfulness facets. Descriptive analyses suggested that social media use was high (M = 22.38 hours, SD = 17.28 hours), and 18.6% of participants scored in the addicted range using a conservative threshold for social media addiction. Primary inferential analyses indicated that: greater dysfunctional beliefs of self and others were associated with higher social media addiction; regarding mindfulness facets, enhanced observance of internal and external events was associated with greater social media addiction, yet maintaining a more aware, nonjudgmental, and nonreactive outlook related to decreased social media addiction. Moderation analyses suggested that greater awareness and nonjudgment demonstrated a protective effect on the relationship between dysfunctional core beliefs of self and social media addiction. In contrast, labeling inner experiences with words and being nonjudgmental of those showed both protective and adverse influences on the relationship between negative core beliefs of others and social media addiction. These findings emphasize the importance of differentially examining the
influence of dispositional mindfulness facets on the relationship between dysfunctional core beliefs and social media addiction. Future directions include prospectively examining an adaptation of Weaver & Swank’s (2019) mindfulness-based social media addiction intervention to include cognitive-behavioral strategies and cultural adaptations relevant to the treatment sample.
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Chapter 1: Introduction

Social Media Use

Social media use has been increasing over the past two decades, particularly among young adults (Pew Research Center, 2021). Social media user rates among 18- to 29-year-olds have increased from 7% in 2005, the year Pew Research Center (2021) began tracking social media usage, to 84% in 2021. Higher numbers of Hispanic/Latino (hereafter, Latinx) adults (80%) have reported using at least one social media site compared to non-Latinx White adults (69%; Pew Research Center, 2021). Moreover, border region Latinx college students have been shown to use social media platforms an average of 27 hours per week (Lerma, 2021), more than double the 11 hours per week reported by a similar sample of Latinx border region college students 5 years prior (Gutierrez & Cooper, 2016).

There are various motives for social media use including to maintain relationships, to express oneself as being more popular, to pass time, and to entertain oneself (Horzum, 2016). Using social media to maintain relationships and seek information has been associated with increased well-being (Perugini & Solano, 2020). However, social media use motivated by coping and socialization has been associated with greater social media use (Lerma et al., 2021). Excessive social media use also relates to health consequences such as poor sleep (Wong et al., 2020), self-harm (Barthorpe et al., 2020), and poor academic performance (Ahmed & Vaghefi, 2021). However, mindfulness has been observed to be indirectly associated with excessive social media use by increasing self-esteem and decreasing social anxiety (Apaolaza et al., 2019). Although this decrease in social anxiety and increase in self-esteem may appear beneficial, it may lead to preference of online interactions over in-person interactions. Increased use thereby
exposes more users to the risk of developing an addiction to social media, yet there may be protective strategies they could engage in to prevent or recover from social media addiction.

**Social Media Addiction**

Also known as “social networking addiction” and “problematic social media use,” social media addiction is a behavioral addiction, a field whose body of literature has been rapidly growing (Andreassen, 2015). The *DSM-5* reclassified Gambling Disorder as a “Non-Substance-Related Disorder” and added Internet Gaming Disorder in the “Emerging Measures and Models” section (American Psychiatric Association, 2013). Social media addiction and Internet Gaming Disorder can be argued to be subtypes of Internet addiction (Su et al., 2020).

Social media addiction may initially appear similar to Internet addiction, yet these two constructs differ in both their definitions and their gender distribution. Internet addiction has been characterized by excessive urges, preoccupations, or behaviors related to Internet use that result in impairment or distress (Weinstein & Lejoyeux, 2010). Montag and colleagues (2015) argued that because of the large correlation ($\rho = .55$) between social media addiction and Internet addiction, the former is not necessarily a specific Internet addiction subtype. However, a meta-analysis of 101 studies found that men were more likely than women to be addicted to the Internet (Hedge’s $g = 0.145$; Su et al., 2019), whereas a meta-analysis of over 80,000 participants in 21 countries indicated that social media addiction was more prevalent among women (Hedge’s $g = -0.160$ in U.S.; Su et al., 2020). Therefore, the “masking effect” that Internet addiction has been noted to have on gender differences in its subtypes suggests it is critical to examine specific types of Internet addiction rather than general Internet addiction (Su et al., 2020).
Some researchers have expressed concern of overpathologizing normal behaviors, yet behavioral addictions share seven core components with substance addictions: salience, tolerance, mood modification, withdrawal, relapse, conflict, and problems (Rosenberg & Feder, 2014; Andreassen, 2015). Individuals addicted to social media spend a great deal of time thinking about those platforms, and how they can make more time for them (salience). They use social media for longer than they initially planned to achieve the same amount of pleasure they were accustomed to when they first began using it (tolerance). Social media is used to reduce negative feelings (e.g., helplessness, depression) by forgetting about personal problems (mood modification). If people are addicted to social media and are unable to access it, they can feel stressed, irritable, or restless (withdrawal). When they try to reduce the time spent on social media, the attempts are unsuccessful (relapse). People addicted to social media will prioritize it over healthier outlets (e.g., hobbies, exercise), responsibilities (e.g., academic, professional), and in-person interactions (conflict). This excessive social media use can impair the health, well-being, performance, and relationship satisfaction of the person (problems). Despite the challenges this addiction can create in a person’s life, the behavior is thought to be maintained through positive and negative reinforcements. Positive reinforcements include receiving attention, compliments, popularity, and entertainment, while negative reinforcements involve avoidance of certain negative consequences (e.g., boredom, social exclusion; Andreassen, 2015).

Therefore, the main differences between someone who uses social media excessively and someone who is addicted to it is the compulsion, lack of control, and negative consequences that are present in a user who is addicted (Albrecht et al., 2007; Andreassen, 2015).

Although excessive use can be problematic, the prevalence of social media addiction appears to be low. A meta-analysis of 63 samples across 32 countries indicated a 5% prevalence
of conservatively scored social media addiction, with a lower prevalence in individualistic countries (14%) compared to collectivistic countries (31%; Cheng et al., 2021). Social media addiction has been associated with numerous symptoms of mental illness and negative outcomes. Depression, anxiety, ADHD, OCD (Hussain & Griffiths, 2018), stress, lower life satisfaction (Longstreet & Brooks, 2017), lower interpersonal competency (Jenkins-Guarneri et al., 2012), lower GPA, more difficulties completing work tasks, and worsened quality of social relationships (Ahmed & Vaghefi, 2021) have all been associated with higher levels of social media addiction. Women and younger age groups appear to be at particularly higher risk of developing social media addiction (Ahmed & Vaghefi, 2021).

Latinx adults have not been found to be more susceptible to social media addiction than non-Latinx adults (Ceballos et al., 2018), yet conservative scoring has revealed that between 10-15% of Latinx college students meet criteria for social media addiction (Gainza Perez et al., 2021; Lerma et al., 2021a, b). One recent study of social media addiction among 621 border region college students conducted by Lerma and colleagues (2021) examined the relationship between social media use, social media addiction, sociodemographics, and psychosocial correlates (e.g., Internet motives). Excessive social media use was associated with greater socialization and coping motives, whereas social media addiction was only related to higher coping motives (Lerma et al., 2021). These findings suggest that, as with other addictive behaviors (e.g., alcohol; Wardell et al., 2020), addiction to social media may develop as an attempt to cope with negative affect. Another study of 273 border region college students assessed how risk and protective factors (e.g., social media craving, acculturation) related to excessive social media use, social media addiction, and desire to reduce social media use (Lerma, 2021). Greater social media addiction was associated with frequency of posting on
social media in Spanish, social media craving, fear of missing out, higher levels of current social media use compared to pre-COVID-19 pandemic, and restricted social media use at home (Lerma, 2021). Other findings included that higher social media cravings were associated with more failure to control one’s social media use and that students living in the U.S. reported greater motivation to reduce their social media use than students living in Mexico (Lerma, 2021). Although Lerma (2021) assessed cultural constructs (e.g., familism, acculturation), none of these had a statistically significant relationship with social media addiction. Social media addiction has begun to be studied among border region college students, yet neither of the studies above assessed specific cognitive constructs such as core beliefs or potential intervention behaviors (e.g., mindfulness practices). Thus, investigating these cognitive constructs and their interrelationships will augment this growing literature toward the implementation of social media addiction interventions.

**Dysfunctional Core Beliefs**

According to Beck (2021), there are three levels of cognition: core beliefs, intermediate beliefs, and automatic thoughts. Core beliefs are broad, inflexible, long-lasting cognitive patterns regarding oneself and others. In turn, core beliefs influence a set of intermediate beliefs, which are conditional rules often worded as “if-then” statements. Automatic thoughts, or cognitions associated with core beliefs that arise due to external and internal cues, are the most superficial of the three cognitive processes. These constructs tend to be dysfunctional among individuals with negative affect and result in negative automatic thoughts (Beck, 2021).

Core beliefs are believed to begin forming during childhood, but they may develop at any life stage depending on the impact of certain life events (Dozois & Beck, 2008). These dysfunctional core beliefs may remain latent until the occurrence of an adverse circumstance that
seemingly provides evidence for this belief system (Dozois & Beck, 2008). For example, Fowler and colleagues hypothesized that individuals with psychosis who experienced paranoia would report negative core beliefs about self or others. As expected, a non-clinical sample of 856 undergraduate students demonstrated more positive core beliefs about self and others than the clinical sample of 252 patients diagnosed with psychosis (Fowler et al., 2006). Once developed, core beliefs tend to be persistent. Dysfunctional core beliefs measured using the construct of early maladaptive schemas evidenced stability over a 2.5- to 5-year interval among 55 outpatients diagnosed with Major Depressive Disorder (Riso et al., 2006). Early maladaptive schemas are generalized and pervasive cognitive patterns proposed to develop due to experiencing unmet emotional needs and/or trauma during childhood (Young et al., 2003), thus providing a more developmental focus than the concept of core beliefs. However, Riso and colleagues (2006) stated that their findings on construct stability may generalize to core beliefs as conceptualized by Beck. Schemas are generally defined as having properties of both content (e.g., core beliefs) and organization (e.g., memory systems; Seeds & Dozois, 2010), yet early maladaptive schemas only provide information about schema content. Despite the two distinct concept labels, core beliefs and early maladaptive schemas can be said to be theoretically similar and enduring.

Only one study appears to have directly examined differences in cognitive patterns between Hispanics (i.e., including Spanish citizens) and non-Hispanics. Calvete and Connor-Smith (2005) conducted a cross-cultural comparison of automatic thoughts among 437 Spanish and 349 U.S. college students. Findings revealed that Spanish college students reported greater inability to cope, internalizing, aggression, and intrusive behavior yet lower average positive self-talk scores, and overall self-concepts than U.S. college students (Calvete & Connor-Smith, 2005). As previously explained, core beliefs precede the presence of automatic thoughts. Calvete
and Connor-Smith’s (2005) findings therefore suggest that Spanish, and potentially Latinx, students may report more negative core beliefs than U.S. college students.

The role of core beliefs has also been examined among various addictions. Studies comparing clinical and non-clinical samples of alcohol and substance users have shown that clinical samples are likely to report more early maladaptive schemas than non-clinical samples (Brotchie et al., 2004; Roper et al., 2010; Shorey et al., 2013, 2014). Early maladaptive schemas tend to be high and relatively consistent among adults who use substances. However, there are also distinctions within clinical samples. Individuals with an Alcohol Use Disorder, including those with a comorbid Opioid Use Disorder, have reported greater early maladaptive schemas than adults diagnosed only with Opioid Use Disorder (Brotchie et al., 2004). Moreover, in a treatment-seeking sample, women tended to report higher levels of early maladaptive schemas compared to men (Shorey et al., 2012). Despite these differences, Ball (1998) proposed that individuals with substance use disorders may use substances to seek relief of the negative affect that often accompanies early maladaptive schemas. Indeed, the findings of Brotchie and colleagues (2007) revealed a positive relationship between alcohol use and behavioral attempts to avoid early maladaptive schemas among adults diagnosed with Alcohol Use Disorder.

