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Strengthening Mindfulness and Social Support as Psychosocial Skills; Improving First-Year Student's Adjustment into College

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Strengthening Mindfulness and Social Support as Psychosocial Skills; Improving First-Year Student's Adjustment into College

By

Raumilya Smith

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Master's Thesis

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Raumilya Smith

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Strengthening Mindfulness and Social Support as Psychosocial Skills; Improving First-Year Student's Adjustment into College

A Thesis
Presented to
The Faculty of
Western Washington University

In Partial Fulfillment
Of the Requirements for the Degree
Master of Science

by
Raumilya Smith
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Abstract

Extensive research exists regarding the challenges and risk of negative outcomes first-year students face while transitioning into college. Given that psychosocial factors predict adaptive coping and adjustment in the presence of transition stressors, this study examined the efficacy of mindfulness and social support trainings in fostering psychosocial skills and adjustment among college freshmen. Fifty Western Washington University first-year students (75.7% white, 13.5% Hispanic or Latinx, 12.2% Asian, 4.1% Black, 1.4% Native American or Alaska Native, and 9.5% multiracial) participated. Students were randomly assigned to one of the two trainings and were measured pre- and post- training on psychosocial skills (mindfulness, social support, emotion regulation) and indicators of adjustment (psychological distress, perceived stress). Neither training group showed significant changes regarding psychosocial skills, psychological distress, or perceived stress. These null findings showcase important considerations when designing trainings to improve psychosocial skills in hopes of promoting positive adjustment for first-year college students.

Keywords: adjustment, psychosocial, mindfulness, social support, stress, psychological distress

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Introduction

Fall leaves, football games, and crisp nights spent on the courtyard mark the beginning of a new collegiate academic year. First-year students navigate an unfamiliar campus, adapt to alternative social networks, and adhere to a brand-new schedule. Although colleges can provide positive opportunities for growth in identity development and life skills, students understandably struggle with the first six weeks as they transition into university life (Lopez et al., 2001). In turn, students who are in their first-year face increased risk of aversive outcomes, such as lower academic performance, greater perceived loneliness, and less willingness to engage with faculty/staff compared to their following collegiate years (Cherry & Wilcox, 2020; Meehan & Howells, 2018). However, serving to combat this risk of negative outcomes, psychosocial factors like emotion regulation, mindfulness, and social support predict overall adjustment and fewer dropout rates in undergraduate students (Conley et al., 2020; Krumrei-Mancuso et al., 2013; Mallinckrodt et al., 2022).

Emotion regulation includes being aware of a present emotion and modifying accordingly to achieve a desired goal (Gratz & Roemer, 2004; Gross, 1998). Mindfulness, the practice of attending to the present moment non-judgmentally (Kabat-Zinn, 2003), is frequently taught as not only a psychosocial factor, but also an emotion regulation strategy (Finkelstein-Fox et al., 2018; Prakash et al., 2015). When practicing mindfulness in an academic setting, issues like perceived stress, depression, and anxiety often decrease (Parcover et al., 2018) and students' academic performance, interpersonal functioning, self-efficacy, and time management improve (Dvořáková et al., 2017). Overall, these positive outcomes often reflect better adjustment in college. Therefore, mindfulness and its association with emotion regulation highlight these as two important psychosocial skills students should develop when transitioning to college.

In addition, social support refers to the instrumental (e.g., tangible items such as food), informational (e.g., guidance), and emotional (e.g., encouragement) assistance that family, friends, partners, and mentors can provide (Hefner & Eisenberg, 2009). Like mindfulness, emotion regulation plays a role in social support by optimizing interpersonal functionality through the ability to regulate one's own emotions when addressing the needs of others (Chan & Rawana, 2021; Lopes et al., 2005). When one perceives they have quality social support, outcomes like increased resilience, higher academic engagement, and more satisfaction with life usually follow suit (Butler, 2015; Zaki & Williams, 2013). Thus, mindfulness, emotion regulation, and perceived social support can all serve as indicators of adjustment (Friendlander et al., 2007; Grant-Vallone et al., 2003; Kingery et al., 2020). The purpose of this study was to investigate the efficacy of two brief psychosocial interventions in strengthening psychosocial skills (in particular, mindfulness, social support, and emotion regulation) and reducing psychological distress and perceived stress. Together, these psychosocial and mental outcomes will serve as indicators of overall adjustment as students transition into college.

Challenges in the Transition to College

The transition to college can be so challenging for some students that they are unable to continue pursuing their goals of education and personal growth. Institutional data for Western Washington University indicates that only 43% of undergraduate students admitted in 2015 earned a degree in four years or less, and only 67% earned a degree in six years or less (Office of Institutional Effectiveness, 2022). Of the 33% of students who did not complete a degree from WWU in six years, 19.6% of students did not return for a second year after their initial admission in 2020-21. Thus, the transition between the first and second year at Western seems to be a

particularly vulnerable time. These disappointing statistics reflect the daunting challenges students face while transitioning into college, specifically within the first 8-10 months.

During this transition period, many first-year students live on their own and complete tasks for the first time, such as doing their own laundry, creating their schedule, budgeting, and buying groceries (Finkelstein-Fox et al., 2018; Medalie, 1981). Students must adapt to new and alternative social support systems instead of relying on familiar ones (Awang et al., 2014; Mallinckrodt et al., 2022). Traditional college students, or students who join college immediately after completing high school and are between 18-23 years of age, also face developmental tasks common in emerging adulthood, such as constructing and exploring identities (including sexual, gender, racial/ethnic, and cultural identities), searching for meaning and purpose, and coping with feelings of instability (Arnett, 2000; Erikson, 1968; Mayseless & Keren, 2014). These unique transition and developmental stressors, in addition to the normal, demanding expectations of students (completing school projects, joining campus organizations, maintaining a high GPA), result in greater attrition rates and poorer mental health within the first year compared to later times in college (Mettler et al., 2019; Ramler et al., 2016).

Following the Covid-19 pandemic, students face these challenges on an exacerbated level with minimal access to resources that help students through this transition, such as mental health services and financial support (Wang et al., 2020). Now, university students and their professors experience the extra burden of navigating their normal learning and teaching styles through virtual spaces and technology, such as Zoom. Not only must students deal with existing stress, but they also are facing social isolation, loss of employment, general concern about Covid-19, and reduced academic opportunities (Birmingham et al., 2021; Cohen et al., 2020; Elmer et al.,

2020). Not surprisingly, increased reports of mental health problems in college students reflect the difficulty of this time in a student's life and academic career.

Mental Health Crisis

By the end of 2020, 72% of 8, 851 college students reported moderate to high psychological distress in the National College Health Assessment (NCHA). Additionally, 35% of this sample reported that their anxiety was severe enough to impact their academic performance during the past 12 months; 26% disclosed the same regarding their depression. Considering these remarkably high percentages, the novel challenges of Covid-19 clearly show their serious and concerning impact. The NCHA 2021 and 2022 surveys showed only minimal improvement with a less than 5% reduction in each of these findings compared to 2020.

Moreover, Fruehwirth et al. (2021) is one of several studies that demonstrate students of color and other marginalized identities are disproportionately impacted by pandemic-related isolation relative to their counterparts. Specifically, Fruehwirth et al. compared mental health data of first-year students attending a New Jersey 4-year institution from pre-pandemic to 4-months post-pandemic. Their findings showed the prevalence of Black first-year students experiencing moderate-severe depression increased by 90%, and rates of depression among sexual and gender minoritized students increased by 50%. Adding onto this research about marginalized students, Browning et al. (2021) examined a diverse sample of 2,140 students from seven institutions from various states (AZ, NC, SC, OR, PA, MT, & UT) and found that identifying as female, being of Asian ethnic identity, having fair/poor health, earning below-average family income, and knowing someone affected by Covid-19 are all risk factors for high psychological impact from the pandemic. Even though the Covid-19 pandemic severely

exacerbated the mental health crisis for the college student population, and even more so for disadvantaged students, similar trends began occurring beforehand.

Before 2020, college students consistently reported experiencing major mental health problems. In 2019, 67% of over 38,000 college students reported moderate to high psychological distress. Thus, depression and anxiety still negatively impacted around one-quarter of all students prior to the pandemic isolation. Over the past five years, the most prevalent mental health issues in students have been anxiety and depression, followed by attention deficit disorder, obsessive-compulsive disorders, and posttraumatic stress disorder (NCHA 2018, 2019, 2020, 2021, 2022). However, the impact of mental health disorders is often only recognized by one disorder at a time, making accurate information of the true prevalence and intersectionality of these disorders less likely. Regardless, observable consequences arise from these common psychological issues.

