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# The Influences of the Mindfulness Ambassador Program on Graduate Students

Varsha Vasudevan,

Supervisor: Irwin, Jennifer D., *The University of Western Ontario*
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# Abstract

The two-fold primary purpose of this pilot study was to: (1) explore, qualitatively, the influence of the Mindfulness Ambassador Program (MAP) on graduate students' experiences of stress and their relationship with themselves and meaningful others; and (2) investigate, quantitatively, if participation in the MAP elicited changes in graduate students' levels of stress, self-awareness, interpersonal skills, and/or social connectedness. The secondary purpose of this study was to gain an understanding of graduate students' satisfaction with the MAP. This one-group mixed-method study utilized a brief demographic questionnaire, open-ended questions, semi-structured interviews, two MAP-specific program questionnaires, the Perceived Stress Scale, the Situational Self-Awareness Scale, and the Social Connectedness Scale-Revised. Data analysis involved thematic analysis, computing descriptive statistics, and paired $t$-tests. Participants reported various stress-related, intrapersonal, and interpersonal benefits from their MAP participation, and they found the MAP highly satisfactory. This information can be used to support future well-being programming tailored to graduate students.

*Keywords*: mindfulness, graduate students, perceived stress, self-awareness, interpersonal skills

## Summary for Lay Audience

Graduate students are faced with numerous demands and stressors, which can negatively impact their wellbeing. Mindfulness training is associated with enhanced wellbeing including stress reduction and improved relationships. We explored the influences of the Mindfulness Ambassador Program (MAP) on nine graduate students' experiences of stress and their relationships with themselves and meaningful others, and investigated if participation in the MAP elicited changes in graduate students' levels of stress, self-awareness, interpersonal skills, and/or social connectedness. We also explored graduate students' satisfaction with the MAP. For data collection, qualitative (open-ended survey questions and semi-structured interviews) and quantitative (demographic questions, two MAP-specific program questionnaires, and three validated tools) approaches were employed. Before the program, participants reported moderate to high levels of stress with regard to keeping up with their responsibilities, internal conflict, difficulty connecting with meaningful others, and seeing oneself as a work in progress. Post-program, participants described better stress management and lower perceived stress, increased consideration for themselves and others, feelings of connection with others, and their experience with the MAP offering. Participants also reported statistically significant positive changes to their perceived stress levels, private self-awareness, awareness of immediate surroundings, and social connectedness. This study adds to existing research using the MAP. The findings from this study can be used to inform future mindfulness-based interventions for graduate students.

## Co-Authorship Statement

Specific study objectives and research questions were developed by Varsha Vasudevan, Dr. Jennifer Irwin, and Benjamin Tran. The study was conducted by Varsha Vasudevan with the support of Dr. Jennifer Irwin, Benjamin Tran, Dr. Shauna Burke, and Dr. Trish Tucker.

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MINDMAP

**Table of Contents**

MINDMAP

# List of Tables

MINDMAP

## List of Figures

## List of Appendices

**Chapter 1: Introduction and Literature Review**

Graduate students face numerous demands that often include, but are not limited to: engaging in thesis/dissertation research; research and teaching assistantships; coursework; and navigating relations and power dynamics between and among undergraduate students, peers, course instructors, and supervisors (Offstein et al., 2004). While a common perception is that graduate students have had sufficient time in academia to have acquired strategies for success, they are typically faced with greater responsibilities compared to those encountered during undergraduate studies (Arnold, 2014). Graduate students are, on average, older than most undergraduates, and because their degree-related responsibilities tend to span several years, these responsibilities are sometimes undertaken while shouldering additional financial, time, and relationship commitments associated with having and supporting a family (Arnold, 2014).

Researchers have found stress to be at the centre of graduate students' experiences (Offstein et al., 2004). In 2019, 86% of graduate students surveyed in the United States felt overwhelmed by everything they had to do (American College Health Association [ACHA], 2019). In the same year, 48.9% felt more than an average amount of stress, and about 15% felt a tremendous amount of stress (ACHA, 2019). In a recent Canadian study of graduate students in psychology ($n = 62$), 33.87% of participants reported problematic stress levels (Park et al., 2021). High stress levels are associated with an increased likelihood to engage in unhealthy behaviours, such as poor diet and low exercise levels (Hudd et al., 2000). Reduced self-esteem and negative impacts on physical health are also typical outcomes of high stress (Hudd et al., 2000; Shankar & Park, 2016). Moreover, graduate students are susceptible to imposter syndrome, which can be associated with perfectionism (Henning et al., 1998). Perfectionism can impact academic success and skew self-awareness (Cokley et al., 2015; Cowie et al., 2018).

Although interpersonal relationships are valuable for stress management, perfectionism can damage these relationships, further contributing to feelings of stress (Hewitt & Flett, 1991). As graduate students are often expected to collaborate with others on research projects, strained interpersonal relations may be problematic for students' wellbeing. Graduate students represent future leaders and as students, they contribute to the quality and quantity of teaching and research at their institutions; it would be advantageous for institutions to invest in and support graduate students' wellbeing (Offstein et al., 2004). One such investment might be offering mindfulness training.