In contrast to the number of studies examining the relationship between core beliefs and substance addictions, this cognitive construct has received less attention in the behavioral addiction field. Additionally, the studies that have investigated dysfunctional core beliefs in this field have tended to focus on Internet addiction rather than social media addiction. A 4-year longitudinal study of 2,516 Chinese college students observed that maladaptive cognitions directly influenced increased Internet addiction (Zhou et al., 2018). Aloi and colleagues (2020) found that participants with Internet addiction had greater averages of early maladaptive schemas
than non-addicted participants. To date, only one study has examined the relationship between dysfunctional cognitions and social media addiction. Zsido et al. (2021) assessed cognitive distortions (i.e., self-blame, rumination, catastrophizing, and other blame) that may characterize maladaptive stress reactions. This study indicated that negative beliefs about both self and others were associated with greater social media addiction (Zsido et al., 2021). Although specific to problematic Facebook use, another study among 619 young adult Facebook users demonstrated statistically significant positive relationships between most of the early maladaptive schemas and problematic Facebook use (Cudo et al., 2020). Despite the findings above indicating the likelihood that greater dysfunctional core beliefs may be associated with greater social media addiction, studies have yet to directly examine this relationship.

Core beliefs are at the center of Beck’s cognitive model and can therefore be directly or indirectly addressed using Cognitive-Behavioral Therapy (CBT; Beck, 2021). CBT techniques to directly modify dysfunctional core beliefs include examining evidence that supports and goes against the core beliefs, conducting behavioral experiments, and restructuring early memories using role play (Wenzel, 2012). In a study of 42 adults diagnosed with Major Depressive Disorder, these techniques resulted in statistically significant increases in positive core beliefs among those randomly assigned to receive both CBT and pharmacotherapy compared to the group receiving only pharmacotherapy (Dozois et al., 2014). Other treatment modalities have emerged that also focus on dysfunctional core beliefs. Schema Therapy (Young et al., 2003) is a treatment that expands on the traditional cognitive-behavioral approach by taking a developmental focus that integrates elements from other theories, such as attachment and psychoanalysis, to treat patients with personality disorders. Dual-Focused Schema Therapy (Ball, 1998) combines the Schema Therapy approach targeting early maladaptive schemas and coping
styles with Relapse Prevention (Marlatt & Gordon, 1985) among individuals with comorbid personality and substance use disorders. This treatment classifies the techniques used to change dysfunctional beliefs into four domains: cognitive (e.g., identify and dispute the validity of the core beliefs), experiential (e.g., identifying the origins of core beliefs), behavioral (e.g., changing the self-defeating behaviors maintaining the core beliefs), and therapy relationship (e.g., confronting core beliefs in session). The inclusion of core belief modification in various psychotherapy treatments underscores the importance of assessing the value of this construct for future social media addiction interventions.

Davis’ (2001) cognitive-behavioral model of Internet addiction asserts that maladaptive cognitions are the main source of this behavioral addiction. As a subtype of Internet addiction, the current study proposes that measuring and targeting dysfunctional core beliefs may be an effective method for addressing the development and maintenance of social media addiction. Given the existing relationships between core beliefs and other addictive behaviors, a closer examination of core beliefs as a potential construct to include in social media addiction interventions is warranted.

**Dispositional Mindfulness**

Mindfulness is the awareness that emerges from intentionally bringing one’s complete attention to what is currently occurring in a non-judgmental and accepting way (Kabat-Zinn, 2006). Although mindfulness can be conceptualized as a state that can be enhanced through formal practice (e.g., Bowen et al., 2009), dispositional mindfulness can be defined as the innate tendency toward awareness and focus on the present moment in an everyday, informal context (e.g., eating, driving; Brown & Ryan, 2003). After Baer and colleagues (2006) conducted a factor analysis on various existing measures of dispositional mindfulness, the following five
facets emerged: (1) observe (noticing both internal and external experiences), (2) describe (labeling internal experiences with words), (3) act with awareness (intentionally attending to one’s activities in the present moment), (4) nonjudging of experience (taking a non-evaluative stance toward thoughts and feelings), and (5) nonreactivity to inner experience (allowing thoughts and feelings to come and go without becoming attached to them). Dispositional mindfulness, as measured by these facets, is conceptualized as relatively stable unless an individual undergoes mindfulness training.

Latinx college students reported that some of the primary reasons for engaging in formal or informal mindfulness included stress management (50%), enjoyment (39%), and behavior change (26%; Vinci et al., 2020). Approximately a quarter of Latinx college students were shown to be currently practicing meditation, and 47.5% of Latinx college students reported currently engaging in informal mindfulness practices. Of the students who engaged in formal and informal practices, 76% and 85% reported doing so for over 6 months, respectively (Vinci et al., 2020). These findings indicate that mindfulness is not unfamiliar to this population and may not conflict with their existing values and beliefs.

Recently, studies have begun to focus on the association between mindfulness and substance use. Among Latinx college students, greater dispositional mindfulness demonstrated an association with reduced problematic alcohol use (Vinci et al., 2020). Karyadi and colleagues (2014) conducted a meta-analysis of 39 studies and found a small, negative relationship between mindfulness and substance use ($r = -0.13$). Of the five facets of mindfulness, acting with awareness, non-judgment, and non-reactivity were consistently related to reduced substance use behaviors (Karyadi et al., 2014). Lower substance dependence severity has also been associated with acting with awareness, describing, and non-judgment facets in a treatment-seeking sample.
(Bowen & Enkema, 2014). A study among 250 undergraduate students found that acting with awareness and non-reactivity predicted less problematic alcohol use, yet higher scores on the observe facet predicted greater alcohol use quantity (Karyadi & Cyders, 2015). Other findings on the relationship between the observe facet and substance use have been mixed (Karyadi et al., 2014), but this facet has consistently emerged as maladaptive among non-meditators compared to meditators (Baer et al., 2006, 2008). People with no meditation experience who score high on the observe facet may focus on aversive stimuli in a judgmental and reactive way without being able to shift their attention elsewhere, potentially leading to rumination (Baer et al., 2006) or substance use (Eisenlohr-Moul et al., 2012). Indeed, the observe facet has demonstrated a positive association with thought suppression (Baer et al., 2006), whereas dispositional mindfulness and rumination have been shown to have an inverse relationship (Kircaburun et al., 2019). Moreover, rumination has been found to partially mediate the relationship between mindfulness and social media addiction such that individuals with low dispositional mindfulness who frequently ruminate are more likely to report social media addiction (Kircaburun et al., 2019).

Studies have also begun to examine the relationship between mindfulness and early maladaptive schemas in the field of substance use. Greater mindfulness as measured by the Mindful Attention Awareness Scale, a unidimensional measure, has been associated with lower levels of many early maladaptive schemas among adults diagnosed with a substance use disorder (Shorey et al., 2015a, 2015b). Individuals who reported higher numbers of maladaptive schemas also demonstrated lower mindfulness than those who endorsed one or no early maladaptive schemas (Shorey et al., 2015a, 2015b). Facets of mindfulness have been studied in non-clinical samples and have shown negative associations with early maladaptive schemas (Thimm, 2017).
However, the study conducted by Thimm (2017) revealed that lower levels of all schemas were associated with higher non-judging levels, yet none of the schemas were related to the observe facet. A 1-year longitudinal study of 855 Spanish adolescents noted that the describe facet consistently predicted reduced early maladaptive schemas (Gomez-Odriozola & Calvete, 2020). Conversely, early maladaptive schemas predicted decreases in the acting with awareness and non-judging facets (Gomez-Odriozola & Calvete, 2020). Together, the findings of these studies emphasize the importance of examining individual facets of mindfulness related to dysfunctional core beliefs in both clinical and non-clinical samples.

Mindfulness has recently begun to be examined more in relation to technology-related behavioral addictions. A number of studies have found negative associations between mindfulness and Internet addiction (e.g., Arslan, 2017; Arslan & Coskun, 2021; Gamez-Guadix & Calvete, 2016) as well as smartphone addiction (e.g., Elhai et al., 2018; Regan et al., 2020; Yang et al., 2019). Specifically, Song and Park (2019) demonstrated that mindfulness indirectly reduced Internet addiction by increasing self-control. In a 6-month longitudinal study of 609 Spanish adolescents, several facets of mindfulness (i.e., observe, describe, act with awareness, non-judging) were negatively associated with Internet addiction at baseline and predicted reductions in different components of Internet addiction (Calvete et al., 2017). Few studies have examined these mindfulness associations with social media addiction, yet those that have revealed a negative relationship between dispositional mindfulness and social media addiction among both adults (Sriwilai & Charoensukmongkol, 2016; Majeed et al., 2020) and adolescents (Kircaburun et al., 2019). Additionally, lower levels of Facebook addiction related to greater mindfulness have been observed among Turkish college students (Eskisu et al., 2020). Core beliefs have not been examined with both mindfulness and social media addiction, but
mindfulness has been found to moderate the relationship between different dysfunctional core beliefs and smartphone addiction (Arpaci, 2019).

Given the emphasis mindfulness places on noticing and accepting rather than avoiding, mindfulness practices have been incorporated into various treatment approaches such as Dialectical Behavior Therapy (Linehan, 1993) and Acceptance and Commitment Therapy (Hayes et al., 1999). Mindfulness-based cognitive therapy (MBCT) involves identifying patterns of cognition, affect, and behavior, and approaching these experiences in an unattached, compassionate, and non-judgmental way (Kuyken & Evans, 2014). This practice allows for access to a greater number of responses to an event and is believed to result in changed beliefs (Kuyken & Evans, 2014). Similarly, the mindfulness-based relapse prevention (MBRP) program integrates cognitive-behavioral and mindfulness strategies to assist patients in maintaining abstinence from substance use (Bowen et al., 2014). MBRP instructs people to become aware of craving triggers, their reactions to these triggers, and decreasing cognitive and behavioral reactivity by acknowledging that not all emotions and experiences will be positive (Bowen, 2010). This strategy enhances the ability to tolerate discomfort rather than trying to distract from or numb it (Bowen, 2014). If relapse occurs, it is viewed as an opportunity to identify the pattern of both external and internal (e.g., cognitions) events that preceded and followed the lapse and to acknowledge the power of cognitions (Bowen, 2014). Specifically, MBRP has been shown to decouple the relationship between depressive symptoms and substance use cravings, which in turn predicted reductions in subsequent substance use (Witkiewitz & Bowen, 2010). Practicing mindfulness may therefore weaken the association between negative cognitions and affect and experiencing cravings (Witkiewitz & Bowen, 2010).
Mindfulness-based interventions have been developed for video game addiction (Li et al., 2018) and smartphone addiction (Lan et al., 2018). One mindfulness-based intervention has also been created to treat social media addiction among adolescents; it incorporates all facets of mindfulness under the axioms of attention, intention, and attitude (Weaver & Swank, 2019). Some of the mindful techniques described in the intervention include deep breathing, a grounding technique, questioning the intention for logging on to the social media platform and forming reactions to social media content (Weaver & Swank, 2019). However, it remains unclear whether practicing facets of mindfulness holds a protective effect from the rigid and pervasive dysfunctional beliefs often associated with behavioral addictions (e.g., Zsido et al., 2021). Thus, a necessary step in determining the potential effects of Weaver and Swank’s (2019) intervention on long-lasting cognitive beliefs involves assessing the potential moderation of facets of mindfulness between dysfunctional core beliefs and social media addiction.