The mental health crisis severely impacts students' ability to succeed. Many students rely on some form of maladaptive coping strategy such as binge drinking, self-harm behaviors, substance use, sleeping, or excessive exercising to cope with their distress (Dvořáková et al., 2017). Maladaptive coping perpetuates psychological distress, and oftentimes, students who rely heavily on these strategies fall behind in their classes and receive lower GPA, need extra support, or do not return the following academic year (MacCann et al., 2011). Conversely, adaptive coping, like relying on social support and problem-solving, sustains higher academic performance and campus engagement, along with improving distress and overall satisfaction with life (Carmen et al., 2018). To counter these outcomes of poor mental health and promote healthier coping styles, universities have strived to learn more about their students' needs and implement a variety of support programs and resources. These efforts are discussed in the next section.

Institutional Support

College institutions acknowledge the mental health crisis, with 65% of 329 college mental health services requesting additional support to attend to the demand of students seeking help in 2021 (AUCCCD). Historically, colleges primarily provided resources with an aim to support students' academic success, but mental health was acknowledged secondarily or not at all (White et al., 1995). Due to the belief that stress stemmed solely from academic challenges, these remediation programs were intended to develop more effective skills for studying, time management, note taking, and organizing academic information (Schrader & Brown, 2008). Although this support can improve student performance and potentially academic stress, these resources only attend to academic deficits and do not account for the rest of the student, including their psychological and social well-being (Miller & Pope, 2003; Pascarella & Terenzini, 1991).

More recently, colleges have redefined student success, incorporating psychosocial development as another domain of this definition (Chickering & Reisser, 1993; Evans et al., 2009; Kahu & Nelson, 2018; Keyes, 2002). This psychosocial (often used synonymously with socio-emotional) model addresses students' intrapersonal (e.g., mental health, identity development, intrinsic motivation, self-efficacy) and interpersonal (e.g., quality relationships, student engagement, belongingness) development, in addition to their academic outcomes (Akoto et al., 2022; Van der Zanden et al., 2018). These psychosocial factors strongly connect to first-year students' adjustment to college by positively impacting their academic success outcomes (e.g., GPA, retention, engaged learning), reducing psychological distress, and improving physical and mental well-being (Krumrei-Mancuso et al., 2013; Pritchard & Wilson, 2003; Robbins et al., 2004). This relationship between psychosocial and academic factors

highlights why this development is critical for defining success. Keeping in line with this updated definition, colleges have also restructured their student support programs.

Now, support programs often incorporate education on psychosocial skills into their curriculum. In these learning programs, common subjects include emotional awareness, mindfulness, stress management, and effective communication for interpersonal functioning (Conley et al., 2013). As predicted by the robust evidence of linkage between psychosocial development and academic outcomes, these programs beneficially impact students. Particularly, students who enroll during their first semester of college into courses that offer psychosocial training report higher psychosocial adjustment and less academic stress, and they are more likely to return the following school year (Conley et al., 2013). Therefore, training programs are a viable option to promote psychosocial development and student success. One of the most supported topics in these trainings is emotion regulation, a skill that could share underlying processes with multiple psychosocial skills (Rueth & Lohaus, 2022).

Emotion Regulation

Emotion regulation has been conceptualized as:

> (a) awareness and understanding of emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviors and behave in accordance with desired goals when experiencing negative emotions, and (d) ability to use situationally appropriate emotion regulation strategies flexibly to modulate emotional responses as desired in order to meet individual goals and situational demands (Gratz & Roemer, 2004, pp. 42-43).

Emotion regulation skills are important for problem solving, coping, and overall better quality of life because they help to buffer the impact of stress. Individuals who use adaptive

emotion regulation skills are able to evaluate and monitor an emotional experience and can modify their emotional state to align with a desired goal. Modulation can occur upwards or downwards by using regulation strategies accordingly (Gratz & Roemer, 2004; Gross, 1998). For example, a person who wants to feel calm (goal) meditates after a stressful meeting to regulate their emotion downwards (to reduce stress). Alternatively, up-regulation is demonstrated when someone listens to rhythmic music to increase arousal (Cook et al., 2019).

However, not all emotion-regulation strategies are equally effective. Emotion regulation strategies have been classified as adaptive or maladaptive based on their effects on affect, cognition, and behavior (Aldao & Nolen-Hoeskema, 2012). Adaptive emotion regulation has weaker associations with psychopathology and stronger links to better overall-wellbeing, decreased stress, higher self-esteem, and more positive social outcomes than maladaptive regulation (Byrd & McKinney, 2012; McRae & Gross, 2020). Adaptive techniques include cognitive reappraisal (i.e., reframing how one thinks about a situation), acceptance, and problem-solving (Gratz & Roemer, 2004). Maladaptive emotion regulation occurs when one is unable to reduce the intensity of the emotions despite their intentions for reduction. Common maladaptive techniques include suppressing the outward expression of an emotion, pushing away emotional thoughts, rumination, and behavioral avoidance (i.e., purposefully avoiding stressful situations) (Gratz & Roemer, 2004). Although these maladaptive emotion regulation techniques may work short term, the unwanted emotions tend to return with greater frequency and intensity (Gross, 1998). This difference between maladaptive and adaptive coping is crucial for being able to effectively deal with negative emotions and situations. In the context of higher education, effective emotion regulation provides students a toolbox to manage the inevitable stressors that come during the first year and beyond.

Emotion regulation in colleges

Students can use emotion regulation to help navigate stressful transition factors, improve academic performance, strengthen interpersonal relationships, decrease psychopathology, and deal with daily stressors (Chacón-Cuberos et al., 2021; Stankovska et al., 2018; Thomas & Zolkoski, 2020). One common event that emotion regulation seems useful for is coping with test-anxiety, which is estimated to impact 20-35% of college students and produces high level of worry and physical discomfort (Damer & Melendres, 2011). Emotion regulation has strong negative correlations with test-related anxiety, suggesting that students with proper skills can effectively down-regulate their negative emotions to create a more conducive mental state for test-taking (Liu et al., 2021). Specifically, the emotion regulation technique that is cognitive appraisal (i.e., reframing how one thinks about a situation) is shown to predict 16-25% of test grades (Schutz & Davis, 2000). Students use this strategy to change beliefs about self-efficacy, re-assess the difficulty of the test, and reframe the importance of the test related to their overall goals, resulting in self-reports of higher confidence and lower test anxiety (Schutz & Davis, 2000). Because test-taking is common throughout college, having this skill is particularly useful for not only performance, but also reduced negative mental outcomes like stress and anxiety.

Another common experience students face is developing new social connections. Here, emotion regulation is important for communicating internal states to others and responding appropriately to other person's needs (Zaki et al., 2008). Overall, cognitive reappraisal seems to predict better social functioning than suppression, which inhibits a behavioral response of an emotion (English et al., 2012). Importantly, even though suppression predicts lower interpersonal functioning, the strategy can still be useful depending on context and the desired goal. For example, if a person wants to keep the peace with a superior, they might suppress their anger to

so that harmonious interactions remain intact (English et al., 2012). By learning how to use emotion regulation in social situations, students can form quality relationships, an area that proves to be of challenge for many students as they must rely on new, unfamiliar support systems (Wilcox et al., 2005).

Therefore, emotion regulation is a psychosocial skill that can be useful across multiple circumstances that first-year students face. Similarly, another applicable skill that can transfer across different situations is mindfulness. Although they are separate skills, connections between mindfulness and emotion regulation are commonly examined because of their similar approach strategies for observing and regulating emotions (e.g., cognitive appraisal, acceptance, and awareness of present moment experiences; Finkelstein-Fox et al., 2018). In fact, mindfulness can be used as an intervention to strengthen emotion regulation (McRae & Gross, 2020). Due to positive benefits that overlap with emotion regulation, colleges have directed focus onto mindfulness training in their socio-emotional and academic support programs (Dvořákova et al., 2017; Greeson et al., 2014; Parcover et al., 2018).

Mindfulness

Originating from Buddhist traditions, mindfulness is a common and long-standing approach for reducing suffering by experiencing the present-moment with an open and engaged attitude. Researchers study mindfulness in various ways: either at the state level, usually as a momentary outcome from practicing, or as a more stable and personal trait defined as dispositional mindfulness (Kingery et al., 2020). Either way, such awareness, acceptance, and non-judgement can reduce physical and psychological symptoms and promote other positive attitudes like satisfaction and self-compassion (Baer, 2003; Kabat-Zinn, 1990; Maex, 2011). Based on these benefits, mindfulness is an optimal intervention topic.