Mindfulness is "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). Mindfulness promotes consciousness; however, many of our day-to-day activities occur subconsciously (Bargh & Ferguson, 2000). Subconscious patterns may give rise to detrimental habits, where individuals resort to automatic reflexes when responding to a stressor (e.g., lashing out at someone rather than providing a calm response; Brown & Ryan, 2003). Mindfulness encourages individuals to choose their responses by being present, and this conscious attention is associated with cognitive and emotional wellbeing (Baumeister et al., 1994). Intrapersonal benefits of mindfulness include improved self-insight and fear mitigation (Davis & Hayes, 2011). Being mindful can also be protective against distress from interpersonal conflict (Davis & Hayes, 2011). Moreover, being in the present moment has been associated with benefits such as regulation of emotions (Chambers et al., 2008; Corcoran et al., 2010), adaptive responses to stressful situations (Cahn & Polich, 2006), fear modulation (Siegel, 2009), and better immune function (Grossman et al., 2004).

From the introduction above, it is clear that graduate students are a population whose wellbeing requires attention. To more thoroughly explore graduate students' stress experiences and the potential for mindfulness as a useful intervention, the following literature review will begin with a working definition of 'stress' and will then expand upon and contextualize graduate students' levels of stress, self-awareness, interpersonal skills, and their intra- and inter-personal relationships. The role that mindfulness meditation could have on these areas will also be explored, culminating in the purpose statement for this research.

**Stress and Graduate Students**

*Stress* can be defined as "the physiological or psychological response to internal or external stressors. Stress involves changes affecting nearly every system of the body, influencing how people feel and behave" (American Psychological Association, n.d., para. 1). The *stressors* that create the stress response can be real or perceived threats to oneself (Cohen et al., 1983). Stress is a complicated phenomenon, as there is both positive (eustress) and negative stress (distress; Selye, 1956). While eustress has a positive impact on a person, such as enhancing feelings of motivation (Pavithra & Sivakumar, 2020), distress implies psychological and/or physiological strain (Boswell et al., 2004). In the short-term, the stress response can be beneficial to a person, as it enables the pathways for a fight-or-flight response, used to protect oneself from and escape dangerous situations (Dhabhar, 2014). However, stress can also have deleterious effects on the body. For example, there are several physiological and psychological outcomes associated with stress including, but not limited to: muscle tension (Lundberg et al., 1994, 1999), headaches (Martin & Soon, 1993; Passchier & Orlebeke, 1985), motivation difficulties (Lazarus et al., 1952), drug or alcohol abuse (Sinha et al., 2007), angry outbursts (Sprague et al., 2011; Zhan et al., 2017) and sleep problems (Drake et al., 2004). Long-term stress can also lead to

reduced immunity, cardiovascular issues, damage to the hippocampus (the part of the brain which plays a role in memory and pain perception), and the death of nerve cells found in the brain (Juster et al., 2010; McEwen, 2001, 2004). Some of the deleterious effects on the body often present differently at different stages of life, such as learning impairments in a child from prenatal stress of the parent, depressive disorder in adulthood, and memory impairments in older life (Lupien et al., 2009). (Please note, hereafter in this document the term *stress* will be used in reference to negative stress and its associated deleterious stress responses [i.e., *stress* and *distress* will be used interchangeably]).

As outlined above, high stress is a pervasive experience by graduate students as they navigate a multitude of demands (ACHA, 2019; Offstein et al., 2004). In addition to the physiological and psychological challenges that result from excessive stress as mentioned above, the association between stress and diminished academic performance is particularly relevant to graduate students (Sohail, 2013; Stewart et al., 1999), especially since the onset of the COVID-19 pandemic. Under 'normal' (i.e., non-pandemic) circumstances, being a university student is often a stressful time (Abouserie, 1994; ACHA, 2019). The pandemic-associated increase in uncertainty about school and work, for example, has recently heightened students' stress levels beyond that during 'normal' times (von Keyserlingk et al., 2022). In a recent study of graduate students in Canada ($n = 315$) conducted by Suart and colleagues (2021), participants reported that they felt frustrated by the unclear and inconsistent communication they were receiving during the shutdown experience regarding the status of access to their labs, as well as feeling frustrated that their projects were abruptly halted, revised, or needed to be restarted. Respondents of the same study also indicated that feelings of anxiety and/or depression (either new-onset or worsened existing conditions) were major barriers to being productive while working on their

degree requirements home (Suart et al., 2021). Various experiences of self-reported symptoms of distress were also measured among the participants in the study while they were working from home, with participants selecting the response option lowered productivity, difficulty focusing on tasks, and trouble getting out of bed being the most persistent symptoms of distress (Suart et al., 2021). Stress impacts various facets of life for a graduate student, and interventions aimed at stress reduction may serve to prevent many of the negative health outcomes related to stress.

### *Stress Management Strategies for University Students*

The intention of this section was to provide an exhaustive list of evidence-based strategies for stress reduction among graduate students. However, because the published literature focused on stress management within graduate students alone was sparse, the population of interest was broadened to focus on evidence-based, stress reduction strategies applicable to the university setting and age group more broadly. As such, given the plurality of journal articles found from the broadened search, what follows is an overview of several approaches with evidence for reducing stress in the university setting and/or age group, accompanied by a selection of specific studies that exemplify each strategy's relevance to the university student population. Thereafter, mindfulness-based meditation (the specific focus of this thesis research) and its suitability specific to graduate students' stress is discussed.