Social Cognitive Theory

Social cognitive theory (SCT) proposes a framework to explain how people develop cognitions that influence the acquisition and maintenance of behaviors (Bandura, 1985). In this theory, Bandura (1985, 1999) posits that the concept of reciprocal determinism in which personal factors (e.g., cognitions), environmental factors (e.g., barriers, facilitators), and behaviors influence each other in a bidirectional manner (Figure 1). Central concepts of this theory include outcome expectancies, self-efficacy, and behavioral capabilities. Outcome expectancies are the consequences a person anticipates from their behaviors; positive outcome expectancies motivate behavior and negative outcome expectancies disincentivize it (Bandura, 1999). Self-efficacy is a cognitive mechanism by which confidence in personal ability to act and overcome challenges,
reduced reactions to these external stressors (Bandura, 1985), and behavioral capabilities involve the competency level a person has for a behavior (Bandura, 1999).

Low perceived self-efficacy and positive outcome expectancies are theorized to precede substance use (Bandura, 1999). Consistent with this view, social media addiction has been associated with positive outcome expectancies of social media use and low Internet self-efficacy (Wu et al., 2013). Further, Latinx college students have previously demonstrated adequate behavioral capabilities in informal mindfulness practices (Vinci et al., 2020). Core beliefs have been assessed in the framework of SCT, but not in relation to either mindfulness or social media addiction. Perceptions of personal self-efficacy are based on experiential and factual knowledge that are used to form hypotheses about situations and potential outcomes, a process argued to relate to the formation of core beliefs (Tedman et al., 1995). Core beliefs create a cognitive template of expected outcomes and as such, a person may be driven to addictive behaviors to avoid anticipated negative affect (Ball, 1998). Thus, core beliefs could be argued to fall within the personal factors domain of SCT and dispositional mindfulness facets in the behavior domain.

![Diagram](image)

**Figure 1.** Based on Brooks et al. (2018)’s conceptualization of social cognitive theory

SCT has been applied in studies of both substance use (e.g., Burke & Stephens, 1999; Zundert et al., 2009) and behavioral addictions such as Internet addiction (e.g., Yu et al., 2016)
and social media addiction (e.g., Wu et al., 2013). SCT emphasizes the intentional influence people can have on their behaviors and life circumstances (Bandura, 2002), making this an ideal perspective to adopt when considering potential factors for a behavioral addiction intervention.

**The Present Study**

Dysfunctional core beliefs have demonstrated positive relationships with various types of substance and behavioral addictions (e.g., Shorey et al., 2014), including Facebook addiction, a subtype of social media addiction (Cudo et al., 2020). People are believed to turn to addictive behaviors to avoid the negative affect associated with dysfunctional core beliefs (Ball, 1998). Mindfulness, a dispositional trait that emphasizes intentionally attending to the present moment nonjudgmentally and without becoming attached to thoughts and feelings, has been shown to relate to dysfunctional core beliefs in the form of early maladaptive schemas (e.g., Gomez-Odriozola & Calvete, 2020; Thimm, 2017). Moreover, increased mindfulness has related to lower levels of social media addiction (e.g., Majeed et al., 2020). Weaver and Swank (2019) also developed a mindfulness-based intervention for social media addiction among adolescents that involves identifying and accepting cognitions. Despite these associations and the existence of this intervention, researchers have yet to integrate dysfunctional core beliefs, mindfulness, and social media addiction in a single study. Investigating facets of mindfulness as potential intervention targets for reducing social media addiction therefore seems warranted. Furthermore, almost half of Latinx college students reported they are currently engaging in informal mindfulness practices (Vinci et al., 2020), suggesting that a mindfulness-based intervention may be within the cultural norm of the 10-15% of border region Latinx students with social media addiction (Gainza Perez et al., 2021; Lerma, 2021; Lerma et al., 2021). Findings from the present study will inform of potential benefits that may exist in using mindfulness-based interventions to
develop healthier core beliefs that reduce the maladaptive compulsions and behaviors driving social media addiction.

**Study Aims & Hypotheses**

The present study sought to assess the potential relationships of social media addiction with dysfunctional core beliefs and dispositional mindfulness within the framework of SCT. The primary aim was to examine the potential moderation of various mindfulness facets on the relationship between dysfunctional core beliefs and social media addiction (Figure 2). Although the primary focus of this study was on the continuous construct of social media addiction, the potential implications for future interventions highlighted the importance of assessing dysfunctional core beliefs and mindfulness differences among those addicted to social media compared to those who are not. Thus, this study conducted a set of secondary analyses using a conservative definition of social media addiction to assess how dysfunctional core beliefs and mindfulness related to a binary variable of social media addiction that distinguishes between college students who meet criteria for social media addiction compared to those who do not.

In the present study, hypotheses included: H1) Positive core beliefs of self and others will be inversely related to social media addiction, and negative (i.e., dysfunctional) core beliefs of self and others will be associated with greater social media addiction. H2) There will be statistically significant differences between individuals above the threshold for social media addiction compared to those below this threshold such that positive core beliefs will be associated with participants not addicted to social media, and negative core beliefs will be associated with participants addicted to social media. H3) The observe facet will have a positive relationship with social media addiction, whereas the other mindfulness facets will be negatively associated with social media addiction. H4) Individuals scoring high on four of the five
mindfulness facets (excluding observe) will have lower social media addiction scores regardless of their negative core beliefs of self and others compared to participants with lower mindfulness scores.

Figure 2. Moderation model of the effects of dispositional mindfulness on the relationship between negative core beliefs and social media addiction
Chapter 2: Methods

Participants

Five hundred and four English-speaking Latinx undergraduate students were recruited from a university located on the U.S./Mexico border; 118 participants were excluded from analyses due to passing fewer than 75% of attention checks. The resultant sample consisted of 386 Latinx participants ($M_{\text{age}} = 21.42$ years, $SD = 5.41$; 80.3% female). An *a priori* power analysis was conducted using G*Power (Faul et al., 2009) to determine the number of participants required to detect a specific odds ratio in a logistic regression. Power was set to .80 and the $\alpha$ was .05. The odds ratio of 0.689 was determined using unpublished data from the Prevention and Treatment in Clinical Health Lab (Lerma & Cooper, 2021). Binary logistic regressions were conducted with social media addiction as the dependent variable and existing variables (i.e., psychological needs subscales, online social support subscales) in the data set as independent variables to approximate the construct of core beliefs. The odds ratio of 0.689 between autonomy and social media addiction was chosen. The probability that $Y=1$ when $X=0$ was set to .3835, the probability that $Y=1$ when $X=1$ was set to 0.30, the value of $R^2$ other $X$ was set to 0, the $z$-score population mean of $X$ was set to 0, and the $z$-score population $SD$ of $X$ was set to 1. The number of predictors was set to 14 based on the variables in Figure 1 and the control variables. Participants were required to be over the age of 18 and self-identify as Latinx.

Measures

**Sociodemographics**

This 46-item questionnaire collected typical demographic information (e.g., age, employment status), and information related to the COVID-19 pandemic (e.g., “Have you ever been diagnosed with COVID-19?”; Appendix A).
**Mindfulness-related practice**

This measure was created using 4 items developed Vinci et al. (2020), 10 items used by Birtwell et al. (2019), and one item developed for the current study. As described in greater detail by Vinci et al. (2020), participants were asked regarding lifetime participation in types of mindfulness-related practices, their motivation(s) to practice, and for how long they had been pursuing the practice(s). Participants who indicated they were currently practicing one or more types of mindfulness-related practices were asked the following items developed by Birtwell et al. (2019): how often they engaged in each endorsed practice, how they would describe their experience of that practice (e.g., relaxing, boring), if they disliked any practices, and (if so) which practices those were. Participants who indicated currently engaging in an activity other than informal mindfulness were also asked how the practice was supported (e.g., app, CD) and what (if anything) kept them from practicing regularly (Birtwell et al., 2019). Additionally, participants who indicated currently practicing mindfulness meditation were asked which mindfulness practice they engaged in most regularly (Birtwell et al., 2019). Participants reporting no current practice of mindfulness-related activities were only asked why they were no longer interested in practicing and what may have supported them to continue (Birtwell et al., 2019). Lastly, participants were asked to report which of 13 mindfulness apps they had ever used.

**Social Media Use Frequency (SMUF)**

This 5-item scale assesses frequency of daily, weekly, and monthly social media use. The SMUF scale also measures social media use frequency across major social media use platforms (e.g., Facebook, Instagram, TikTok). Consistent with previous studies (Gutierrez & Cooper, 2016; Lerma, 2021; Lerma et al., 2021), social media use frequency was assessed using weekly social media use in the current study (Appendix B).
**Bergen Social Media Addiction Scale (BSMAS)**

This 6-item scale measures social media addiction by assessing the presence of core components of addiction (e.g., salience, tolerance; Griffiths, 2005) within the past year (Andreassen et al., 2017). Items will be rated using a 5-point Likert scale (1 = *Very Rarely*, 5 = *Very Often*) and will be averaged to create a mean composite score ranging from 6 to 30. Higher scores correspond to greater social media addiction. A conservative monothetic scoring approach (scoring 3 or above on all items) will be used to identify participants with social media addiction (Andreassen et al., 2012). The BSMAS was adapted from the Bergen Facebook Addiction Scale which has demonstrated adequate 3-week test-retest reliability ($r = .82$) and convergent validity ($r = .69$) with the addictive tendencies scale (Andreassen et al., 2012). Adequate internal consistency of this measure has been observed in past studies with Latinx undergraduate students ($\alpha = .83$, Gainza Perez et al., 2021; $\alpha = .82$, Lerma et al., 2021) as well as in the present study ($\alpha = .81$; Appendix C).

**Brief Core Schema Scale (BCSS)**

The BCSS is a 24-item measure that assesses core beliefs about self and others using a 4-point Likert scale (1 = *Believe it slightly*, 4 = *Believe it totally*; Fowler, 2006). This measure contains 4 subscales, each composed of 6 items: Negative-self ($\alpha = .78-.79$), Positive-self ($\alpha = .84-.86$), Negative-others ($\alpha = .84-.88$), Positive-others ($\alpha = .87-.88$; Fowler, 2006). Sample items for each subscale are “I am worthless,” “I am interesting,” “Other people are unforgiving,” and “Other people are supportive,” respectively. Higher scores indicate greater positive or negative beliefs of either self or other, respective to each subscale. The BCSS was standardized on a sample of 754 undergraduate students and 252 patients diagnosed with psychosis (Fowler, 2006). It has demonstrated adequate concurrent and discriminant validity as well as adequate 3-
week test-retest reliability among undergraduate students \( (r = .70-.84; \) Fowler, 2006). Adequate to high internal reliability was observed for all subscales in the current study \( (\alpha = .74-.89; \) Appendix D).

**Five Facet Mindfulness Questionnaire (FFMQ)**

The FFMQ is a 39-item measure that was composed by conducting a factor analysis of existing mindfulness measures, such as the Mindful Attention and Awareness Scale (Brown & Ryan, 2003), the Kentucky Inventory of Mindfulness Skills (Baer et al., 2004). This instrument assesses five facets of mindfulness, each of which is a subscale: observe (8 items; \( \alpha = .83 \)), describe (8 items; \( \alpha = .91 \)), act with awareness (8 items; \( \alpha = .87 \)), non-judging of inner experience (8 items; \( \alpha = .87 \)), and non-reactivity to inner experience (7 items; \( \alpha = .75 \); Baer et al., 2006). Items are scored on a 5-point Likert scale \( (1 = Never \ or \ rarely \ true, \ 5 = Very \ often \ or \ always \ true) \). A mean score will be obtained for each subscale. The FFMQ was standardized on two samples of undergraduate students with limited meditation experience (610 and 268 participants, respectively; Baer et al., 2006). The FFMQ has demonstrated adequate convergent validity with emotional intelligence \( (r = .64) \) and life satisfaction measures \( (r = .52) \) as well as discriminant validity with a depression measure \( (r = -.58; \) Christopher et al., 2012). In the present study, adequate internal reliability ranged from adequate to high \( (\alpha = .77-.89; \) Appendix E).