In interventions that teach mindfulness practices, such as mindfulness-based stress reduction and mindfulness-based cognitive therapy, attendees learn to apply a non-judgmental observance of present-moment sensations (e.g., arising thoughts and emotions) and to recognize them as mental events rather than as accurate aspects of the self (Kabat-Zinn, 1982; Teasdale et al., 1995). Treatment centers for addiction, psychological distress, and physiological symptoms have reported positive change in participants when implementing mindfulness interventions into their programs (Baer, 2003; Bishop, 2002). Furthermore, these learned skills can sustain this observed, positive change by replacing maladaptive emotion regulation with mindfulness as an adaptive coping strategy (McRae & Gross, 2020; Regehr et al., 2013). Hence, part of the success of mindfulness trainings might be due to their impact on adaptive emotion regulation.

Mindfulness and Emotion Regulation

An important component of mindfulness is the ability to regulate internal responses in the moment of arising emotional experiences. When individuals attend to and are aware of the present moment and their current emotions (through practicing mindfulness), they are more likely to engage emotion-regulation based approaches (Hayes & Feldman, 2004; Hill & Updgegraff, 2012). For example, mindful individuals who are aware of their rumination might use adaptive regulation skills like cognitive appraisal to reframe the event they are ruminating on. As a result, they limit their rumination, resulting in successful emotion regulation while increasing their awareness and engagement of the present moment (Finkelstein-Fox et al., 2018; Gross, 1998, 2014; Prakash et al., 2015). Additionally, mindfulness requires not relying on the past to define the present-moment, because doing so can cause inaccuracy when labeling emotions. Instead, mindful individuals are more in-tune with all experiences of the present-moment and therefore, take into consideration relevant information, like inner-sensations, to

accurately define an emotion (Hill & Updgegraff, 2012). Thus, not only are individuals less judgmental and nonreactive of their current experiences, but they also employ more accurate coping strategies to repair negative mood. So, mindfulness can serve as an effective regulation technique itself, or at the very least, promote correct emotion regulation strategies for intended regulatory goals (Hayes & Feldman, 2004). This relationship between mindfulness and emotion regulation suggests that mindfulness can benefit college students who experience transition stressors. Researchers know that students who use emotion regulation skills adjust in college more successfully (Chacón-Cuberos et al., 2021; Thomas & Zolkoski, 2020), so mindfulness is an optimal skill to teach students early in their college experience.

Mindfulness in College

Mindfulness practices provide university students a variety of benefits: greater emotional well-being, stronger interpersonal relationships, increased executive function, stress reduction, and better psychosocial wellbeing (Greeson et al., 2014; Ko et al., 2018). In fact, Lenz et al's (2016) meta-analysis of different stress-reduction interventions found that cognitive/mindfulness strategies were most effective for managing acute depression symptoms in students. Additionally, when Cherry and Wilcox (2020) randomly assigned students who experienced a traumatic event to either a mindfulness or control group, students in the mindfulness intervention scored higher on emotion regulation and non-judging and lower on perceived anxiety and academic stress (Cherry & Wilcox, 2020). Similar to how adaptive emotion regulation defers the use of maladaptive coping, mindfulness can also replace negative behaviors that are common in college, like binge-drinking. Multiple studies show that after attending a mindfulness intervention, students reported fewer binge drinking episodes and higher alcohol refusal self-efficacy, in addition to higher dispositional mindfulness (Mermelstein & Garske, 2015; Scott-

Sheldon et al., 2014). Regarding academic performance, students who practice mindfulness while studying or taking an exam can regulate present-moment distress more effectively. This regulation capacity allows the student to refocus their cognitive energy on the task in front of them (Davis et al., 2008). Overall, mindfulness is a useful and transferrable skill for all college students.

For first-year students, mindfulness can buffer stress related to college transitioning. Ramler et al. (2016) studied the role of trait mindfulness during first year transition and found that students who scored high on the non-reactivity and observing facets reported greater personal-emotional and social adjustment. Mettler et al. (2019) replicated this study by examining academic, social, personal, and institutional adjustment among first-year college students; the social and institutional adjustment had the strongest, positive correlations with dispositional mindfulness. Lastly, Dvořáková et al. (2017) assigned students to a 6-week mindfulness intervention or a waitlist control. Students who completed the intervention reported significantly lower levels of depression, fewer sleep issues, and less alcohol consumption within the first semester of college compared to the control group. These three studies, among other similar ones (Greeson et al., 2014; Parcover et al., 2018), indicate how mindfulness trainings can have immediate effects on mitigating student issues and can address multiple dimensions of the college transition, such as navigating new social systems, meeting expectations from the university, and managing mental health problems. Further, teaching students mindfulness can promote emotion regulation skills, healthier coping strategies, more self-empowerment, and greater perceived control of inevitable challenges (Finkelstein-Fox et al., 2018). However, the practice is often individualized, lowering the chance of feeling connected to others. Therefore,

another equally valuable psychosocial factor for first-year students to experience is social support.

Social Support

Researchers have conceptualized dimensions of social support differently over the years, but the main types of support include instrumental (tangible goods), instructional (guidance, advice), and emotional (encouragement) (Rodriguez & Cohen, 1998). Social support is most beneficial when individuals perceive they have access to each of these domains through a network of close people or resources they believe they can rely on (i.e., perceived social support). Members of a social support network can either be formal (community services) or informal (family, friends), and different members serve different functions. For example, emerging adults often rely on peer support for social integration and self-worth, and they commonly experience emotional support and intimacy through familial support (Barry et al., 2009). Therefore, perceiving multiple sources of social support increases accessibility to different types of support that in turn produces benefits like positive mental health and resiliency.

Social support serves as a protective factor due to its ability to buffer negative psychological health outcomes (Hefner & Eisenberg, 2009). Thus, if two individuals have similar levels of psychological distress, but differing levels of perceived social support, the individual who feels they have more support will be more likely to experience fewer and less frequent negative outcomes related to their distress (e.g., increased risk of cardiovascular disease, repetitive worry, suicidal ideation). Additionally, greater perceived social support is associated with less perceived stress, lower cortisol levels (Hawkley et al., 2006), better recovery from serious mental illnesses (Chronister et al., 2013; Thomas et al., 2016), greater resilience (Ozbay et al., 2008; Sippel et al., 2015), and higher self-esteem (Thoits, 1995). Especially critical in the

Covid-19 pandemic lockdown, Li et al. (2021) found that across all ages, social support was a moderator between resilience and mental health. Specifically, high levels of social support buffered the impact of low levels of resilience on mental health in individuals between the ages of 18-85, highlighting another protective role of social support. These benefits pertain to high levels of perceived social support, but low levels of perceived social support produce unfavorable outcomes.

Perceived isolation, or low levels of perceived social support, worsens depressive symptoms, impulsivity, and sleep, along with other mental and physical health problems (Cacioppo et al., 2002). Increased systolic blood pressure and morbidity are examples of physical manifestations of loneliness (Hawkley et al., 2006). In addition, Cacioppo and Cacioppo (2014) describe how self-preservation is impacted the most from loneliness, causing biological, cognitive, behavioral, and social consequences. They explain further that individuals often experience hyper-vigilance to social threats when lonelier. This leads to confirmatory biases previously held about their perceived isolation, and these individuals withdraw from groups in response to these confirmatory biases to keep consistent with their beliefs. This cyclical process takes a toll on a person's mental health, self-beliefs, interpersonal functioning, and ability to cope effectively (Cacioppo & Cacioppo, 2014). Therefore, if an individual feels isolated, support needs to come quickly to minimize consequences.

Social Support and Emotion Regulation

Zaki and Williams (2013) claim that emotion regulation must be interpersonal because relying on and giving social support is an important component of regulating one's own and other's emotions. In fact, social buffering, or simply the presence of another person, can down-regulate aversive emotions (Schacter, 1959). In the past decade, the term *interpersonal emotion*

regulation (IER) became more familiar and is used to define how one pursues emotional goals through social processes (Butler, 2015; Williams et al., 2018). Similar to how an individual uses emotion regulation in solitude (or intra-personally), an individual recognizes the current positive or negative emotion, and then uses a strategy to modify the emotion's intensity or frequency to meet a desired goal. Though in IER, individuals draw on others as resources when in pursuit of this regulatory goal (Zaki & Williams, 2013). Hofmann et al., (2016) identified four dimensions that people utilize others to regulate their emotions: (1) enhancing positive affect (i.e., seeking out others to increase positive emotions), (2) perspective-taking (i.e., seeking out others to be reminded of others' experiences and to not worry), (3) soothing (i.e., seeking out others to find comfort and compassion), and (4) social modeling (i.e., seeking out others to see how they regulate their emotions within a similar situation).