**Biofeedback.** Biofeedback is a mind-body practice whereby individuals use equipment to become more aware of and learn how to modify their physiology (e.g., modulating muscle tension, breathing, and heart rate) to improve health-related outcomes (Frank et al., 2010; Ratanasiripong et al., 2010, 2015). Benefits of biofeedback include cost-effectiveness, portability, and accessibility (Ratanasiripong et al., 2010). Biofeedback can be delivered by a certified biofeedback practitioner or it can be administered by an individual using commercially-

available biofeedback equipment (Ratanasiripong et al., 2010). In a study conducted by Ratanasiripong and colleagues (2015), a four-week biofeedback program ($n = 60$) was used to see if there were any changes to the perceived stress levels of graduate nursing students in Thailand compared to a control group. A significant decrease in self-reported stress scores were seen post-intervention compared to pre-intervention for the biofeedback group, whereas the control group saw a slight increase in the stress scores post-intervention (Ratanasiripong et al., 2015).

**Canine-Therapy.** Canine-therapy, a form of animal-assisted therapy, for university students involves having community volunteers bring dogs to campus and allowing students to interact with them (Barker et al., 2016; Binfet, 2017). One hundred and thirty-one students who attended a pet therapy event at a university in the United Kingdom were recruited to have their self-reported stress and blood pressure levels measured before and after a 15-minute interaction with therapy dogs (Wood et al., 2018). Forty-four percent of participants demonstrated a statistically significant positive change in their perceived stress levels following the intervention (Wood et al., 2018). The participants also had a statistically significant reduction in their blood pressure post-intervention (Wood et al., 2018). Binfet (2017) conducted a study at a Canadian university with first-year students ($n = 163$) and found that students in the intervention group (who received a single 20-minute visit with dogs) reported significantly lower self-reported perceived stress levels compared to the control group.

**Kindness.** In 2017, undergraduate students at a Canadian university ($n = 107$) participated in voluntary and intentional random acts of kindness (i.e., extending positivity to others without the expectation of receiving something beneficial in return) over a three-week period leading up to the end of the course (Paviglianiti & Irwin, 2017). A questionnaire

completed 15 weeks after the end of the course was designed to collect data about students'

experiences with the project and their levels of stress. In addition to qualitative descriptions of

the stress-reducing impacts of participating in the project, approximately 60% of participants

reported a retrospective reduction in their levels of negative stress (Paviglianiti & Irwin, 2017).

**Stress and Mindfulness-based Interventions among Graduate Students**

Mindfulness-based stress reduction (MBSR) is a widely researched group-based program

focused on supporting individuals through mindfulness as a means of reducing stress and

managing emotions (Bishop, 2002; Kabat-Zinn, 1982; Kabat-Zinn et al., 1998; Kabat-Zinn &

Hanh, 2009; Khoury et al., 2015). MBSR has its foundations in Buddhist principles; however,

the program is typically offered in a secular and non-esoteric way (Grossman et al., 2004; Kabat-

Zinn, 2011). Additionally, MBSR began in a clinical setting for individuals experiencing medical

illness, having been launched at the University of Massachusetts in 1979, but has since been

delivered among individuals who are unwell and healthy alike (Ghawadra et al., 2019; Kabat-

Zinn, 1982; Khoury et al., 2015). These programs have been extensively researched and

outcomes associated with MBSR include reduced ruminative thoughts, as well as increases in

empathy and self-compassion (e.g., Baer, 2003; Bishop, 2002; Chiesa & Serretti, 2009;

Ghawadra et al., 2019; Grossman et al., 2004; Kabat-Zinn, 2003; Khoury et al., 2015; Kriakous

et al., 2021). Relevant to this research study, MBSR has been found to be associated with lower

levels of both perceived stress and overall psychological distress among medical and graduate

students (Cohen & Miller, 2009; Rosenzweig et al., 2003; Shapiro et al., 1998, 2005, 2007).

Shapiro and colleagues (2007) investigated the influence of MBSR among graduate students

enrolled in a counselling psychology program in the United States ($n = 83$). The 22 participants

in the intervention group were taught techniques, such as sitting meditation, body scans, Hatha

yoga, loving-kindness meditations, and strategies to incorporate mindfulness techniques into daily life. MBSR was associated with significant decreases in participants' perceived stress levels (Shapiro et al., 2007). Tarrasch (2014) found that using a mindfulness meditation training program yielded decreases in perceived stress levels among graduate students in teaching and counselling in Israel (*n* = 19) over two semesters. During the fieldwork component of their training, participants in this study were also required to teach what they learned from their mindfulness course to children in elementary school (Tarrasch, 2014). Many of the participants in Tarrasch's (2014) study reported that they were more self-aware of the state of their mindfulness practice while teaching and holding certain expectations for the children's mindfulness practices.

The above-mentioned studies demonstrate that graduate students self-reported decreased perceived stress levels while participating in two different types of mindfulness-based interventions with different components (Shapiro et al., 2007; Tarrasch, 2014). The components of these interventions could be used in other mindfulness-based interventions to potentially produce similar stress-mitigating effects. It is clear that perceived stress levels among graduate students can be mitigated by mindfulness-based programs; however, awareness of the stress one is experiencing may be an important antecedent. Increased self-awareness is a common outcome of mindfulness-based training (Vago & David, 2012). Self-awareness can influence a person's relationship with themselves (*intrapersonal*), often resulting in enhanced self-compassion (Davis & Hayes, 2011). Mindfulness has also been associated with improvements in *interpersonal* relationships (Davis & Hayes, 2011). Together, these mindfulness-focused attributes might help to ease graduate students' experiences of stress, as discussed further below.