**Procedure**

Prior to commencing the study, approval was obtained from the university Institutional Review Board. Participants were recruited via SONA System, a secure web-based recruitment site. Measures were counterbalanced when input into Qualtrics to protect against order effects (Allen, 2017). Data were collected from September 25th, 2021 to December 3rd, 2021. Participants completed and electronically signed their consent form using the Qualtrics platform.
Upon completing the informed consent process, participants who opted to participate in the study completed a series of questionnaires separate from the consent form. Participants were debriefed regarding the study and were offered resources such as the University Counseling Center should the study have led them to identify distress warranting attention or intervention. Participants received course credit as compensation for their participation.

**Approach to Analyses**

Participant characteristics were assessed using descriptive analyses. Bivariate analyses were conducted to examine the relationships between age, biological sex, social media use, positive and negative core beliefs of self and others, facets of mindfulness, and social media addiction. Two linear regression models were conducted to assess social media addiction as the continuous dependent variable and subscales of core beliefs and mindfulness measures as the independent variables in each model. Two binary logistic models were conducted using a dichotomous social media addiction variable that distinguished between participants below and above the addiction threshold and the same independent variables. Standardized variables were input into ten hierarchical linear regression to test the potentially moderating effects of each mindfulness facet on the relationship between the negative core beliefs subscales and social media addiction. Using Model 1 in PROCESS (Hayes, 2018), ten thousand bootstrapped samples of 95% confidence intervals were tested to determine the significance region of each moderator and to obtain visualization data. All models controlled for age, biological sex, and social media use.
Chapter 3: Results

Approximately 19% of participants scored above the threshold for social media addiction (Table 1). Over half of participants reported currently engaging in at least one mindfulness-related practice, the most prevalent of which were informal mindfulness (63.5%) and devotional/spiritual meditation (52.6%). Participants reported the following reasons for engaging in mindfulness-related practices (able to select more than one): for stress management (45.9%), for enjoyment (33.9%), to change a behavior (21.5%), and for religious/spiritual purposes (18.4%). More participants with social media addiction reported ever using a mindfulness app (62.9%) than those without social media addiction (49.5%). The most commonly used mindfulness apps were Headspace and Calm.

Table 1. Participant characteristics and descriptive statistics

<table>
<thead>
<tr>
<th>Characteristic/Variable</th>
<th>Total participants (n = 365)</th>
<th>Addicted to social media (n = 68)</th>
<th>Not addicted to social media (n = 299)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency/ Mean (SD)</td>
<td>Frequency/ Mean (SD)</td>
<td>Frequency/ Mean (SD)</td>
</tr>
<tr>
<td>Age</td>
<td>M = 21.42 (5.41)</td>
<td>M = 20.44 (4.33)</td>
<td>M = 21.29 (4.94)</td>
</tr>
<tr>
<td>Female</td>
<td>80.3%</td>
<td>87.0 %</td>
<td>80.4 %</td>
</tr>
<tr>
<td>Male</td>
<td>19.7%</td>
<td>13.0%</td>
<td>19.6%</td>
</tr>
<tr>
<td>Currently practicing mindfulness</td>
<td>56.7%</td>
<td>55.7%</td>
<td>56.8%</td>
</tr>
<tr>
<td>Ever used mindfulness app</td>
<td>51.6%</td>
<td>62.9%</td>
<td>49.5%</td>
</tr>
<tr>
<td>Social media addiction</td>
<td>18.10 (5.12)</td>
<td>20.12 (2.80)</td>
<td>14.38 (3.28)</td>
</tr>
<tr>
<td>Weekly social media use (hours)</td>
<td>22.38 (17.28)</td>
<td>29.50 (24.10)</td>
<td>21.49 (14.92)</td>
</tr>
<tr>
<td>Negative Self</td>
<td>2.90 (4.04)</td>
<td>4.37 (4.62)</td>
<td>2.69 (3.89)</td>
</tr>
<tr>
<td>Positive Self</td>
<td>13.96 (6.79)</td>
<td>12.37 (7.18)</td>
<td>14.17 (6.65)</td>
</tr>
<tr>
<td>Negative Others</td>
<td>7.45 (6.76)</td>
<td>10.11 (7.73)</td>
<td>6.97 (6.38)</td>
</tr>
<tr>
<td>Positive Others</td>
<td>11.02 (6.55)</td>
<td>10.34 (7.09)</td>
<td>11.02 (6.41)</td>
</tr>
<tr>
<td>Observe</td>
<td>3.38 (0.70)</td>
<td>3.50 (0.66)</td>
<td>3.36 (0.69)</td>
</tr>
<tr>
<td>Describe</td>
<td>3.12 (0.77)</td>
<td>2.87 (0.87)</td>
<td>3.15 (0.73)</td>
</tr>
<tr>
<td>Awareness</td>
<td>2.95 (0.86)</td>
<td>2.46 (0.78)</td>
<td>3.02 (0.82)</td>
</tr>
<tr>
<td>Nonjudging</td>
<td>2.91 (0.86)</td>
<td>2.52 (0.88)</td>
<td>2.96 (0.81)</td>
</tr>
<tr>
<td>Nonreactivity</td>
<td>2.92 (0.69)</td>
<td>2.83 (0.74)</td>
<td>2.92 (0.66)</td>
</tr>
</tbody>
</table>

*Note.* Any sample size deviations are a result of missing data. Current mindfulness practice includes tai-chi/quietong, yoga, mindfulness meditation, mantra meditation, and informal mindfulness.
Bivariate Correlations

Greater social media addiction was positively associated with negative core beliefs of self ($r = .184$) and others ($r = .208$) as well as the observe ($r = .153$) and describe facets ($r = .147$; Table 2). However, greater social media addiction was associated with less awareness ($r = -.343$) and nonjudging ($r = -.306$). Negative core beliefs of self were negatively associated with the describe ($r = -.291$), awareness ($r = -.280$), nonjudging ($r = -.396$), and nonreactivity facets ($r = -.122$). Conversely, positive core beliefs of oneself were positively associated with these same facets. Greater dysfunctional beliefs of others were associated with higher levels of the observe facet ($r = .165$), yet lower levels of awareness ($r = -.196$) and nonjudging ($r = -.313$). Increased positive core beliefs of others demonstrated positive relationships with describe ($r = .209$), awareness ($r = .180$), nonjudging ($r = .115$), and nonreactivity facets ($r = .186$).

Table 2. Zero-order correlations

|----------------|--------|-----------|-----------|-----------------|-------------|-------------|---------------|---------------|-----------|               |               |                |                |
| 1. Age         | -      |           |           |                 |             |             |               |               |           |               |               |                |                |
| 2. Gender      | .001   | -         |           |                 |             |             |               |               |           |               |               |                |                |
| 3. SM use      | -.153  | -.111     | -         |                 |             |             |               |               |           |               |               |                |                |
| 4. SM addiction| -.243  | -.172     | .391      | -               |             |             |               |               |           |               |               |                |                |

Core Beliefs

| 5. Neg. Self   | .014   | -.114     | .099       | .184            | -           |             |               |               |           |               |               |                |                |
| 6. Pos. Self   | .065   | -.056     | .041       | -.078           | -.559       | -           |               |               |           |               |               |                |                |
| 7. Neg. Others | -.041  | -.084     | .184       | .208            | .162        | .025        | -             |               |           |               |               |                |                |
| 8. Pos. Others | .060   | -.040     | .034       | -.063           | -.223       | .478        | .239          | -             |           |               |               |                |                |

Mindfulness Facets

| 9. Observe     | .090   | .046      | -.098      | .153            | .059        | .067        | .165          | .091          | -         |               |               |                |                |
| 10. Describe   | .204   | .104      | -.086      | .147            | -.291       | .394        | -.084         | .209          | .263      | -             |               |                |                |
| 11. Awareness  | .153   | .052      | -.160      | -.343           | -.280       | .297        | -.196         | .180          | -.202     | .362          | -             |                |                |
| 12. Nonjudging | .087   | -.051     | -.118      | -.306           | -.396       | .370        | -.313         | .115          | -.329     | .271          | .512          | -               |                |
| 13. Nonreactivity | .058  | .182      | .050       | -.067           | -.122       | .175        | .090          | .186          | .474      | .312          | -             | -.093          |                |

Note. Bold text indicates significance at $p < .05$. Female = 1, Male = 2.

Linear Regression Models

The core beliefs linear regression model was statistically significant, $F(7) = 17.087,$
Adjusted $R^2 = .227$, $p < .001$ (Table 3). Having fewer negative core beliefs about self ($\beta = .110$, $p = .05$) and others ($\beta = .134$, $p = .006$) was associated with lower social media addiction. The mindfulness facets linear regression model was also statistically significant, $F(8) = 21.344$, Adjusted $R^2 = .299$, $p < .001$. Lower levels of social media addiction were associated with lower scores on the observe facet ($\beta = .109$, $p = .046$) and higher scores on awareness ($\beta = -.197$, $p < .001$), nonjudging ($\beta = -.162$, $p = .003$), and nonreactivity ($\beta = -.157$, $p = .002$). Age, gender, and social media use demonstrated statistically significant relationships in both models.

Table 3. Linear regression models predicting social media addiction

<table>
<thead>
<tr>
<th>Core Beliefs Model</th>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age</td>
<td>-.029</td>
<td>.007</td>
<td>-.185</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>-.248</td>
<td>.098</td>
<td>-.115</td>
</tr>
<tr>
<td></td>
<td>Social media use</td>
<td>.016</td>
<td>.002</td>
<td>.317</td>
</tr>
<tr>
<td></td>
<td>Negative Self</td>
<td>.023</td>
<td>.012</td>
<td>.110</td>
</tr>
<tr>
<td></td>
<td>Positive Self</td>
<td>.002</td>
<td>.008</td>
<td>.013</td>
</tr>
<tr>
<td></td>
<td>Negative Others</td>
<td>.017</td>
<td>.006</td>
<td>.134</td>
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<tr>
<td></td>
<td>Positive Others</td>
<td>-.011</td>
<td>.007</td>
<td>-.081</td>
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<tr>
<td></td>
<td>Constant</td>
<td>3.241</td>
<td>.204</td>
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</table>

Note. Adjusted $R^2 = .227$, $F(7) = 17.087$, $p < .001$. Bold text indicates significance at $p < .05$.

<table>
<thead>
<tr>
<th>Dispositional Mindfulness Facets Model</th>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>$\beta$</th>
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<tbody>
<tr>
<td></td>
<td>Age</td>
<td>-.026</td>
<td>.007</td>
<td>-.164</td>
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<td></td>
<td>Gender</td>
<td>-.257</td>
<td>.095</td>
<td>-.120</td>
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<tr>
<td></td>
<td>Social media use</td>
<td>.015</td>
<td>.002</td>
<td>.300</td>
</tr>
<tr>
<td></td>
<td>Observe</td>
<td>.133</td>
<td>.066</td>
<td>.109</td>
</tr>
<tr>
<td></td>
<td>Describe</td>
<td>.067</td>
<td>.059</td>
<td>.061</td>
</tr>
<tr>
<td></td>
<td>Awareness</td>
<td>-.196</td>
<td>.053</td>
<td>-.197</td>
</tr>
<tr>
<td></td>
<td>Nonjudging</td>
<td>-.162</td>
<td>.054</td>
<td>-.162</td>
</tr>
<tr>
<td></td>
<td>Nonreactivity</td>
<td>-.195</td>
<td>.064</td>
<td>-.157</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>4.249</td>
<td>.312</td>
<td></td>
</tr>
</tbody>
</table>

Note. Adjusted $R^2 = .299$, $F(8) = 21.344$, $p < .001$. Bold text indicates significance at $p < .05$.