As a relatively new framework (formally coined in 2013), limited research on IER and its four dimensions exist and has yielded somewhat mixed results. Chan and Rawana's (2020) study examined the connection between the four dimensions of IER and psychosocial adjustment (internalization of symptoms, well-being, and interpersonal functioning were measured to determine psychosocial adjustment) in emerging adults between the ages of 18-29 years old. They found that those enhancing positive affect and perspective-taking predicted greater psychosocial adjustment, whereas soothing and social modeling predicted poorer psychosocial adjustment. This study indicates that different IER strategies may vary in their ability to attenuate psychosocial factors of adjustment.

With partly contradicting results, Ray-Yol et al., (2020) examined the relationship between psychological distress and the four dimensions of IER. Here, soothing only predicted better psychological distress in individuals who frequently relied on other maladaptive coping

strategies, but not when individuals regularly used adaptive coping. Contrary to Chan and Rawana's (2020) findings, social modeling was negatively correlated with depression, and enhancing positive affect and perspective-taking were not correlated with anxiety or depression (Ray-Yol et al., 2020). Regardless of the limited and mixed support on IER, emotion regulation will inevitably involve social support components at times (Schacter, 1959), but specific social mechanisms remain unclear. Potentially, social support offers additional avenues through which an individual can express and regulate their emotions. This connection between social support and emotion regulation can offer students more regulation strategies and at the same time, provide opportunities to reap social support benefits, ultimately impacting their emotional and social adjustment (English et al., 2012)

Social Support in College

Social support is widely viewed as a key factor in student success on college campuses. Arguably the most notable research to emphasize this is Tinto's theory of college student persistence vs. departure (1975; 1987), positing that students are more likely to stay enrolled (i.e., persist) if they feel socially and academically connected. Since this theory was published, substantial bodies of research continue to replicate these findings across many demographics and categories of students. Friedlander et al. (2007) found that social support helps students, especially while transitioning, adjust to college across social, personal, emotional, and academic domains. When students have a network of people throughout their first academic year, they are more likely to achieve a higher GPA, experience higher levels of satisfaction with college, and engage with professors and professional organizations -- all of which promote retention (Grant-Vallone et al., 2003; Mattanah et al., 2010). For students of color, who often face additional

challenges due to systemic barriers, social support proves to be even more vital for successful adjustment.

Social support disproportionately benefits students of color while simultaneously benefitting white students, such that Latinx students were six times more likely to stay enrolled when involved in an academic organization compared to their involved white peers (Baker, 2013). However, social support for minoritized students and non-traditional students can look different than their counterparts because they often have more off-campus ties and responsibilities that minimizes their on-campus connections and engagement. Nonetheless, these off-campus connections are just as important for minoritized students to maintain, especially for many students of color where "back home" has cultural significance (Baker & Robnett, 2012). Museus & Maramba (2011) found that continuing these ties to their cultural community is positively correlated with adjustment. Relatedly, informal types of support seem to be the most effective source of social support to buffer every-day stress in minoritized students (Constantine et al., 2003; Wang & Casteñada-Sound, 2009). For example, Wang and Casteñada (2009) found that perceived family support predicted lower stress, and more perceived friend support predicted lower psychological symptoms in first-generation students. These findings do not minimize the need for institutional support for marginalized students, but rather underscore the cultural importance of relying on their close relationships for supporting addition to formal institutional sources of support.

When institutional support is culturally appropriate, it is a large predictor of social-belonging and adjustment, especially when the campus displays cultural relevance (i.e., the degree to which environments are relevant to students' cultural backgrounds and identities) and cultural responsiveness (i.e., the degree to which institutions effectively respond to the needs of

their culturally diverse students). In one study, such factors determined 68-69% of variation in perceived belonging (Museus, et al., 2017). Additionally, in their follow-up study, holistic support (i.e., access to a campus agent that the student was confident could provide information and support) had the strongest relationship to belonging for students of color and white students (Museus et al., 2019). Because students of color, students of first-generation status, students of low SES, disabled students, students who are sexual and gender diverse, and students of international status are all at greater risk for social isolation and lower quality social interactions on campuses (Hefner & Eisenberg, 2009), universities must support and encourage diverse types of social support to continue improving student adjustment and mental health problems across all demographics of students. Not only will more students benefit through varying types of support, but so will the university from learning about different lived experiences, creating a safer sense of belonging on campus, and retaining more students.

The Current Study

Psychosocial factors, such as emotion regulation, mindfulness, and social support have overlapping mechanisms, and therefore, benefits related to student adjustment. Specifically, these factors help students psychologically and socially adjust by reducing psychological distress and perceived stress. Given the existing body of research, the purpose of this study was to investigate the effects of two brief psychosocial interventions, administered separately on two, randomly assigned groups of undergraduates in their first quarter of enrollment at Western Washington University. One group participated in a 90-minute psychoeducational intervention designed to enhance mindfulness skills. The second group participated a 90-minute psychoeducational intervention designed to teach about the importance of social support, identify types and sources of support, and discuss strategies for finding and maintaining support,

including from the training group members themselves. We assessed both groups on three occasions: (a) pre-test, before the training intervention; (b) post-test, within three days of the training intervention; (c) follow-up, six-weeks after the trainings. Measures of mindfulness and social support were administered to both groups to serve as a manipulation check on the effectiveness of training. Each group was expected to improve on pre- to post-test for the particular focus of its training – but not improve on the focus of training for the other group. At each of the three time points, the following dependent variables were measured: (a) psychological distress symptoms, (b) difficulties in emotional regulation, and (c) perceived stress.

The primary hypotheses of this study were: (1) Mindfulness training will increase mindfulness skills, but not social support from pre- to post-test; (2) Social support training will increase perceived social support, but not mindfulness from pre- to post-test; (3) Mindfulness training will reduce psychological distress, reduce difficulties with affect regulation, and reduce perceived stress from pre- to post-test, and sustain reduction at follow-up; (4) Social support training will reduce psychological distress, reduce difficulties with affect regulation, and reduce perceived stress from pre- to post-test, and sustain reduction at follow-up.

Method

Subjects

To allow a margin for subject attrition, data that could not be matched across time-points, and random/inattentive responding, 100 undergraduate participants were solicited from SONA, an online participant pool. The only inclusion criteria were that participants were attending their first academic year at WWU, without any prior enrollment at a 4-year university. Students who transferred from prior community college education were still eligible, provided they were

attending a 4-year university for the first time during the quarter that the study took place. They also had to be enrolled into a course that required SONA participation (i.e., a class where research participation was mandatory) so that they could receive research credit as part of their compensation. We asked participants questions regarding their demographics (gender/racial identity, age) and generation status (first-generation) to get an accurate depiction of WWU's population.

A total of 74 students provided pre-test data. The participants were almost all 18 years of age (M = 18.75, SD = 2.53, range = 18-35). The sample consisted of 48 (65%) female identifying participants, 15 (20%) male identifying participants, and 7 (9%) non-binary participants. Additionally, there was one gender fluid participant, and three who preferred not to answer. Regarding race/ethnicity, participants were able to select multiple racial identities; 75.7% identified as white, 13.5% identified as Hispanic or Latinx, 12.2% identified as Asian, 4.1% identified as Black, 1.4% identified as Native American or Alaska Native, and 9.5% identified as multiracial. First generation students comprised 18.9% of our sample (14 first-generation, 56 continuous generation, 4 not certain). The entire sample was attending their first year at Western Washington University.

Procedures

At the beginning of Fall quarter in late September, as students were transitioning to campus, the study's pre-test was posted on SONA along with a description and overview of the entire study (specifically, that there would be a training followed by two additional surveys in addition to the pretest). Students were informed about the inclusion criteria, given a brief explanation of the training topics, and instructed that they must complete all prior components of the study before they are eligible to partake in the next component (e.g., the participant had to

complete the pre-test before being able to sign up for the training, the participant had to complete the pre-test and receive attendance credit for the training to be able to answer the post-test survey, etc.). To ensure this requirement, the training sign-up and the post and follow-up surveys had pre-requisites enabled and managed through SONA.