**Self-Awareness, Relationship with Oneself, and Self-Compassion**

Self-awareness, an integral component of mindfulness, can be described as "knowledge about the self" (Brown & Ryan, 2003, p. 823). Graduate students may struggle with their self-awareness in various ways, including experiencing imposter syndrome (Clance & Imes, 1978; Clance & O'Toole, 1987), which can be defined "as the experience of intellectual fraudulence or phoniness among high achievers" (Cokley et al., 2015, p. 415). Since the perceived accomplishment status of individuals with imposter syndrome is less than their actual accomplishment status, these individuals often place lofty expectations on themselves which can, in turn, be associated with frustration, low self-confidence, and perfectionism (Clance & Imes, 1978; Cokley et al., 2015). Moreover, individuals experiencing high levels of imposter syndrome may also experience a low perception of their academic self-concept, which refers to "a student's attitudes, feelings, and perceptions of [their] academic abilities or skills" (Cokley et al., 2015, p. 416). If graduate students have unrealistic perceptions of the self (i.e., in this case, academic self-concept) it could interfere with their academic success (Cokley et al., 2015). According to Cokley and colleagues (2015), how strongly a student identifies with academia plays a contributing role in their academic success.

Evidence suggests that mindfulness practices could play a role in supporting academic growth, such as by helping students better manage academic stressors (Shapiro et al., 2007). A person's self-awareness influences their relationship with themselves, and mindfulness-based interventions have the potential to improve this relationship. Specific to graduate students, this improved intrapersonal relationship can help them to develop the necessary attributes to support their management of academic stressors (Shapiro et al., 2007). For instance, a graduate student participating in a study outlined above by Tarrasch (2014) described a benefit they experienced from engaging in the mindfulness intervention as, "I eventually reached more complex thoughts

and feelings about myself" (p. 1,328). A change in self-compassion was a finding from the same study, which stemmed from the participants' ability to observe their thoughts (Tarrasch, 2014). Self-compassion can be described as treating oneself nonjudgmentally and with self-kindness in the face of distress or failure, while also understanding that these experiences are part of the human experience (Neff, 2003a). Having a balanced view of one's good and bad emotions instead of hyper-focusing on the bad emotions is important for self-compassion (Neff, 2003a, 2003b). Neff (2003a) proposed that to be self-compassionate, one must first be mindful. Therefore, mindfulness and self-compassion are inextricably related. Not surprisingly then, increased self-compassion after completion of a mindfulness-based intervention is a consistent theme in the literature (Shapiro et al., 1998, 2005; Willgens & Palombaro, 2019). Moreover, Shapiro and colleagues (2005) found that participants ($n = 38$; healthcare professionals in the United States) who participated in an MBSR program reported greater life satisfaction.

   Individuals who have high levels of self-compassion are less likely to utilize escape-avoidance strategies for coping, which is a maladaptive form of coping where individuals disengage, deny, or avoid stressful experiences (Allen & Leary, 2010; Neff et al., 2005). In fact, Neff and colleagues (2005) found that among undergraduate students who perceive an exam grade as a failure, there is a negative association between self-compassion and avoidance-oriented coping strategies. Avoidance-orienting coping can lead to suppression of thoughts; however, it has been documented that suppression of unwanted thoughts can backfire and instead, lead to more unwanted thoughts (Rassin, 2003; Wegner, 1989). As disappointment may be a normal part of graduate school (e.g., not being awarded a scholarship or receiving challenging feedback from supervisors), adaptive forms of coping would be important for the student to meet their potential.

**Interpersonal Skills and Relationships with Meaningful Others**

Interpersonal skills and relationships with meaningful others overlap in the literature; thus, they are presented together in this section. Interpersonal skills can be thought of as mechanisms used by an individual to maintain their relationships with others (Knapp & Daly, 2011). Interpersonal skills are essential for life, as all humans require social connection (Dijksterhuis, 2005). Examples of interpersonal skills include "effective communication, empathy, active listening, and cultural competence as well as professionalism" (Skinner et al., 2016, p. 22). Arguably, all of the aforementioned examples are relevant to a graduate student's day-to-day responsibilities. For instance, strong communication skills are required by graduate students when corresponding with supervisors, professors, peers, and undergraduate students enrolled in courses for which they might provide teaching assistance. Mindfulness and strong communication work in tandem – responding thoughtfully to another individual requires paying close attention to what that individual is saying, and inherent to mindfulness is being present in the current moment (Bishop et al., 2004). Therefore, mindfulness could be used as a tool to help build graduate students' communication skills, thereby helping to support their success in several facets of their graduate responsibilities.

Empathy is an interpersonal skill that can be described as the ability to vicariously experience the feeling of another person's emotions, which can help build connection among individuals (Eisenberg & Strayer, 1990). Researchers studying the effects of a mindfulness-based program on medical students in the United States ($n = 78$) found that there were significant increases in the participants' empathy scores post-mindfulness intervention (Shapiro et al., 1998). The authors of the study speculated that the mindfulness program might have provided an opportunity for the participants to develop better listening skills and more compassionate

outlooks on the lives of themselves and others, which would greatly benefit both the participants

and their future patients (Shapiro et al., 1998). Similarly, Cohen and Miller (2009) conducted a

study with graduate psychology students in the United States ($n = 21$) using an interpersonal

mindfulness training program, which was adapted from the standard MBSR program. Cohen and

Miller (2009) found that their mindfulness-based intervention was associated with a positive

impact on the participants' scores of perceived stress levels, social connectedness, and emotional

intelligence, which refers to "the ability to monitor one's own and others' feelings and emotions,

to discriminate among them and to use this information to guide one's thinking and actions"

(Salovey & Mayer, 1990, p. 189). The authors of the study also noted that the positive impact on

participants' interpersonal wellbeing was especially important for graduate students in

psychology, as they were in a position to interact with many individuals requiring support for

their mental health (Cohen & Miller, 2009).