Logistic Regression Models

The core beliefs logistic regression model was statistically significant, $\chi^2 (7) = 29.055$, $p$
< .001, Nagelkerke $R^2 = .122$ (Table 4). Increased dysfunctional beliefs about others ($OR = 1.062, p = .006$) and greater social media use ($OR = 1.019, p = .010$) were both associated with being addicted to social media. The dispositional mindfulness facets logistic regression model was also statistically significant, $\chi^2 (8) = 44.801, p < .001$, Nagelkerke $R^2 = 0.186$. Increased social media use ($OR = 1.022, p = .006$) and decreased awareness ($OR = 0.501, p = .001$) were associated with being addicted to social media. Lower scores on the nonreactivity facet were marginally related to being addicted to social media ($OR = 0.636, p = .068$).

Table 4. Logistic regression models predicting social media addiction

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>$SE$</th>
<th>OR</th>
<th>95% CI</th>
<th>Lower</th>
<th>Upper</th>
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</thead>
<tbody>
<tr>
<td>Core Beliefs Model</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
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<td>.040</td>
<td>.958</td>
<td>.886</td>
<td>1.036</td>
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<tr>
<td>Gender</td>
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<td>.404</td>
<td>.707</td>
<td>.320</td>
<td>1.561</td>
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<td>Social media use</td>
<td>.019</td>
<td>.007</td>
<td>1.019</td>
<td>1.005</td>
<td>1.034</td>
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<tr>
<td>Negative Self</td>
<td>.048</td>
<td>.038</td>
<td>1.049</td>
<td>.973</td>
<td>1.131</td>
<td></td>
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<td>Positive Self</td>
<td>-.019</td>
<td>.028</td>
<td>.981</td>
<td>.929</td>
<td>1.037</td>
<td></td>
</tr>
<tr>
<td>Negative Others</td>
<td>.060</td>
<td>.022</td>
<td>1.062</td>
<td>1.017</td>
<td>1.108</td>
<td></td>
</tr>
<tr>
<td>Positive Others</td>
<td>-.021</td>
<td>.025</td>
<td>.980</td>
<td>.933</td>
<td>1.028</td>
<td></td>
</tr>
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<td>Constant</td>
<td>-1.204</td>
<td>.955</td>
<td>.300</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

*Note. $\chi^2 (7) = 29.055, p < .001$, Nagelkerke $R^2 = .122$. Bold text indicates significance at $p < .05$.

Dispositional Mindfulness Facets Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta$</th>
<th>$SE$</th>
<th>OR</th>
<th>95% CI</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-.038</td>
<td>.041</td>
<td>.963</td>
<td>.888</td>
<td>1.045</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.356</td>
<td>.415</td>
<td>.701</td>
<td>.311</td>
<td>1.581</td>
<td></td>
</tr>
<tr>
<td>Social media use</td>
<td>.021</td>
<td>.008</td>
<td>1.022</td>
<td>1.006</td>
<td>1.037</td>
<td></td>
</tr>
<tr>
<td>Observe</td>
<td>.184</td>
<td>.259</td>
<td>1.202</td>
<td>.724</td>
<td>1.995</td>
<td></td>
</tr>
<tr>
<td>Describe</td>
<td>-.099</td>
<td>.219</td>
<td>.906</td>
<td>.590</td>
<td>1.390</td>
<td></td>
</tr>
<tr>
<td>Awareness</td>
<td>-.691</td>
<td>.215</td>
<td>.501</td>
<td>.328</td>
<td>.764</td>
<td></td>
</tr>
<tr>
<td>Nonjudging</td>
<td>-.314†</td>
<td>.207</td>
<td>.731</td>
<td>.487</td>
<td>1.095</td>
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</tr>
<tr>
<td>Nonreactivity†</td>
<td>-.452†</td>
<td>.248†</td>
<td>.636†</td>
<td>.391†</td>
<td>1.034†</td>
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</tr>
<tr>
<td>Constant</td>
<td>2.529</td>
<td>1.511</td>
<td>12.543</td>
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</tr>
</tbody>
</table>

*Note. $\chi^2 (8) = 44.801, p < .001$, Nagelkerke $R^2 = .186$. Bold text indicates significance at $p < .05$. †$p = 0.068$
Moderation Analyses for Negative Core Beliefs of Self x Mindfulness Facet

All models assessing the relationship between dysfunctional beliefs of self, a specific mindfulness facet, and social media were statistically significant (observe: $F(6) = 20.127, R^2 = .243, p < .001$; describe: $F(6) = 18.382, R^2 = .227 p < .001$; awareness: $F(6) = 25.092, R = .286, p < .001$; nonjudging: $F(6) = 24.465, R^2 = .280, p < .001$; nonreactivity: $F(6) = 18.368, R^2 = .226, p < .001$; Table 5). There was a main effect of negative core beliefs of self on social media addiction in the observe ($\beta = .134, p = .003$), describe ($\beta = .159, p = .002$), awareness ($\beta = .116, p = .020$), and nonreactivity models ($\beta = .121, p = .026$) such that higher dysfunctional beliefs about oneself were associated with greater social media addiction. There was also a main effect of mindfulness facet in the observe ($\beta = .138, p = .003$), awareness ($\beta = -.234, < .001$), and nonjudging models ($\beta = -.239, p < .001$) wherein lower observe and greater awareness and nonjudging scores were associated with lower levels of social media addiction. There were no interactions between negative core beliefs of self and the observe, describe, or nonreactivity facets. However, awareness and nonjudging emerged as moderators.

For individuals with low (-1 $SD$) awareness, social media addiction was comparatively high across levels of dysfunctional beliefs of self (Figure 3). In contrast, there was a positive relationship between dysfunctional core beliefs and social media addiction among those with high (+1 $SD$) awareness. Specifically, this positive relationship emerged when participants scored no more than .213 units below the mean on awareness. Social media addiction was lowest among those with low dysfunctional beliefs of themselves and high awareness, and it was highest among those with high dysfunctional beliefs of themselves and low awareness. Similarly, social media addiction was comparatively high regardless of the level of dysfunctional beliefs of self among participants with low (-1 $SD$) nonjudgment, but a positive relationship emerged
between dysfunctional beliefs of self and social media addiction among those with high (+1 SD) nonjudgment (Figure 4). This positive association appeared among participants who scored at least .103 units above the mean on nonjudgment. In all of the hierarchical regression models, higher social media addiction was also associated with younger age, identifying as female, and increased social media use.

Figure 3. Moderating effects of the awareness facet on the relationship between negative core beliefs of self and social media addiction

Note. The association between social media addiction and negative core beliefs of self was moderated by the Awareness mindfulness facet ($F(6) = 25.092, R^2 = .275, p < .001$).

All variables have been standardized.
Figure 4. Moderating effects of the nonjudging facet on the relationship between negative core beliefs of self and social media addiction

Note. The association between social media addiction and negative core beliefs of self was moderated by the Nonjudging mindfulness facet ($F(6) = 24.465, R^2 = .269, p < .001$). All variables have been standardized.
Table 5. Hierarchical regression models testing relationships among social media addiction, negative core beliefs of self, and dispositional mindfulness facets

<table>
<thead>
<tr>
<th>Variables</th>
<th>Age</th>
<th>Gender</th>
<th>Social media use</th>
<th>Negative self</th>
<th>Observe</th>
<th>Negative self x Observe</th>
<th>R²</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative self x Observe</td>
<td>-0.206</td>
<td>-0.128</td>
<td>0.316</td>
<td>0.134</td>
<td>0.138</td>
<td>0.038</td>
<td>0.243</td>
<td>0.231</td>
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</tr>
<tr>
<td>Negative self x Describe</td>
<td>-0.187</td>
<td>-0.112</td>
<td>0.332</td>
<td>0.159</td>
<td>Describe</td>
<td>-0.038</td>
<td>0.227</td>
<td>0.215</td>
</tr>
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<td></td>
</tr>
<tr>
<td>Negative self x Awareness</td>
<td>-0.148</td>
<td>-0.112</td>
<td>0.310</td>
<td>0.116</td>
<td>Awareness</td>
<td>-0.235</td>
<td>0.286</td>
<td>0.275</td>
</tr>
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</tr>
<tr>
<td>Negative self x Nonjudging</td>
<td>-0.173</td>
<td>-0.144</td>
<td>0.308</td>
<td>0.106</td>
<td>Nonjudging</td>
<td>-0.239</td>
<td>0.280</td>
<td>0.269</td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>Negative self x Nonreactivity</td>
<td>-0.190</td>
<td>-0.115</td>
<td>0.337</td>
<td>0.121</td>
<td>Nonreactivity</td>
<td>-0.037</td>
<td>0.226</td>
<td>0.214</td>
</tr>
</tbody>
</table>

Note. All variables were standardized, and all values shown are from the final step of each model. Bold text indicates p < .05.
**Moderation Analyses for Negative Core Beliefs of Others x Mindfulness Facet**

All models assessing the relationship between dysfunctional beliefs of others, a specific mindfulness facet, and social media were statistically significant (observe: $F(6) = 19.444, R^2 = .236, p < .001$; describe: $F(6) = 19.111, R^2 = .234, p < .001$; awareness: $F(6) = 24.697, R^2 = .283, p < .001$; nonjudging: $F(6) = 25.259, R^2 = .287, p < .001$; nonreactivity: $F(6) = 18.327, R^2 = .226, p < .001$; Table 6). There was a main effect of dysfunctional beliefs of others in the observe ($\beta = .116, p = .014$), describe ($\beta = .123, p = .008$), and nonreactivity models ($\beta = .133, p = .005$) in which increased dysfunctional beliefs of others were associated with greater social media addiction. There was also a main effect of mindfulness facet for the observe ($\beta = .131, p = .005$), awareness ($\beta = -.242, p < .001$), and nonjudging ($\beta = -.238, p < .001$) models wherein lower observe and higher awareness and nonjudging scores were associated with lower levels of social media addiction. There were no dysfunctional beliefs of others x mindfulness facet interactions in the observe, awareness, or nonreactivity models, but describe and nonjudging did emerge as moderators.

There was a positive relationship between negative core beliefs of others and social media addiction when individuals scored low (-1 SD) on describe, yet all participants who scored high (+1 SD) on describe had comparatively lower social media addiction scores regardless of their level of dysfunctional beliefs of others (Figure 5). Specifically, the relationship between negative core beliefs of others and social media addiction appeared when participants scored more than .276 units above the mean of describe. Although the interaction in Figure 3 appeared to intersect, the lack of statistically significant change in the $F$ value ($F$ change = 1.665, $p = .198$) in Step 2 of the model suggests there were no statistically significant differences in the Y-intercept of those scoring a standard deviation above or below the mean of describe. In other
words, the apparent differences in social media addiction scores for individuals with few dysfunctional beliefs of others and either low or high describe are nonsignificant.

![Graph showing the relationship between negative core beliefs of others and social media addiction](image)

**Figure 5.** Moderating effects of the describe facet on the relationship between negative core beliefs of others and social media addiction

*Note.* The association between social media addiction and negative core beliefs of others was moderated by the Describe mindfulness facet ($F(6) = 19.111$, Adjusted $R^2 = .222$, $p < .001$). All variables have been standardized.