The consent form was given at the beginning of each survey collection point and stated the purpose of the study, how long that particular study component was expected to take, anticipated risks, the security of their data, and compensations for participating (0.5 credit for each of the 3 surveys, 1.5 credits for attending the training, and a $15 Starbucks gift card for completing all four components). Students were made aware that participation was completely voluntary throughout the entire duration and each component of the study and that if they chose to drop out of the study, they would still receive credit for each completed portion of the study without penalty. Participants provided their name as the link to match their data across multiple components and to sign into the training. These names were kept in a confidential, password-protected file that only the main researcher had access to. After all data collection time points were completed, the participants' names were deleted and replaced with their anonymous participant ID given by SONA's random ID generator. These IDs were deleted after data analysis.

The second component of the study involved the mindfulness and social support trainings. Once participants took the online pre-test, they were eligible to sign up on SONA for the in-person training. With high attrition from the pre-test (61%), 56 participants signed up and were randomly assigned to either the mindfulness (n = 28) or the social support (n = 28) training. Participants were notified by email their assigned training group, location, date, and time. To

keep consistency and minimize confounds, trainings were scheduled during the same week, in the same classroom, and at the same time on both days. Both trainings were 90 minutes in length.

The group sizes were also very uneven; more participants attended the social support training (n = 38) than the mindfulness one (n = 12). The post-test responses included 25 social support participants and 6 mindfulness participants. This unequal attendance could have occurred due to posting both training dates in the study's description on SONA. The intention for posting both training dates was so that participants could make sure their schedule allowed for participation. Although emails were sent out assigning participants to their specific training, participants might have seen the social support date on SONA and attended this training instead.

After participants completed their intervention, they received an email three days later with a reminder that they were now eligible to complete the post-test survey on SONA. The post-test survey was open to responses up to 10 days after the training. Finally, on November 10, the follow-up survey was posted to SONA and a reminder to participate in the follow-up study was sent to participants with instructions that this component had to be completed by November 20. Once the final questionnaire was completed by the participant, they received a debriefing statement letting them know about the purpose of the study and information listing additional student resources on campus. They also were told when and where they could pick up their $15 Starbucks gift cards.

Trainings

The main researcher and their advisor facilitated the trainings on mindfulness and social support, which were 90 minutes each. For the mindfulness training, the facilitator alternated between the psychoeducational lesson, a variety of different mindfulness practices, and provided chances for participants to briefly describe their mindfulness experience. two graduate students

in the Experimental Psychology program helped facilitate these discussions. The lesson, which used education material from Mindfulness Northwest, covered a brief overview on the Buddhist origins of mindfulness and how the more recent, popularized, secular version came to be. The lesson also included empirical short term and long-term benefits of the practice, connections to negativity bias and self-compassion, and physiological processes that mindfulness can promote. The three practices used during the training were taken from two mindfulness apps, Calm and Insight Timer. The first one explored different homebases (i.e., a point or sensation to focus attention on); participants practiced sustaining their attention on their breath, a physical sensation of the body, a sound, and a visible object in the room. The second practice used the R.A.I.N. method, in which participants were instructed to recognize, allow, investigate, and nurture an emotion they were experiencing with a compassionate, nonjudgmental attitude. Lastly, the third practice was a body scan that guided participants to attend to and notice how different parts of their body felt. After each practice, a quick 5-minute discussion or writing session ensued so that the participants could verbalize or write their experiences with the practices.

For the social support training, students listened to a 30-minute educational lesson and afterwards, engaged in an hour of discussion with 5-6 other participating students. In the lesson, the facilitator highlighted different types of social support (e.g., reassurance of worth, reliable alliance, guidance, etc.) along with common sources (e.g., family, friends, mentorships) to obtain these types of support. Students learned the important distinction between objective and subjective (or perceived) social support to understand why they might feel potential unalignment when relying on how many social connections they have versus feelings of belongingness or loneliness as they assess their social support status. The facilitator discussed why college is particularly challenging for students, especially for marginalized students, to experience

perceived social support and described transitional stressors, changes to routine, and structural barriers that limit social opportunities as specific and concrete reasons to consider. The facilitator brainstormed with the entire group and provided strategies to address these challenges, such as ways to optimize interpersonal functioning, spaces to meet new people on campus, possible conversation topics, and the importance of mindset when meeting new people. Afterwards, the students broke into small groups of 5-6 to discuss their own challenges and successes when meeting new people in college so far. Each group member thought about personal strategies for seeking support and created an individual, realistic support-building plan for themselves with help and guidance from the rest of their group. The groups were encouraged to share their contact information with each other if comfortable, so that participants could leave with potential connections from this training.

Measures

The pre- and post-test along with the follow-up survey were accessible online via SONA but linked and distributed through Qualtrics. The following contains the measures that each data collection timepoint included, which can also be referenced in Table 1:

Mindfulness

The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) contains 39 items and is often used to measure mindfulness in daily life. This measure was chosen for its sensitivity to change, which is desirable in an experimental, repeated measure design, along with its ability to measure mindfulness as a multifaceted construct. Respondents use a 5-point Likert-type scale anchored by 1 (Never or very rarely true) to 5 (Very often or always true). Five factors are included in the measure: observing ("I pay attention to sensations, such as the wind in my hair or the sun on my face"), describing ("I have trouble thinking of the right words to express

how I feel about things"), acting with awareness ("I find myself doing things without paying attention"), non-judging of inner experience ("I think some of my emotions are bad or inappropriate and I shouldn't feel them"), and non-reactivity to inner experience ("I perceive my feelings and emotions without having to react to them"). We used the overall composite scores to analyze reliability because subscales were not individually assessed as explained in the Results section. Therefore, in the present sample, the overall Cronbach's alpha was .75 and .78 for total FFMQ scores at pre- and post-test, respectively.

Social support

The original Interpersonal Support Evaluation List (ISEL; Cohen et al., 1985) consists of 40 items, however, the ten items comprising the self-esteem scale were excluded in the present study. The three remaining subscales are Appraisal ("When I need suggestions on how to deal with a personal problem, I know someone I can turn to"), Belonging, ("When I feel lonely, there are several people I can talk to") and Tangible "If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.)"). The Likert scale ranges from 1 (definitely false) to 4 (definitely true) and higher scores correspond to greater social support. For the present sample, the overall Cronbach's alpha was .85 and .84 for pre- and post-test, respectively.

Affect Regulation Deficits

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item self-report measure developed to assess clinically relevant trait-level self-reported difficulties with emotion regulation. Items are assigned to six subscales: Nonacceptance of emotional responses (6 items, e.g., "When I'm upset, I become angry at myself for feeling that way"); difficulties maintaining behavior and cognition directed toward achieving Goals when

upset (5 items, e.g., “When I’m upset, I have difficulty getting work done”); Impulse Control difficulties (6 items, e.g., “When I’m upset, I become out of control”); lack of emotional Awareness (6 items, e.g., “I pay attention to how I feel” reverse scored); lack of affect regulation Strategies (8 items, e.g., “When I’m upset, I believe there is nothing I can do to feel better”); and lack of emotional Clarity (5 items, e.g., “I have difficulty making sense out of my feelings”). Participants are asked to indicate how often each of the 36 items applied to them on a 5-point frequency scale ranging from 1 (almost never) to 5 (almost always). Higher scores indicate greater affect regulation deficits. In the present study, internal reliability (coefficient alpha) of DERS was .92 at pre-test and .94 at post.

Psychological Distress Symptoms

The Outcome Questionnaire 30.2 (OQ-30; Lambert et al., 2004) is a widely used 30-item measure of psychological symptoms of distress and overall functioning. The measure is designed to be sensitive to change over a brief period. Thus, it is often administered multiple times over the course of treatment in counseling. Although the OQ-30.2 is not divided into sub-scales, the items cover various types of functioning, including social role functioning, interpersonal functioning, and subjective discomfort. Examples items are “I am not working/studying as well as I used to”, “I feel stressed at work, school, or other daily activities”, and “I am satisfied with my relationships with others.” Respondents use a 5-point frequency response scale (0 = never, 1 = rarely, 2 = sometimes, 3 = frequently, and 4 = almost always), where higher scores indicate more distress. In the current study, α was .89 at both pre- and post-test.

Perceived Stress

The Perceived Stress Scale (PSS; Cohen, et al., 1983) was developed to assess global appraisals of stressful situations occurring during the past month. The 10-item scale uses a five-

point response format (1 = never, 2 = almost never, 3 = sometimes, 4 = fairly often, 5 = very often) to respond to statements like “In the last month, how often have you found that you could not cope with all the things that you had to do?” and “In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?”. The internal reliability in the present study was .81. and .86 at pre- and post-test, respectively.