### *The Relationship among Interpersonal Skills, Resilience, and Burnout and Its Impacts on Graduate Students.*

With graduate students often needing to juggle many different relationship dynamics,

bolstering their interpersonal skills through mindfulness-based interventions could help to

improve their resilience and prevent burnout (Cohen & Miller, 2009). Resilience refers to an

individual's ability to recover from a stressful situation, or "bounce back" (Smith et al., 2008, p.

1). Given stress is a mainstay of graduate students' experiences (Offstein et al., 2004), and

prolonged stress taxes resilience and can lead to burnout (defined in detail below; Compas, 2006;

Lloyd et al., 2002), shoring up graduate students' resilience is essential for their wellbeing and

success in school. For example, although not specific to graduate students, in a study of medical

students in the United States ($n = 792$), only 36.6% of respondents were deemed resilient,

meaning they were not experiencing burnout at either of the two time points of the study (Dyrbye

et al., 2010). It seems positive interpersonal interactions can help mitigate this 'burnout'

experience.  To this point, in their study of social work students in the United States ($n$ = 144 for

bachelor's level students; $n$ = 170 for master's level students), Wilks (2008) reported that social

support from family and friends positively influenced students' resilience levels. Moreover, in a

study of 86 university students in the United States, Cohn and colleagues (2009) found a

statistically significant correlation between resilience and everyday positive emotions.

Burnout refers to a prolonged stressful experience as a result of one's work, characterized

by: (1) overwhelming exhaustion; (2) feelings of cynicism and detachment from work; and (3)

feeling a lack of accomplishment or inefficacy with regard to work (Maslach & Leiter, 2008).

The stressful nature of graduate students' lives puts them at risk for burnout (Boren, 2013;

Kovach Clark et al., 2009). For instance, in a recent study by Allen and colleagues (2021) who

assessed stress and burnout and their impacts on sleep among graduate students in the United

States ($n$ = 2683), students responded with a mean score of 2.7 (standard deviation [$SD$] = 1.4),

out of six possible points for the exhaustion component of a burnout tool, where zero means

never and six mean always. Students also scored 1.9 ($SD$ = 1.4) on the cynicism component and

1.6 ($SD$ = 1.0) on the inefficacy component of the burnout tool (Allen et al., 2021). According to

a systematic review conducted by Salvagioni and colleagues (2017; $n$ = 36), burnout is

associated with a host of negative outcomes such as absenteeism, type 2 diabetes,

hypercholesteremia, sustained fatigue, and coronary heart disease. Through their scoping review

($n$ = 27 studies), Bullock and colleagues (2017) found that graduate students in healthcare

professional programs experienced higher levels of burnout compared to peers their age or to the

general population. Moreover, it was found that burnout could be negatively associated with

healthcare-focused graduate students' professionalism and empathy (Bullock et al., 2017). As described in the aforementioned findings, interpersonal relationships can have a mediating effect on resilience and burnout; however, graduate students are simultaneously at risk for strained interpersonal relations through imposter syndrome and perfectionism which places them at risk of experiencing inadequate interpersonal support (Cokley et al., 2015; Hewitt & Flett, 1991). Sverdlik and colleagues (2020) studied 831 Doctoral students in Canada and found that their perceptions of belonging in academia negatively predicted feelings of imposter syndrome. This indicates that Doctoral students with imposter syndrome may be more likely to have strained interpersonal relationships within their scholarly community.

### COVID-19 and its Impact on University Students' Interpersonal Connections

Having institutional support and interpersonal connections are associated with positive outcomes for university students (e.g., psychological wellbeing, positive daily mood; Bowman, 2010; Garriott & Nisle, 2018; LaMastro, 2001; Pike et al., 2012). However, a recent study found the COVID-19 pandemic contributed to a strained relationship between some university students and their institutions, such as feeling disappointed with their experience due to the necessary COVID-19 public health protections (e.g., Vaterlaus et al., 2021).  Additionally, the authors of the same study found many university students experienced feelings of loneliness while attending university in the Fall of 2020 (during the first year of the pandemic), and feelings of disconnect from their peers and professors (Vaterlaus et al., 2021). It stands to reason that students' fears for themselves and others and the isolation experienced during the pandemic have all contributed to strains in their interpersonal relationships. That said, even though isolation contributes to this strain, students have reportedly embraced the importance of following the public health recommendations to limit the spread of COVID-19, such as by self-isolating and

wearing face masks (Appleby et al., 2022; Barrios et al., 2021), reflecting high levels of intra-

and, especially *inter*-personal consideration. For instance, in a study involving undergraduate

students in Canada ($n = 3013$) in June 2020, the respondents were more concerned about passing

COVID-19 onto others or their family and friends becoming infected (64% and 74.9%

respectively), compared to respondents' fear of catching COVID-19 themselves (Appleby et al.,

2022). The trend seen among undergraduate students in Canada with regard to concern for

others' health and safety was consistent with responses from undergraduate students from a

university in the United Kingdom ($n = 339$) as part of the same study (Appleby et al., 2022).