In the negative core beliefs of others x nonjudging interaction, the relationship between dysfunctional core belief of others and social media addiction becomes reversed depending on the level of nonjudging. A negative relationship between negative core beliefs and social media addiction emerged among participants with high (+1 SD) nonjudging, yet a positive relationship appeared among those with low (-1 SD) nonjudging (Figure 6). Specifically, the relationship was negative when participants scored more than .546 units below the mean on nonjudging and it was positive for those scoring less than .546 units below the mean. Social media addiction was lowest among those with high dysfunctional beliefs of others and high nonjudgment, and it was highest among those with high dysfunctional beliefs of others who tended to be judgmental of their inner
experiences. Higher social media addiction was associated with younger age, identifying as female, and increased social media use in all hierarchical regression models mentioned above.

Note. The association between social media addiction and negative core beliefs of others was moderated by the Nonjudging mindfulness facet ($F(6) = 25.259$, Adjusted $R^2 = .275$, $p < .001$). All variables have been standardized.
Table 6. Hierarchical regression models testing relationships among social media addiction, negative core beliefs of others, and dispositional mindfulness facets

<table>
<thead>
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<th>Variables</th>
<th>B</th>
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<th>β</th>
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<td>-0.200</td>
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<td>-0.134</td>
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<td>0.047</td>
<td>0.116</td>
</tr>
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<td>Observe</td>
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<td>0.131</td>
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<td>Negative others x Observe</td>
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<td>-0.031</td>
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<tr>
<td><strong>R^2</strong></td>
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<td></td>
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</tr>
<tr>
<td><strong>Adjusted R^2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative others x Describe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Age</td>
<td>-0.174</td>
<td>0.047</td>
<td>-0.174</td>
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<tr>
<td>Gender</td>
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<td>-0.124</td>
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<td>0.324</td>
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<td><strong>R^2</strong></td>
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<tr>
<td><strong>Adjusted R^2</strong></td>
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<tr>
<td><strong>Negative others x Awareness</strong></td>
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<td>Negative others</td>
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<td>0.048</td>
<td>0.032</td>
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<td>Nonjudging</td>
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<td>0.046</td>
<td>-0.238</td>
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<td>Negative others x Nonjudging</td>
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<td>0.043</td>
<td>0.121</td>
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<tr>
<td><strong>R^2</strong></td>
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<tr>
<td><strong>Adjusted R^2</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative others x Nonreactivity</strong></td>
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<td>0.046</td>
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<td>Gender</td>
<td>-0.110</td>
<td>0.047</td>
<td>-0.110</td>
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<td>Social media use</td>
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<td>0.047</td>
<td>0.323</td>
</tr>
<tr>
<td>Negative others</td>
<td>0.133</td>
<td>0.047</td>
<td>0.133</td>
</tr>
<tr>
<td>Nonreactivity</td>
<td>-0.076</td>
<td>0.048</td>
<td>-0.076</td>
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<tr>
<td>Negative others x Nonreactivity</td>
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<tr>
<td><strong>R^2</strong></td>
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<tr>
<td><strong>Adjusted R^2</strong></td>
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</tbody>
</table>

*Note.* All variables were standardized, and all values shown are from the final step of each model. *p < .05.*
Chapter 4: Discussion

Approximately 19% of the sample in the present study met conservative criteria for social media addiction, a rate that is somewhat higher than the 10-15% prevalence rates previously observed among Latinx college students (Gainza Perez et al., 2021; Lerma et al., 2021a, b). The present study aimed to assess the relationships of this behavioral addiction with core beliefs and dispositional mindfulness among Latinx college students.

Core Beliefs

Similar to studies examining maladaptive schemas and technology-related addictions (Cudo et al., 2020; Zhou et al., 2018; Zsido et al., 2021), the present study demonstrated that greater dysfunctional beliefs of self and others were associated with higher levels of social media addiction. Additionally, Latinx students who met the threshold for social media addiction reported greater dysfunctional beliefs of others compared to those not addicted to social media. These findings are also consistent with associations described regarding Internet addiction (Aloi et al., 2020) and support the assertion that Latinx students with more negative core beliefs may be at greater risk of developing social media addiction.

Contrary to predictions, positive core beliefs of self and others were unrelated to social media addiction. One possible explanation for this inconsistency is provided within the SCT framework (Bandura, 1999). People with positive core beliefs (i.e., cognitive templates of expected outcomes) may have outcome expectancies that motivate adaptive use of social media. Given that positive core beliefs are part of the desired outcomes in treatment modalities such as CBT (Wenzel, 2012) and Dual-Focused Schema Therapy (Marlatt & Gordon, 1985), it is also possible that individuals with more positive schemas may have greater emotional regulation skills and are not driven to misuse social media to avoid anticipated negative affect (Ball, 1998).
Dispositional Mindfulness

Almost 60% of participants reported currently engaging in mindfulness-related activities. Similar to findings from a study on Latinx adults (Vinci et al., 2020), the most common mindfulness-related practices Latinx undergraduates reported currently engaging in were informal mindfulness (38.9%) and devotional/spiritual meditation (35.5%). Additionally, more students with social media addiction reported ever using a mindfulness app (62.9%) than students without social media addiction (49.5%). Given that social media use is often motivated by the desire to diminish negative affect (Marino et al., 2016; Ryan et al., 2014), those with social media addiction may recognize their tendency toward negative affect and use technology to seek self-improvement. These findings thus suggest that despite the tendency to misuse social media platforms, those addicted to social media may exhibit adaptive use of other technology platforms. Future research should examine other potentially beneficial uses of technology by individuals addicted to social media so that future interventions may emphasize increases in these behaviors while discouraging social media activities.

Holding all other facets constant, greater scores on the observe facet related to increased social media addiction, which contribute to the understanding that despite mixed findings (Karyadi et al., 2014), higher levels of this facet may be maladaptive and lead to addictive behaviors (Eisenlohr-Moul et al., 2012) among individuals who do not also have high levels of the other mindfulness facets (Baer et al., 2006, 2008). Contrary to prior findings in the addictive behaviors literature (Bodenlos et al., 2013; Bowen & Enkema, 2014; Calvete et al., 2017), the describe facet was unrelated to social media addiction. However, the associations demonstrated by the other three facets were consistent with patterns noted between mindfulness facets and substance use (Karyadi et al., 2014; Karyadi & Ciders, 2015); Latinx students who demonstrated
more awareness, nonjudgment, and nonreactivity of inner experiences reported lower social media addiction. While fewer differences in mindfulness facets emerged between addicted and non-addicted participants using the conservative threshold to determine social media addiction, greater awareness was more likely to be reported among non-addicted participants, and a similar yet marginal association emerged with nonreactivity.

It may be beneficial to view these findings within the lens of the four latent profiles on mindfulness that have repeatedly emerged (e.g., Bravo et al., 2016; Pearson et al., 2015). The high-mindfulness profile (i.e., moderately high on all facets) comprises people with the best overall well-being and mental health, and the nonjudgmentally aware group (i.e., low on observe, high on nonjudgment and awareness) seems to be the second most adaptive profile. Conversely, those in the low mindfulness profile (i.e., low-to-average scores on all facets) tend to have lower well-being and worse mental health outcomes. Lastly, individuals in the judgmental observing profile (i.e., high on Observe, low on nonjudgment and awareness) have reported the highest levels of distress and maladaptive coping. It appears that in social media addiction, the nonjudgmentally aware profile may be the most adaptive because of the lower social media addiction scores that emerged for students reporting low observe, high awareness, and high nonjudgment. Taken together, the results above support the roles of risk and protective mindfulness facets noted in previous studies and demonstrate that many of the relationships between dispositional mindfulness facets and addictive behaviors also emerge in relation to social media addiction.

**Dispositional Mindfulness Facets as Protective and Risk Factors**

All mindfulness facets except for the observe facet were expected to demonstrate a protective influence on the relationship between dysfunctional core beliefs of self and social
media addiction. In partial support of this hypothesis, awareness and nonjudging facets exerted a protective effect on this relationship. These facets have emerged as the strongest predictors of reduced alcohol use (Sala et al., 2020), and the findings of the present study suggest they may be similarly important in relation to social media addiction. Although a positive relationship only emerged between dysfunctional beliefs of self and social media addiction at high levels of awareness or nonjudgment, these facets demonstrated a protective effect by mitigating the adverse influence of this relationship. Even among individuals with many deeply held negative beliefs about themselves, those with a greater tendency to attend to the present moment (awareness) or take a non-evaluative stance on their inner experiences (nonjudgment) reported average social media addiction levels. In contrast, Latinx undergraduates with limited awareness and greater judgment of their inner experiences tended to have above average social media addiction scores. Greater ability to focus on the present moment and accept the presence of thoughts and feelings that do arise may reduce the likelihood of ruminating on thoughts prompted by negative core beliefs of oneself. In turn, less rumination on negative automatic thoughts would likely result in less of the negative affect that often motivates social media misuse. Indeed, Kircaburun and colleagues (2019) demonstrated individuals with low dispositional mindfulness and frequent rumination tended to have higher levels of social media addiction. Overall, these findings on the protective functions of awareness and nonjudgment facets are similar to those of the nonjudgmentally aware profile (Bravo et al., 2016; Pearson et al., 2015) and extend the literature by suggesting that Latinx undergraduates who are less aware and more judgmental of their inner experiences may be more likely to misuse social media to distract from their poor mental health and well-being.
It was also expected that all mindfulness facets except the observe facet would attenuate the association between dysfunctional core beliefs of others and social media addiction. Findings for both the describe and nonjudging facets partially supported this hypothesis. High levels of describe seemed to protect from the adverse relationship between dysfunctional core beliefs of others and social media addiction regardless of the number of negative core beliefs of others, whereas low describe scores were only protective for those with few dysfunctional beliefs of others. In contrast, having a low tendency to describe inner experiences emerged as a risk factor for social media addiction among Latinx undergraduates who held many negative core beliefs of others. It may be that students who were more cynical of others and lacked the ability to describe their inner experiences may have preferred to direct their attention to those around them rather than inward. Externalizing, or the tendency to project and mistreat others, has been linked to narcissism (Miller et al., 2009) and other dark triad traits (i.e., psychopathy, Machievellianism; Jonason et al., 2019), which in turn have been positively associated with social media addiction (Casale & Banchi, 2020). Need for drama, an externalizing personality characteristic closely related to dark triad traits (Frankowski et al., 2016), has also been positively associated with social media addiction among Latinx undergraduates (Lerma et al., 2021). Thus, the current findings contribute to the growing consensus that people with externalizing tendencies may be at greater risk of social media addiction, particularly as their dysfunctional beliefs of others increase.

A different, yet related pattern emerged in the moderating role of nonjudging on the relationship between negative core beliefs of others and social media addiction. The positive association that emerged at low levels of nonjudging also fits the nonjudgmentally aware profile (Bravo et al., 2016) and may indicate that low scores on this facet also relate to externalizing
tendencies. Despite their dysfunctional beliefs of others, students who were judgmental of their inner experiences may have misused social media to seek attention or validation and to watch for cues of separation or criticism from others. This aligns with the concept of vulnerable (i.e., covert) narcissism, in which individuals vacillate between self-perceived inferiority and superiority (e.g., Wink, 1991), and experience anger to others if their entitled expectations are not met (Dickinson & Pincus, 2003). Various studies have found vulnerable narcissism to be positively associated with social media addiction (Casale & Banchi, 2020). In contrast, Latinx undergraduates with the lowest levels of social media addiction reported being more accepting of their inner experiences yet holding many negative core beliefs of others. These students may have considered themselves self-sufficient and avoided emotional intimacy due to positive views of themselves and negative views of others (Bartholowmew & Horowitz, 1991). Such avoidant attachment patterns have been negatively associated with social media addiction (Worsley et al., 2018), but not with vulnerable narcissism, which instead tends to relate to anxious attachment (e.g., Rohmann et al., 2012). Further investigation is necessary to determine whether attachment styles and narcissism may explain nonjudgment’s risk and protective influence on the relationship between dysfunctional beliefs of others and social media addiction.