Results

Preliminary Analyses

Missing value analysis revealed that 97% of all pre-training cases (73 of 75) contained no missing data, and 97% of post-training cases (30 of 31) contained no missing data whatsoever. Of all values in all variables before training, only 0.021% of data was missing (2 cells of 9,525), and at post-training 1.03% (42 cells of 4,064). Therefore, all participant responses were included in analyses regardless of missing data, and mean substitution was used for the small number of missing data cells. The sample size at the pre-test was $n = 74$ but dropped to $n = 31$ at post-test, and $n = 26$ at follow-up. Of the 56 participants who attended one of the two trainings, only 31 (62%) provided posttest data. Post-tense responses included 26 participants from the social support group and 4 participants from the mindfulness group; follow-up responses dropped to 22 and 4, respectively. Due to minimal follow-up responses, this time-point was dropped and not included in the rest of data analysis. Please see the flow chart of participant sign-up, participation, and attrition in Figure 1.

The unequal group sizes violated the assumption of homogeneity of variance according to Tabachnick and Fidell’s 4:1 ratio, which is mentioned in their well-regarded protocols for handling data (2016). Our group size imbalance was larger, with a ratio of 25:6. Before making decisions on how to address this violation, data was inspected for other assumptions of normality

and outliers. Skewness and kurtosis of all pre- and post- measures were not statistically significant. Box plots did not indicate any significant univariate outliers. Mahalanobis distances were calculated for each independent variable (pre-test measures of mindfulness, social support, emotion regulation difficulties, perceived stress, and psychological distress) and compared against a chi-square distribution. There were no significant multivariate outliers at the $p < .001$ level. Independent t-tests were computed to assess statistical differences on any of the baseline measures between the mindfulness and social support groups. The two randomly assigned groups did not differ significantly on any of the pre-test measures. The pre-test means, along with post-test means, for each group are displayed in Table 2. Independent T-tests were also conducted to detect attrition bias. Although T-tests indicated that participants who completed post-test data did not significantly differ in baseline scores compared to those who dropped out after baseline data collection, a significant Levene's test showed a violation to homogeneity of variance regarding mindfulness scores between these two groups, $F = 5.87$, $p < .05$. However, because all distributions of the data looked normal and no outliers were detected, the rest of the statistical analyses were conducted without any transformations to the data and significant results were interpreted with caution.

Test of Hypotheses

Hypothesis 1: Mindfulness training will increase mindfulness skills, but not social support from pre- to post-test.

Hypothesis 2: Social support training will increase perceived social support, but not mindfulness, from pre- to post-test.

Two separate 2 (time: pre-test, post-test) x 2 (training group: mindfulness and social) support) mixed factorial analysis of variance models were conducted to test whether the specific

training group participants attended significantly improved their corresponding post-test scores in comparison to their respective pre-test scores. The first analysis for mindfulness did not indicate a significant main effect of training group on mindfulness, $F(1, 30) = 1.56$, $p = .22$, $\eta_p^2 = .049$, no significant main effect of time on mindfulness, $F(1, 30) = .003$, $p = .96$, $\eta_p^2 = .00$, and no significant interaction between time and training group on mindfulness, $F(1, 30) = .02$, $p = .88$, $\eta_p^2 = .00$. Similarly, the second repeated measures analysis for social support did not indicate a significant main effect of training group on social support, $F(1, 30) = .39$, $p = .54$, $\eta_p^2 = .01$, no significant main effect of time on social support, $F(1, 30) = .23$, $p = .64$, $\eta_p^2 = .01$, and no significant interaction between time and training group on social support, $F(1, 30) = .01$, $p = .93$, $\eta_p^2 = .00$. Therefore, neither of the first two hypotheses were supported, such that the mindfulness training did not increase mindfulness post-test scores and the social support training did not increase social support post-test scores. However, although not significant, when looking at the means of the pre- ($M = 2.99$, $SD = .58$) and post-test ($M = 3.02$, $SD = .47$) scores of social support in those who participated in the social support training, social support scores increased slightly after training. This pattern did not emerge for mindfulness scores of those who attended the mindfulness training, where the mindfulness means from pre- ($M = 3.14$, $SD = .22$) to post- ($M = 3.13$, $SD = .33$) barely decreased and stayed relatively the same after training. However, these small differences in means cannot be interpreted because no significant differences were detected when tested.

Hypothesis 3: For the group receiving mindfulness training, increase in mindfulness from pre-test to follow-up will be associated with reduced psychological distress, and reduced difficulties with affect regulation.

Hypothesis 4: For the group receiving social support training, increase in social support from

pre-test to follow-up will be associated with reduced psychological distress, and reduced difficulties with affect regulation.

Because the first two hypotheses were not supported, no differences in mindfulness or social support measures were used to predict our outcome measure variables, psychological distress, affect regulation, and perceived stress directly. In other words, given the lack of support for Hypotheses #1 and #2, testing Hypotheses #3 and #4 was not justifiable. Instead, three additional 2 (time: pre- and post-test) x 2 (training group: mindfulness and social support) analyses of variances were conducted to look at main effects of time, training group, and the interaction between time and training groups on difficulties in emotion regulation, perceived stress, and psychological distress. For emotion regulation, there was no significant main effect of time, $F(1, 30) = .02$, $p = .88$, $\eta_p^2 = .00$, no significant main effect of training group, $F(1, 30) = 2.74$, $p = .11$, $\eta_p^2 = .08$, and no significant interaction between time and training group, $F(1, 30) = .01$, $p = .94$, $\eta_p^2 = .00$. When perceived stress was examined as the outcome, there was no significant main effect of time, $F(1, 30) = .91$, $p = .35$, $\eta_p^2 = .03$, no significant main effect of training group, $F(1, 30) = .06$, $p = .81$, $\eta_p^2 = .00$, and no significant interaction between training group and time, $F(1, 30) = 1.08$, $p = .31$, $\eta_p^2 = .04$. Lastly, time did not have a significant effect on psychological distress, $F(1, 30) = .60$, $p = .45$, $\eta_p^2 = .02$, training group did not have a significant effect on psychological distress, $F(1, 30) = 1.08$, $p = .31$, $\eta_p^2 = .04$, but there was a significant interaction between time and training group on psychological distress, $F(1, 30) = 4.65$, $p = .04$, $\eta_p^2 = .14$. See Table 2 for the results of the 2x2 ANOVAs conducted for all outcome variables including mindfulness and social support scores.

To understand this interaction, simple effects analyses were conducted using a Bonferroni adjustment. The analysis indicated that post- psychological distress scores were not significantly

lower for participants in the mindfulness group (M = 1.23, SE = .18) than the social support group (M = 1.54, SE = .09), p = .124, 95% CI [-.091, .713]. Interestingly, individuals in the social support group scored higher, on post-test (M = 1.54, SE = .09) than pre-test (M = 1.46, SE = .08), but not significantly, p = .13, 95% CI [-.18, .02]. In contrast, individuals in the mindfulness group scored lower, but not significantly, on their post-test (M = 1.23, SE = .18) than their pre-test (M = 1.39, SE = .17), p = .11, 95% CI [-.04, .36]. Because these simple effects were not significant, this significant interaction was treated as a type 1 error that emerged from our unequal group sizes. See Figure 2 for a graph representing this interaction.

Discussion

Colleges are beginning to focus on ways to promote the psychosocial development of students as soon as arrive on campus, because factors beyond academic-related ones can promote successful adjustment emotionally, socially, and academically in first-year students (Savitz-Romer et al., 2015; Van der Zanden et al., 2018). The primary aim of this study was to examine the efficacy of two common psychosocial interventions for improving psychosocial skills and overall student adjustment. The interventions focused on either mindfulness or social support, which were 2 of the measured psychosocial skills. Emotion regulation served as the third skill because of its underlying mechanisms with the other two skills (Prakash et al., 2015; Zaki & Williams, 2013). Psychological distress and perceived stress represented indicators of emotional adjustment. The interventions took place separately during one week of the participants' first quarter at Western Washington University.