Moreover, 90% of respondents from the Canadian institution reported closely following the

government-initiated COVID-19 regulations (Appleby et al., 2022). Despite the negative feelings

conveyed by the participants of Vaterlaus and colleagues' (2021) study, it is clear from Appleby

and colleagues' (2022) study that university students recognized the severity of COVID-19 as a

threat, prioritized the necessary protections to prevent the spread, and were concerned for the

wellbeing of their meaningful others. The experience of being a graduate student during the

COVID-19 pandemic has underscored heightened relationship strains between students and their

academic institutions, feelings of loneliness, disconnection, and isolation (Appleby et al., 2022;

Vaterlaus et al., 2021). The extent to which these experiences will be reversed once the pandemic

ends remains unknown; therefore, a mindfulness-based intervention aimed at university students

could be both beneficial and timely.

The above review of the literature indicates mindfulness approaches seem to be relevant

to stress management, intra- and inter-personal relationships, and levels of self-awareness and

interpersonal skills among several populations. Although a paucity of research specific to

graduate students' experiences of mindfulness approaches exist, this review points to the likely

relevance to graduate students, which forms the interest for this research study. The review will now focus on a mindfulness-based intervention that has not yet been discussed and formed the intervention for this thesis research project.

**The Mindfulness Ambassador Program (MAP)**

*The MAP Objectives and General Overview*

Mindfulness without Borders (Mindfulness Without Borders [MWB], n.d.) is an organization that has been evaluated to offer an evidence-based approach to topics such as social awareness, relationship building, and addressing stressors (Kim et al., 2022; MacDougall et al., 2018; Roach et al., 2019; Smith-Carrier et al., 2015). The approach, developed by MWB, is known as the Mindfulness Ambassador Program (MAP), and the objective of the MAP is for:

> participants of all ages [to] experience a range of secular mindfulness practices and strategies that enhance their capacity to live in the present moment. They learn to hold space for reflection, forge deeper connections with themselves and everyone around them. They explore their talents and gifts. They ask questions. They build a repertoire of resources to help them develop as knowledgeable, responsible and caring citizens. (MWB, n.d., para. 2)

The MAP is a 12-session program that covers the following topics: (1) Mindfulness Basics; (2) Paying Attention; (3) Discovering Inside; (4) Connecting Authentically; (5) Practicing Gratitude; (6) Mind-Body Connection; (7) Emotional Intelligence; (8) Noticing Emotional Triggers; (9) Exploring Open-Mindedness; (10) Handling Conflict Skillfully; (11) Nurturing Compassion; and (12) Being the Change (Smith-Carrier et al., 2015). The 12 sessions of the MAP can be tailored to the group being offered the program (i.e., the duration of one session can be longer than intended and another session shorter based on the group's needs; B.

Tran, personal communication, September 30, 2021). The MAP has been used for high school

students (Smith-Carrier et al., 2015), outpatients from an early psychosis intervention program

(MacDougall et al., 2018, 2020), parents from neighbourhoods of low socioeconomic status

(Roach et al., 2019), and healthcare workers (Kim et al., 2022). The goal of the MAP is to enable

the participant to be familiar with the principles of mindful living, so that they can promote these

principles within their own social circles, thus becoming ambassadors for mindfulness per the

name of the program (MWB, n.d.).

### *Social-Emotional Learning and MAP*

While the MAP is not based on a theory, one of the pillars guiding the curriculum of the

MAP is social and emotional learning (SEL; MWB, n.d.). The Collaborative for Academic,

Social, and Emotional Learning (CASEL) defines social-emotional learning as:

> the process through which all young people and adults acquire and apply the knowledge,
>
> skills, and attitudes to develop healthy identities, manage emotions and achieve personal
>
> and collective goals, feel and show empathy for others, establish and maintain supportive
>
> relationships, and make responsible and caring decisions. (CASEL, n.d., para. 2)

SEL has become a promising approach to bolstering the success of children while they are in

school by providing them with the skills to achieve well-being through several core

competencies (Zins & Elias, 2007). CASEL developed a SEL framework, which includes the

following five core competencies: self-awareness, self-management, responsible decision-

making, relationship skills, and social awareness  (CASEL, n.d.; Weissberg et al., 2015). The

SEL framework indicates how to develop these five competencies, using a systemic approach in

a variety of settings such as school, home, and the community, from the preschool years through

adulthood (CASEL, n.d.). In a meta-analysis of 213 SEL programs ($n = 270\ 034$ students)

including students at the kindergarten level to high school, it was found that students who participated in SEL programming had an 11-percentile-point increase in achievement in comparison to a control (Durlak et al., 2011). Additionally, the researchers who conducted the meta-analysis found that individuals who participated in SEL programs were associated with lower levels of emotional distress (Durlak et al., 2011). The competencies of SEL provide an opportunity for "preventing behaviour problems by promoting social and emotional competence" (Zins & Elias, 2007, p. 235).

### Research Involving the MAP

Researchers of one study using the MAP approach found their participants ($n = 132$) who were teachers and students at the secondary school level in Canada experienced improvements in their social awareness and relationship building (Smith-Carrier et al., 2015). Additionally, teachers felt they gained stress management tools, and students experienced stress reduction through learning relaxation skills (Smith-Carrier et al., 2015). MacDougall and colleagues (2018) pilot-tested the feasibility of the MAP program for youth ($n = 21$; mean age = 23.75) who were involved in an early psychosis intervention program in Canada. The program maintained an 81% retention rate by the end of the 12-week program, which the authors felt supported the MAP's feasibility in the early psychoses intervention domain. Roach and colleagues (2019) studied the impact of the MAP program among participants of a parent support program in the United States ($n = 15$). Participants reported significantly lower levels of parental anxiety and depression, and increased levels of mindfulness, although this was not statistically significant (Roach et al., 2019).