Limitations & Strengths

It is important to note several limitations of the present study. The cross-sectional nature of the study precluded any examination of temporality. The participant sample was also a convenience sample comprised primarily of individuals of Mexican descent due to university location on the U.S./Mexico border, limiting generalizability. Future studies should aim to assess the generalizability of these findings to Spanish-speaking Latinx community samples of different ethnic origin (e.g., Puerto Rican, Dominican) and young adults not attending college.
The current study also had several strengths. It extended the literature by being the first study to investigate the interrelationships between dysfunctional beliefs, dispositional mindfulness, and social media addiction. Moreover, these relationships were assessed and contextualized using the SCT framework. Third, this study scored social media addiction using conservative criteria to limit concerns of overpathologizing. Finally, the rigorous assessment of these relationships within a traditionally underrepresented ethnocultural group meaningfully informs the literature on social media addiction.

**Clinical Implications & Future Directions**

While this study warrants replication, the findings pose several clinical implications. Shapiro and colleagues (2006) posited that one of the mechanisms through which mindfulness promotes positive health behaviors is through enhanced cognitive/behavioral flexibility. In the context of social media addiction, enhanced awareness of and flexibility over cognitions may weaken the dysfunctional core beliefs that fuel this addictive behavior and instead promote adaptive social media use by expanding the range of choices relating to reduction of or abstinence from social media use. The protective effects some mindfulness facets demonstrated in the present study also provide support for Weaver and Swank’s (2019) proposed mindfulness-based social media addiction intervention and inform which facets may be most influential in reducing social media addiction. For example, enhancing awareness and nonjudgment involves emphasizing the “attention” and “attitude” axioms of mindfulness described by Weaver and Swank (2019), particularly for individuals reporting many dysfunctional beliefs. The “attention” axiom involves using mindfulness techniques such as diaphragmatic breathing prior to social media use to access nonjudgmental observation of inner experience, whereas the “attitude” axiom entails implementing mindfulness techniques (e.g., grounding) while using social media to
maintain this nonjudgmental awareness. Targeting the enhancement of multiple mindfulness qualities in this way will likely mitigate any potentially adverse influence of the observe facet on social media addiction. Weaver and Swank’s (2019) intervention could also be supplemented with cognitive-behavioral techniques for individuals who report many dysfunctional beliefs of themselves or others. While mindfulness exercises may be encouraged immediately prior to and during social media use, implementing cognitive-behavioral skills subsequent to social media use may be beneficial for eventually reducing the negative core beliefs associated with social media addiction. For example, Young (2007) recommended using a Daily Internet Log to establish a baseline of the problematic behavior during treatment of Internet Addiction; this could be adapted by instead documenting social media use. Upon completing the behavior log, the goal would be learning to use social media to achieve specific outcomes (e.g., moderate use) by using behavioral rehearsing, modeling, and relaxation training (Young, 2007). Longitudinal studies have reported that having few maladaptive schemas predict increased levels of certain mindfulness facets (Gómez-Odriozola & Calvete, 2020) and that greater dispositional mindfulness qualities predict decreased levels of Internet addiction (Calvete et al., 2017). However, future prospective studies are warranted to obtain preliminary findings regarding the efficacy a mindfulness-based intervention for reducing dysfunctional beliefs and their adverse effects on social media addiction.

The role of culture in the mechanisms described above also require further investigation. For example, Latinx undergraduates with lower language acculturation (i.e., those who primarily speak Spanish) have reported greater failed attempts to control their social media use and decreased motivation to reduce use of social media (Lerma, 2021). Additionally, Franco and Carrier (2020) demonstrated that acculturation moderated the relationship between social media
use and depressive symptoms such that Latinx college students with low acculturation and low social media use reported greater depressive symptoms than those with higher social media use. These students also reported the greatest contact with culturally relevant loved ones on social media (Franco & Carrier, 2020). These findings indicate that individuals with low acculturation may be motivated to excessively use social media as a way of maintaining social ties rather than as a coping tool, which may protect from the negative effects of frequent social media use. Therefore, the investigation of cultural constructs (e.g., collectivism, ethnic identity) and social media use motives among ethnic minorities seems to be an important future direction in the study of social media addiction. These data may inform the development of a culturally adapted mindfulness-based social media addiction intervention that increases engagement (Lau, 2006). A systematic review of 22 mindfulness-based intervention studies for Hispanics demonstrated that some categories of cultural adaptations included intentionally matching client and facilitator ethnicity, utilizing culturally relevant metaphors or symbols, framing goals within culturally relevant values, and integrating culture into case conceptualization (Castellanos et al., 2020). A meta-analysis on 8 of the 22 studies also revealed moderate (Hedge’s $g = -0.63$) to large effects (Hedge’s $g = -0.74$) of the interventions on depression, anxiety, and stress. However, none of the reviewed studies included an addictive behavior as a treatment outcome. Thus, avenues for future research would be to identify cultural aspects that may be most impactful in interventions, and to investigate the efficacy of implementing these cultural adaptations in mindfulness-based social media addiction interventions among Latinx samples.

Conclusion

The present research provides initial evidence for the protective function of dispositional mindfulness qualities on the relationship between negative core beliefs and social media
addiction among Latinx undergraduates. Awareness and nonjudgment exerted a protective influence on the relationship between dysfunctional beliefs of *self* and social media addiction, whereas describe and nonjudgment facets emerged as risk factors at low levels and protective factors at high levels regarding the association between dysfunctional beliefs of *others* and social media addiction. These findings emphasize the importance of differentially examining the influence of dispositional mindfulness facets on the relationship between dysfunctional core beliefs and social media addiction. Examining the mechanisms of these interactions, potentially by supplementing Weaver and Swank’s mindfulness-based social media addiction intervention with cognitive-behavioral strategies and cultural adaptations, appear to be an important area for further study.
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Appendix

Appendix A: Sociodemographics

(1) What is your race/ethnicity?
   o Asian or Pacific Islander
   o White/Caucasian
   o Black/African American
   o American Indian/Native American or Alaska Native
   o Hispanic/Latinx
   o Native Hawaiian
   o Other (please specify):

(2) What is your age?

(3) What sex were you assigned at birth, on your original birth certificate?
   o Male
   o Female
   o Intersex

(4) What gender do you identify with?
   o Man
   o Woman
   o Transgender
   o Gender fluid
   o Non-binary
   o Other (please specify):

(5) Which of the following commonly used terms best describes your sexual orientation? (Check all that apply)
   o Straight or heterosexual
   o Gay
   o Lesbian
   o Bisexual
   o Queer
   o Pansexual
   o Asexual
   o Unsure/Questioning/Exploring
   o Not listed; specify: ______________

(6) What is your current relationship status?
   o Single (never married)
○ In a domestic partnership
○ Married
○ Separated
○ Divorced
○ Widowed

(7) What describes your current relationship?
○ Single
○ Dating
○ In a Committed relationship
○ Engaged
○ Married
○ Open-Relationship
○ Other, please specify:

(8) How long have you been in the relationship for? (in months)

(9) What is your household income?
○ Less than $10,000
○ $10,000 - $19,999
○ $20,000 - $29,999
○ $30,000 - $39,999
○ $40,000 - $49,999
○ $50,000 - $59,999
○ $60,000 - $69,999
○ $70,000 - $79,999
○ $80,000 - $89,999
○ $90,000 - $99,999
○ $100,000 - $149,999
○ More than $150,000

(10) How many people live in your current household (including yourself)? ___

(11) Who lives with you? (Mark all that apply)
○ Spouse
○ Partner/Boyfriend/Girlfriend
○ Your children
○ Mother/Father
○ Sister/Brother
○ Son-in-law/Daughter-in-law
○ Mother-in-law/Father-in-law
○ Aunt/Uncle
○ Nieces/Nephews
○ Cousin
○ Grandchildren
○ Grandparent
○ Other (specify) ______________________________
(12) What was the first language you spoke?
   o English
   o Spanish
   o Other (Please specify)

(13) Do you speak more than one language?
   o Yes
   o No

(14) Do you still live at home or with your parent(s) or legal guardian(s)?
   o Yes
   o No

(15) What is the highest level of education obtained by your father?
   o Less than high school
   o High School Diploma
   o Some College
   o 2 Year College
   o 4 Year College
   o Graduate School
   o Unknown

(16) What is the highest level of education obtained by your mother?
   o Less than high school
   o High School
   o Some College
   o 2 Year College
   o 4 Year College
   o Graduate School
   o Unknown

(17) Are you a veteran or have you ever been in military active duty?
   o Yes
   o No

(18) Have you ever received Mental Health Services?
   o Yes
   o No

(19) If yes, what conditions were you treated for?
   o Substance Abuse
- Depression
- Anxiety
- Post-Traumatic Stress Disorder
- Schizophrenia
- Other, please specify:

(20) What is your current GPA (on a 4.0 scale)?

(21) What country do you live in?
- United States
- Mexico

(22) Do you consider yourself to be Hispanic/Latino/a?
- Yes
- No

(23) Where were you born?
- United States
- Guatemala
- Argentina
- Honduras
- Bolivia
- Mexico
- Brazil
- Nicaragua
- Chile
- Panama
- Colombia
- Paraguay
- Costa Rica
- Peru
- Cuba
- Puerto Rico
- Dominican Republic
- Uruguay
- Ecuador
- Venezuela
- El Salvador
- Other (specify) _________________________

(24) What country/place/nationality do you identify with the most? (Check all that apply)
- United States
- Guatemala
- Argentina
- Honduras
- Bolivia
- Mexico
- Brazil
- Nicaragua
- Chile
- Panama
- Colombia
- Paraguay
- Costa Rica
- Peru
- Cuba
- Puerto Rico
- Dominican Republic
- Uruguay
- Ecuador
- Venezuela
- El Salvador
- Other (specify) _________________________

(25) Which of the following categories would you use to describe yourself? (Check all that apply)
- White-Latino/a
- Black-Latino/a (Afro-Latino/a)
- Asian-Latino/a
- Indigenous Latino/a
- Other (specify) ___________________________

(26) What is your preferred language?
- English
- Spanish
- Indigenous language (specify) ____________________________
- Other (specify) ____________________________

(27) What is your native language?
- English
- Spanish
- Indigenous language (specify) ____________________________
- Other (specify) ____________________________

(28) What is the primary language spoken at home?
- English
- Spanish
- Other, please specify

(29) Are you currently employed?
- Yes
- No

(30) Which of the following best described your work situation in the past month?
- Full time (More than 30 hours)
- Part time (Less than 30 hours)
- Paid leave (temporarily laid off, sick leave, maternity leave)
- Seasonal worker
- Looking for work
- Not employed, not looking for work
- Retired
- Disability
- Housework
- Student

(31) Last month, what was the total amount of money you and your family lived on, including public assistance (after taxes)?
○ Less than $20
○ $200-$499
○ $500-$999
○ $1000-$1999
○ $2000 or more

(32) How many people, including yourself, depend on this income? ______________

(33) How often in the past 12 months would you say you were worried or stressed about having enough money to buy nutritious meals?
   ○ Always
   ○ Usually
   ○ Sometimes
   ○ Rarely
   ○ Never