Mindfulness and Social Support

Contrary to hypothesized expectations, we found no evidence that these interventions increase mindfulness or social support. Regarding the mindfulness intervention, this finding

contrasts a considerable amount of evidence showing how students display more mindfulness after partaking in related trainings and education (Dvořáková et al., 2017; Parcover et al., 2018; Ramler et al., 2016). This discrepancy could perhaps be due to the short length of this study's mindfulness intervention. Creswell's 2017 meta-analysis found that mindfulness interventions typically ranged from a minimum of 3-4 days to several months, whereas our intervention only took place once for 90 minutes. Another important consideration is that the facilitator of this study's mindfulness intervention is not a mindfulness expert and did not have long-term experience leading mindfulness trainings. According to Kabat-Zinn (2003), the facilitator should have extensive practice specifically with providing appropriate energy that matches the group they are leading, displaying authenticity, and explaining how this training is ultimately relevant daily life. The mindfulness practices were pre-recorded and were conducted by different facilitators; therefore, the participants might have not connected to the pre-recordings as much as they would in the presence of a real guide. Altogether, the finding that mindfulness training did not increase mindfulness could be due to the short duration of the training, lack of experience from the facilitator, and the use of pre-recorded audios for guided mindful practices.

For the social support training, contextualizing its insignificant effect on adjustment or social support outcomes in relation to past literature is difficult, as not many experimental studies exist for testing the efficacy of social support interventions on increasing perceived social support and adjustment in first-year students. Mattanh et al. (2010) conducted one of the few recent experimental social support studies, in which they used peer-led support programs to successfully produce greater social adjustment for participating students. However, these programs lasted for 9 weeks and were led by undergraduate students who completed courses on relationship building, basic counseling skills, and group facilitation. This intervention differs

from our 90-minute training that was led by a counseling professor. Their study's findings indicate that perhaps the lack of training duration and the facilitator's professional role in the university could have contributed to this study's null findings. An advantage of having an undergraduate student facilitate the training group is how they endured the first-year transition and challenges not long before current freshmen. This proximity in time might strengthen the relatability and trust between the facilitator and students. Additional research should examine how the positionality of the facilitator could affect the efficacy of social support interventions. Overall, our findings were inconclusive for answering whether such interventions increase mindfulness and social support, but we still wondered whether these interventions impacted emotion regulation, perceived stress, and psychological distress.

Changes in Emotion Regulation, Perceived Stress, and Psychological Distress

In addition to the null effects of the interventions on mindfulness and social support, the current results indicated that the interventions were also unsuccessful in fostering emotion regulation and psychological adjustment. Specifically, students' emotion regulation and perceived stress, relative to baseline, did not change after they participated in the mindfulness or social support training. Additionally, the intervention groups did not significantly differ from each other in psychological distress after training and neither group showed significant improvement in psychological distress from baseline to post-training. However, a significant interaction appeared between time and training group for psychological distress scores. When we investigated this interaction by conducting a post-hoc analysis, the simple effects of training group and time on psychological distress scores did not significantly differ. Thus, this significant interaction could be a Type 1 error, preventing any further conclusions until future research replicates this study with equal and larger group sizes. These mixed results related to

psychological factors of adjustment and emotion regulation are inconsistent with findings from other studies that have investigated the effects of mindfulness and social support in first-year college students.

Much of the existing literature highlights the importance of psychosocial interventions for greater social and emotional adjustment in college students during transition. For example, Kingery et al. (2020) conducted a correlational study that is similar to this current study. The authors examined facets of dispositional mindfulness (DM) and sources of social support and their relation to psychological adjustment into college. They found that *nonreactivity* and *nonjudging* facets of DM (based on the FFMQ) predicted better psychological adjustment. Additionally, they found that social support from peers and family predicted greater social adjustment. Although this study has been one of the few to link these factors together, other studies that have separately studied mindfulness (Dvořáková et al., 2017; Finkelstein-Fox et al., 2018; Ramler et al., 2016) and social support (Friedlander et al., 2007; Grant-Vallone et al., 2003; Mattanah et al., 2010) in the context of student transition have echoed these findings, suggesting these socio-emotional trainings improve overall adjustment and reduce distress. This contradiction between preceding research and our study's results might be due in part to the limitations of this study.

Limitations and Their Related Future Directions

There are several major limitations to this study. First, as mentioned earlier in the discussion, the length of the training groups is a limitation. The duration and frequency of an intervention seems to significantly impact the short- and long-term effects; however, a range of time for duration of an intervention exists within the literature. Time should be explored more to

establish a baseline for how short an intervention can last while still providing significant benefits for adjustment.

Another limitation occurred after students were given the two training dates during sign-up to help assure their availability. This led to the opportunity of students requesting one training date over the other. Therefore, although students were initially randomly (and evenly) assigned to the two interventions, several students assigned to the Thursday, mindfulness group switched their attendance to the social support group on Tuesday for scheduling reasons. As a result, true random assignment did not take place. This violation to a true experiment might have impacted the internal validity of this study, such that accounted variability was lost when students were allowed to switch training group. Next time, we would be inclined to hold both trainings on the same date, at the same time, with one facilitator in the mindfulness group and another facilitator in the social support group. Psychology or counseling graduate students could provide additional help. This way, time would not be a contributing factor to unequal group sizes.

In addition to group-size differences, our overall sample size was low, and we had major attrition from pre-, to post-, to follow up time points that further lowered statistical power. Therefore, the external validity of the study was also impacted, and any results concluded from analyses would have a low chance of being reflective of the true population. Future studies should investigate ways to minimize attrition in college students, as Parcover et al. (2018) and Remler et al. (2016) also struggled with obtaining post- and follow-up data after intervention. Perhaps, studies can explore ways of implementing these interventions more seamlessly into the first-year college experience to reap the benefits of longer trainings without disrupting student life. If students were required during their first term to enroll in courses with similar curriculum to the interventions of this study – but more elaborated and extensive, students will have more

accessibility and contact with these skills without the additive load to their schedule, potentially increasing the chance of their willingness to use the skills after the course and engage in follow-up questionnaires.

Several other limitations affect this study's ability to examine student transition. First, we did not have direct indications of how students generally felt about their transition and had to rely on more indirect, subjective indicators like self-reports of psychological distress, perceived stress, and use of socio-emotional skills. We also did not collect information on objective indicators such as GPA, involvement with extracurricular activities, and further need for mental health services. This data would have complemented the self-report measures and provided a well-rounded insight into the student's success with adjustment.

Additionally, the sample was recruited from a predominantly white university, and thus it is unclear whether any results obtained would be able to generalize to other populations of students. This study did not account for many of the unique stressors students of color face, such as cultural mismatch, low access to social support networks, less institutional support, and discrimination from their peers and faculty. Although exploratory analyses were planned to examine differences in training outcomes based on first-generation status and racial identity, the low sample size and insignificant results did not allow for this opportunity. By asking questions addressing these challenges in a larger sample with more students of color, the data could have contributed to the fuller understanding of different types of transition experiences and the diverse array of needs students hold.

Future Research

Beyond addressing the limitations and potential solutions for the current study, the discrepancy between previous findings and the results of this study might suggest other

important considerations when designing interventions that foster student adjustment the first year. One important direction future research should consider is how to make these interventions culturally appropriate and fitting for all students. Studies have distinguished clear differences in obtaining social support between students of color and their white peers (Baker, 2013; Farmer-Hinton, 2008). Despite these findings, colleges often promote and educate students on social support strategies that are beneficial for white students but ignore the unique ways that those with less social capital and differing cultural realities both seek and receive social support. For example, colleges often discuss the value of having relationships with faculty for academic and career success, and white students are often more successful at making these connections than students of color. However, faculty and researchers must acknowledge that students of color often feel less safe when reaching out to faculty that do not represent their cultural identity, especially at predominantly white institutions (Lundberg & Schreiner, 2004). By placing this pressure of creating professional connections onto all students without recognizing barriers for minoritized students, colleges will fail to provide equitable and culturally appropriate guidance and support for their students. Similarly, mindfulness has recently been examined with consideration to different demographics and backgrounds (Lenes et al., 2020; Sun et al., 2022). These findings suggest that people of different religions, culture, and ethnicity benefit from and enjoy different forms of the practice (Li et al., 2019; Palitsky et al., 2022; Womack & Sloan, 2017). Designing interventions from a multicultural approach rather than a "one size fits all" lens can attend to more students and their diverse experiences and needs.

Future studies can also examine the logistics of students practicing these socio-emotional skills by applying a social ecological framework (Bronfenbrenner, 1979). This perspective would place these socio-emotional interventions in the context of not only the student, but the

university and the higher education system as a whole. Although educating students on these skills is clearly beneficial and needed, the responsibility for practicing and maintaining these skills is not solely up to them. Universities need to provide spaces for students to be able to implement these skills in their daily lives with as much ease as possible. By identifying barriers against the regular implementation and practice of these skills that universities hold, researchers can begin to suggest changes that will promote more long-term usage, and therefore, sustained student success.