### Suitability of the MAP for Graduate Students and the Current Study

There is a gap in the literature regarding the implementation of the MAP approach among graduate students. Conducting a pilot study to explore the influence of the MAP on graduate students was deemed appropriate for the current thesis research for several reasons. First, it has been well-established that graduate students benefit from mindfulness-based interventions (Cohen & Miller, 2009; Shapiro et al., 1998, 2007; Tarrasch, 2014). Secondly, it is clear that graduate students face an array of socio-emotional difficulties, namely high levels of stress (ACHA, 2019), as well as challenges to their relationships with themselves and others (including threats to their self-awareness and struggles with interpersonal skills; Henning et al., 1998; Hewitt & Flett, 1991). Given these challenges, it stands to reason an evidence-based program that addresses these negative outcomes could benefit graduate students. Although the evidence base for the MAP is in its infancy, the MAP is comprised of many similar elements to successful mindfulness-based interventions such as the MBSR (Grossman et al., 2004; Kabat-Zinn, 2003; Khoury et al., 2015; Smith-Carrier et al., 2015). For example, MBSR and the MAP are both group programs where participants meet weekly and have daily homework practices; both programs cover various mindfulness practices such as non-judgemental awareness, body scans, and sitting meditations and the programs occur over a similar duration (Grossman et al., 2004; Kabat-Zinn, 1982; Khoury et al., 2015; Smith-Carrier et al., 2015). Despite these similarities, the MAP was deemed especially appropriate for graduate students, based on its flexible delivery model and relatively low participant burden outside of the formal session offerings which might make it particularly appealing for graduate students and the busy schedules they tend to experience (Longfield et al., 2006; Offstein et al., 2004). Full details of the study intervention are presented in the methods section of this thesis. The benefits of the *components* of the MAP are noteworthy as well. Improved mindfulness skills are a key takeaway from the MAP and it is

clear that mindfulness practices are associated with numerous stress-related, intrapersonal, and

interpersonal benefits (Cohen & Miller, 2009; Rosenzweig et al., 2003; Shapiro et al., 1998,

2005, 2007; Tarrasch, 2014). A MAP practice that could be particularly beneficial to graduate

students includes noticing emotional triggers, where participants learn to regulate emotions and

better manage stress (Smith-Carrier et al., 2015). Noticing one's emotional triggers is a form of

self-awareness, and in one study of medical students ($n = 82$) in the United States, improved

self-awareness helped some participants with stress relief (Saunders et al., 2007). MAP practices

associated with intrapersonal development include (but are not limited to) journaling and

practicing gratitude and self-compassion (Smith-Carrier et al., 2015). These practices are

associated with positive outcomes for graduate students such as personal growth (Langley &

Brown, 2010), increased life satisfaction (Stefan et al., 2021), and improved interpersonal

connections (Nelson et al., 2018). A MAP practice associated with interpersonal skill

development includes loving-kindness meditations, which have been associated with increased

social connectedness; therefore, such a practice may have positive implications for the feelings

of isolation experienced by graduate students (Erichsen & Bolliger, 2011; Ray et al., 2019).

Graduate students tend to respond positively to group-based learning (Ferguson, 2009; Jackson

et al., 2014; Maher et al., 2008; Remmes Martin & Ko, 2011), and authentic, shared learning is

prioritized in the MAP group sessions. Additionally, a unique element of the MAP is its potential

to promote additional communications with individuals outside of the program via its focus on

empowering participants to "engage constructively in an interdependent world and to become

messengers of mindful living within their families, peer groups and communities, hence the term

Mindfulness Ambassadors" (Diggins et al., 2022, p. 4). The previously documented outcomes of

the MAP in the literature (Kim et al., 2022; MacDougall et al., 2018; Roach et al., 2019; Smith-

Carrier et al., 2015) align with the outcomes of interest in the present study (i.e., graduate

students' experiences of stress, their relationships with themselves and meaningful others, as

well as the impacts on their stress, self-awareness, and interpersonal skills, as detailed below).

Therefore, MAP was deemed a suitable choice for intervention.

**Study Purpose**

The two-fold primary purpose of this pilot study was to: (1) explore, qualitatively, the

influence of the MAP on graduate students' experiences of stress and their relationship with

themselves and meaningful others; and (2) investigate, quantitatively, if participation in the MAP

elicited changes in graduate students' levels of stress, self-awareness, interpersonal skills, and/or

social connectedness. The secondary purpose of this pilot study was to gain an understanding of

graduate students' satisfaction with the MAP.

**Chapter 2:  Methods**

The following chapter provides an overview of how this one-group mixed methods pilot study was conducted. The sections hereafter provide detailed descriptions of the research stance, participants, procedure, measures, and data analysis methods.

**Research Stance**

A post-positivist paradigm was used when designing and conducting this study. Post-positivism extends beyond the limitations of positivism, which posits "real scientific knowledge (as opposed to mere beliefs) is limited to what can be logically deduced from theory, operationally measured, and empirically validated" (Patton, 2014, p.105). A post-positivist approach acknowledges that knowledge is relative rather than absolute and supports the usage of both qualitative and quantitative approaches to better understand how the world operates (Patton, 2014). Using multiple methods is supported by acknowledging that each method has its own limitations (Patton, 2014); therefore, the mixed method approach used in the present study offered an opportunity to collect data that were complementary and holistic. Post-positivism also acknowledges that the researcher cannot be fully neutral or objective in the research process (Clark, 1998). This is an important consideration for the current study, as the lead researcher was a graduate student studying the same population. Strategies that were used to mitigate potential research bias and support data trustworthiness (Lincoln & Guba, 1985) during this study are presented in Appendix A.