(34) How often in the past 12 months would you say you were worried or stressed about having enough money to pay your rent/mortgage?
   ○ Always
   ○ Usually
   ○ Sometimes
   ○ Rarely
   ○ Never

(35) How would you describe your health in the past three months?
   ○ Very good
   ○ Good
   ○ Fair
   ○ Poor

(36) Do you consider yourself …?
   ○ Not religious/spiritual
   ○ Somewhat religious/spiritual
   ○ Very religious/spiritual

(37) [If somewhat or very religious] What religion are you?
   ○ Baptist
   ○ Episcopalian
   ○ Jehovah’s witness
   ○ Methodist
   ○ Christian
   ○ Evangelist/Pentecostal
   ○ Jewish
   ○ Muslim
- Presbyterian
- Protestant
- Roman Catholic
- None
- Other (specify) _________________________

(38) How strongly do the beliefs of your religion/spirituality influence your life?
- Very much
- Somewhat
- Not at all

(39) Have you ever been diagnosed with COVID-19?
- No
- Yes

(40) Are you presently diagnosed with COVID-19?
- No
- Yes

(41) Have you received a COVID-19 vaccine?
- No
- Yes

(42) Have you suspected that you might have COVID-19 but were not able to get tested?
- No
- Yes

(43) Have any of your loved ones been diagnosed with COVID-19 or suspected they have it?
- No
- Yes

(44) Do you know of anyone in the city you reside in who has been confirmed to have COVID-19?
- No
- Yes

(45) What best describes the impact that the COVID-19 pandemic has had on your romantic relationship?
- Extremely positive
- Moderately positive
- Slightly positive
- Neither positive nor negative
- Slightly negative
(46) What best describes the impact that the COVID-19 pandemic has had on your mental health?
   - Extremely positive
   - Moderately positive
   - Slightly positive
   - Neither positive nor negative
   - Slightly negative
   - Moderately negative
   - Extremely negative

(47) What best describes the impact that the COVID-19 pandemic has had on your physical health?
   - Extremely positive
   - Moderately positive
   - Slightly positive
   - Neither positive nor negative
   - Slightly negative
   - Moderately negative
   - Extremely negative
Appendix B: Mindfulness Practice

(1) Below is a list of categories of practices that you may or may not have done in your life. Please select the practices you’ve done:
   - Tai-chi/qui gong
   - Yoga
   - Mindfulness meditation (for example, formal seated or walking practice with a primary focus on breathing; Vipassana; Mindfulness-Based Stress Reduction)
   - Mantra meditation (for example, transcendental meditation)
   - Devotional/spiritual meditation (for example, prayer)
   - Informal meditation practice (for example, trying to focus your attention only on certain activities, such as eating, driving, washing the dishes, etc.)
   - None of the above

(2) What are your primary reasons for engaging in the activities you chose? You can select as many options as are applicable.
   - To help manage stress
   - To change some behavior (e.g., to lose weight, quit smoking, etc.)
   - Because I enjoy it
   - Because it is related to my religious/spiritual beliefs

(3) Are you currently practicing any of the activities you selected in the previous question?
   - Yes
   - No

(4) If yes: How long have you engaged in (type of mindfulness practice)?
   - Less than a month
   - 1-3 months
   - 3-6 months
   - 7-12 months
   - 1-2 years
   - 3-4 years
   - 5+ years

(5) If yes: How often have you engaged in (type of mindfulness practice)?
   - Every day
   - Several times a week
   - Once or twice a week
   - Once or twice a month
   - A few times per year
(6) If yes to anything except informal mindfulness: How long on average does your session last?
- More than 1 hour
- 1 hour
- 45 minutes
- 30 minutes
- 10 minutes
- Less than 10 minutes

(7) If yes to anything except informal mindfulness: How is your practice supported? Select all that apply.
- CD
- App
- Self-guided
- Guided by others
- Practice in a group with guidance
- Practice in a group without guidance

(8) If yes: If you aren’t practicing as regularly as you used to, or as you would like, can you think of anything that would support you to practice more regularly? __________________

(9) If yes to formal meditation: Which practices do you do most regularly?
- Body scan
- Sitting practice
- Breathing space
- All of the above
- Other

(10) How would you describe your experiences of (type of mindfulness practice)? We understand that your experience of practice may change from day to day so please select all that apply:
- Easy
- Difficult
- Enjoyable
- Boring
- Practice reluctantly
- Practice willingly
- Interesting
- Irritating
o Relaxing
o It is what it is
o Blissful
o Ok
o Other: _____

(11) Are there any practices you dislike or find difficult, and so do not?
  o Yes
  o No

(12) If yes, which practices? _______________

(13) If no: Why are you no longer practicing (type of mindfulness practice)? Select all that apply.
  o Lack of time
  o Hadn’t formed the habit
  o I didn’t find it helpful
  o I decided it wasn’t for me
  o I felt worse during or after practice
  o Loss of teacher support
  o Loss of support of the group setting

(14) If no: Is there anything you can think of that would have supported you to continue with (type of mindfulness practice)? _______________
Appendix C: Social Media Use Frequency (SMUF)

(1) How often did you use social media (e.g., Facebook, Twitter, Instagram, snapchat, etc.) during the last month?
   o I did not at all.
   o About once a month.
   o Two to three times a month.
   o Once or twice a week.
   o Three to four times a week.
   o Nearly every day.
   o Once a day or more.

(2) Typically in a day, how many hours do you spend on social media sites? ___ Hours ___ Minutes

(3) Typically in a week, how many hours do you spend on social media sites? ___ Hours ___ Minutes

(4) Typically in a month, how many hours do you spend on social media sites? ___ Hours ___ Minutes

(5) Thinking of how many hours, you typically spend on social media in a day (total must sum to 100. What percentage of those hours would you say you spend on:
   (5a) Facebook daily?
   (5b) Instagram daily?
   (5c) Twitter daily?
   (5d) Snapchat daily?
   (5e) Tik Tok daily?
   (5f) Other (please specify)?
   (5g) I do not use social media (enter 100 here)?
Appendix D: The Bergen Social Media Addiction Scale

Each item is scored on a 5-point scale: 1 = Very rarely, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often. Higher scores indicate greater social media addiction.

(1) How often during the last year have you spent a lot of time thinking about social media or planned use of social media?
(2) How often during the last year have you felt an urge to use social media more and more?
(3) How often during the last year have you used social media in order to forget about personal problems?
(4) How often during the last year have you tried to cut down on the use of social media without success?
(5) How often during the last year have you become restless or troubled if you have been prohibited from using social media?
(6) How often during the last year have you used social media so much that it has had a negative impact on your job/studies?
Appendix E: Brief Core Schema Scales (BCSS)

This questionnaire lists beliefs that people can hold about themselves and other people. Please indicate whether you hold each belief (NO or YES). If you hold the belief then please indicate how strongly you hold it by choosing a number (1-4). Try to judge the beliefs on how you have generally, over time, viewed yourself and others. Do not spend too long on each belief. There are no right or wrong answers and the first response to each belief is often the most accurate.

Each item is scored on a 4-point scale: 1 = Believe it slightly  2 = Believe it moderately  3 = Believe it very much  4 = Believe it totally

**MYSELF**
1. I am unloved.
2. I am worthless.
3. I am weak.
4. I am vulnerable.
5. I am bad.
6. I am a failure.
7. I am respected.
8. I am valuable.
9. I am talented.
10. I am successful.
11. I am good.
12. I am interesting.

**OTHER PEOPLE**
13. Other people are hostile.
14. Other people are harsh.
15. Other people are unforgiving.
16. Other people are bad.
17. Other people are devious.
18. Other people are nasty.
19. Other people are fair.
20. Other people are good.
21. Other people are trustworthy.
22. Other people are accepting.
23. Other people are supportive.
24. Other people are truthful.
Appendix F: Five Facet Mindfulness Questionnaire (FFMQ)

Please rate each of the following statements with the number that best describes your own opinion of what is generally true for you.

Each item is scored on a 5-point scale: 1 = Never or very rarely true  2 = Rarely true  3 = Sometimes true  4 = Often true  5 = Very often or always true.

1. When I’m walking, I deliberately notice the sensations of my body moving.
2. I’m good at finding words to describe my feelings.
3. I criticize myself for having irrational or inappropriate emotions.
4. I perceive my feelings and emotions without having to react to them.
5. When I do things, my mind wanders off and I’m easily distracted.
6. When I take a shower or bath, I stay alert to the sensations of water on my body.
7. I can easily put my beliefs, opinions, and expectations into words.
8. I don’t pay attention to what I’m doing because I’m daydreaming, worrying, or otherwise distracted.
9. I watch my feelings without getting lost in them.
10. I tell myself I shouldn’t be feeling the way I’m feeling.
11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
12. It’s hard for me to find the words to describe what I’m thinking.
13. I am easily distracted.
14. I believe some of my thoughts are abnormal or bad and I shouldn’t think that way.
15. I pay attention to sensations, such as the wind in my hair or sun on my face.
16. I have trouble thinking of the right words to express how I feel about things.
17. I make judgments about whether my thoughts are good or bad.
18. I find it difficult to stay focused on what’s happening in the present.
19. When I have distressing thoughts or images, I “step back” and am aware of the thought or image without getting taken over by it.
20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
21. In difficult situations, I can pause without immediately reacting.
22. When I have a sensation in my body, it’s difficult for me to describe it because I can’t find the right words.
23. It seems I am “running on automatic” without much awareness of what I’m doing.
24. When I have distressing thoughts of images, I feel calm soon after.
25. I tell myself that I shouldn’t be thinking the way I’m thinking.
26. I notice the smells and aromas of things.
27. Even when I’m feeling terribly upset, I can find a way to put it into words.
28. I rush through activities without being really attentive to them.
29. When I have distressing thoughts or images, I am able to just notice them without reacting.
30. I think some of my emotions are bad or inappropriate and I shouldn’t feel them.
31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
32. My natural tendency is to put my experiences into words.
33. When I have distressing thoughts or images, I just notice them and let them go.
34. I do jobs and tasks automatically without being aware of what I’m doing.
35. When I have distressing thoughts or images, I judge myself as good or bad depending what the thought or image is about.
36. I pay attention to how my emotions affect my thoughts and behavior.
37. I can usually describe how I feel at the moment in considerable detail.
38. I find myself doing things without paying attention.
39. I disapprove of myself when I have irrational ideas.
Vita

Mariany Gainza Perez was born in central Venezuela to Leida Perez and Ignacio Gainza. Mariany earned her bachelor’s degree in Psychology from Southwestern University in 2014. She received minors in Sociology and Biology from the same university. Upon graduating, Mariany worked as a Registered Behavior Technician and later began working as a research assistant in the Adolescent Development and Delinquency Laboratory overseen by Dr. April Thomas at The University of Texas at El Paso. In the fall of 2018, she enrolled in the Master of Arts program in Clinical Psychology at the University of Texas at El Paso under the mentorship of Dr. Theodore V. Cooper in the Prevention and Treatment in Clinical Health Laboratory. Her first graduate study investigated the relationships between alcohol use, technology habits, and social media addiction. While in the program, Mariany has first authored 2 and co-authored 3 publications in peer-reviewed journals such as Journal of Affective Disorders, Journal of Technology in Behavioral Science, and The American Journal of Drug and Alcohol Abuse. She has also presented at various scientific conferences. Additionally, she worked as a clinical intern at the Family Service of El Paso from 2021 to 2022 where she conducted individual and couples therapy sessions. During this internship, she obtained funding through the UTEP CARES Regional Internship program. Mariany will be attending the New Mexico State University in pursuit of her Ph.D. in Counseling Psychology starting the summer of 2022.

Contact Information: magainzaperez@miners.utep.edu

This Master’s Thesis was typed by Mariany Gainza Perez