Conclusion

Socio-emotional skills such as emotion regulation, mindfulness, and social support have been linked in other research to positive student adjustment, reduced distress, and academic success during their first and subsequent years at university. Our data did not offer supporting evidence to parallel this literature; specifically, we did not observe changes in psychological indicators of adjustment, emotion regulation, mindfulness, or social support among students participating in either a mindfulness or social support intervention. Psychological distress differed between training groups from before and after, but clearly needs additional investigation with a larger sample size. All together, we call upon future research to identify methodological standards and multi-cultural approaches for implementing interventions for first-year students during their already stressful and busy daily lives as they adjust to transitioning into college.

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Figure 1

Flowchart for enrollment, randomization, and attrition

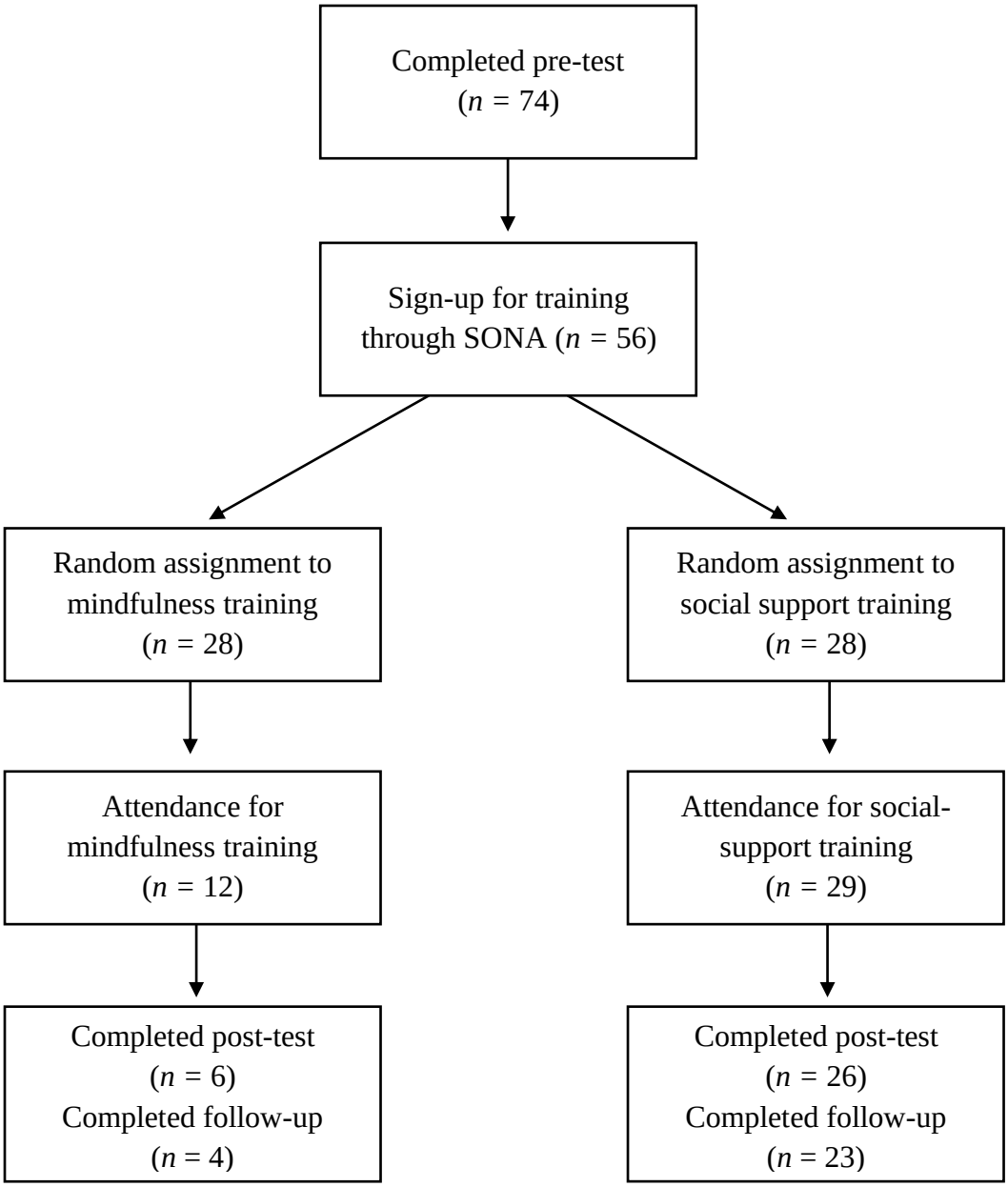

Table 1:

Measures included in pre-, post-, and follow-up surveys with their reliability

Measure	Construct	# of items	Item example	Pre- Test α	Post-Test α
FFMQ	Mindfulness	39		0.75	0.78
Awareness			"I find it difficult to stay focused on what's happening in the present."		
Non-judging			"I make judgments about whether my thoughts are good or bad."		
Observing			"When I take a shower or bath, I stay alert to the sensations of water on my body."		
Non-reactivity			"I perceive my feelings and emotions without having to react to them."		
Describing			"I'm good at finding words to describe my feelings"		
ISEL	Social Support	30, originally 40		0.85	0.84
Tangible			"If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.)."		
Appraisal			"There is someone I can turn to for advice about handling problems with my family."		
Belonging			"If I decide one afternoon that I would like to go to a movie that evening, I could easily find someone to go with me."		
DERS	Emotion Regulation	36		0.92	0.94
Difficulty engaging in goal-directed behavior			When I'm upset, I have difficulty getting work done		
Nonacceptance of emotional responses			"When I'm upset, I become angry with myself for feeling that way."		
Impulse control difficulties			"When I'm upset, I become out of control."		
Lack of emotional awareness			"When I'm upset, I acknowledge my emotions."		
Lack of emotional clarity			"I have difficulty making sense out of my feelings."		
Limited access to emotion regulation strategies			"When I'm upset, I believe that there is nothing I can do to make myself feel better."		
OQ 30.2	Psychological Distress	30	"I feel hopeless about the future."	0.89	0.89
PSS	Perceived Stress	10	"In the last month, how often have you felt that things were going your way?"	0.81	0.86

Table 2:

Pre- and post-test means of all outcome variables

	Mindfulness (*n* = 6)				**Social Support** (*n* = 26)			
	Pre		Post		Pre		Post	
Outcome variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Mindfulness	3.14	.22	3.13	.33	2.98	.26	2.98	.31
Social Support	2.83	.72	2.89	.57	2.99	.58	3.02	.47
Emotion Regulation	2.35	.49	2.33	.59	2.76	.58	2.75	.59
Perceived Stress	1.97	.72	1.78	.74	1.81	.47	1.82	.56
Psychological Distress	1.39	.46	1.23	.52	1.46	.41	1.54	.41

Note. The means only include cases who had both pre- and post-test data.

Table 3:

ANOVA results including within and between group variables for each outcome variable

Outcome variable	*SS*	*df*	*MS*	*F*	*p*	η_p^2
Mindfulness						
(Intercept)	364.21	1	364.21	2472.90	<.001	.99
Training group	.23	1	.23	1.56	.22	.05
Time	541800	1	541800	.003	.96	.00
Training group*Time	.00	1	.00	.02	.88	.00
Social Support						
(Intercept)	334.33	1	334.33	608.07	<.001	.95
Training group	.21	1	.21	.39	.54	.01
Time	.01	1	.01	.23	.64	.01
Training group*Time	.00	1	.00	.01	.93	.00
Emotion Regulation						
(Intercept)	253.55	1	253.55	415.48	<.001	.93
Training group	1.67	1	1.67	2.74	.11	.08
Time	.001	1	.001	.02	.88	.00
Training group*Time	.00	1	.00	.01	.94	.00
Perceived Stress						
(Intercept)	131.84	1	131.84	242.22	<.001	.89
Training group	.03	1	.03	.06	.81	.00
Time	.07	1	.07	.91	.35	.03
Training group*Time	.09	1	.09	1.08	.31	.04
Psychological Distress						
(Intercept)	76.36	1	76.36	230.42	<.001	.89
Training group	.36	1	.36	1.08	.31	.04
Time	.02	1	.02	.60	.45	.02
Training group*time	.14	1	.14	4.65	.04*	.14

***** p<.05

Figure 2:

Interaction between Time and Training Group for Psychological Distress