**Participants**

*Inclusion Criteria*

To be eligible for this study, participants must have been: (1) enrolled in full-time studies as a graduate student at the host institution; (2) able to read, write, and speak in English; and (3) able to reliably access an internet-connected device.

### Exclusion Criteria

Participants were not eligible to participate in this study if they: (1) were not currently enrolled in full-time graduate studies at the host institution; (2) were unable to read or write in English; and/or (3) did not have reliable access to an internet-connected device. To ensure that the MAP was the only mindfulness intervention being assessed in this study, participants were also excluded if they were participating in any other mindfulness-based interventions.

### Sample Size

Using an a priori power analysis, a sample size of 12 with a large effect size ($d = 0.8$) and a significance level of 0.05 could have achieved an acceptable power of 0.83. This sample size is consistent with MWB guidelines, as the maximum recommended number of participants in a MAP offering is 15 (B. Tran, personal communication, September 30, 2021).

### Recruitment

Upon receiving ethical approval (HSREB #121112; see Appendix B), recruitment began in August 2022. Recruitment occurred over 8 weeks, with the aim of recruiting 15 participants in order to account for ~ 20% attrition over the study duration. This study utilized convenience sampling. Recruitment strategies included: (1) mass e-mail to all Western graduate students; (2) Western-affiliated social media postings on accounts relevant to graduate students (such as faculty-specific Facebook and Instagram pages); and (3) personal posts on social media by the research team. Individuals interested in participating were invited to contact the lead researcher or the Principal Investigator and an email was sent out that included an initial Qualtrics[XM]

(Qualtrics, Provo, UT) online questionnaire containing the study's letter of information and eligibility questions. Alternatively, if they preferred to do so, interested individuals were able to scan the QR code embedded in the recruitment materials to access the letter of information and eligibility survey. Upon confirmation of eligibility, consent for participation was obtained via a second survey, emailed to those individuals by the lead researcher.

**Procedure**

*Baseline Assessments*

Once informed consent was received, participants were asked to complete a baseline questionnaire via Qualtrics[XM] (Qualtrics, Provo, UT). The questionnaire included demographic questions (see Appendix C), the Perceived Stress Scale (see Appendix D), the Situational Self-Awareness Scale (see Appendix E), the Social Connectedness Scale – Revised (see Appendix F), and six open-ended questions (see Appendix G). Full details regarding the measures are presented later in this chapter. At the end of the questionnaire, participants were prompted to click a link to be redirected to the MAP-specific pre-program questionnaire (Appendix H). The MAP-specific pre-program questionnaire was implemented separately because its data were to be shared with MWB. Once the baseline questionnaires were completed, arrangements were made via email to get the intervention-specific workbook (detailed below) to the participants either via mail or in-person drop-off.

*Study Intervention*

The MAP offering was 6 weeks in length, beginning in September 2022. Participants met each week for 1.5 hours via Zoom (n.d.). The decision to host this intervention virtually was suitable for pandemic-times and was anticipated to reduce participant attrition given previous

studies that identified the value of online programming for graduate students, including increased

flexibility, reduced travel time, enhanced comfort, and fewer associated costs (Dost et al., 2020).

The program was offered by a certified MAP facilitator, who was also a research team

member; however, the facilitator was not privy to any of the data collected until after the

intervention was complete, in order to reduce potential bias during facilitation. While the MAP

can be offered as a 12-week program with participants meeting for 1 hour each week, the

alternative delivery option of a condensed 6-week program (with 1.5-hour meetings each week)

was chosen by the research team. This decision was based on the premise that it would be more

feasible for graduate students to commit to a shorter program during a single school term, given

students' commitments to their own research or work may have involved a schedule change from

one term to the next. Over the 6 weeks, the program focused on all 12 MAP topics which have

been outlined previously in this thesis (see pages 16-17).

At the beginning of the MAP sessions, the facilitator reminded participants of the

importance of privacy and comfort. Therefore, having a space free from distractions, such as

work-related materials and cell phones, was encouraged to help participants stay focused and

present during the session. The facilitator recommended having a comfortable surface to sit or

lay on during the meditation portions of the sessions. To further protect participants' privacy, all

members were asked to join the weekly Zoom (n.d.) meetings from a private location, and when

that was not possible, to use headphones to keep the conversations limited to just the participants

of the program. Participants were not required to keep their cameras on but were able to do so if

they wished.

Participants were asked to complete a daily breathing practice and a series of homework

practice/activities each week in addition to attending the 6 weekly group sessions. These

practices/activities included guided meditations that could be accessed via a SoundCloud (n.d.) link, as well as assigned readings and reflective questions which were included in their participant workbook. The homework practices/activities in the workbook were designed to help each participant build the skills associated with each session (such as, but not limited to, breathing mindfully, listening deeply, and practicing compassion). Participants were asked to have the homework practices/activities completed by the following session because as a group, they would spend time during the next session sharing their experiences from the previous week's practices. The homework practices/activities in total were expected to take participants about 15-30 minutes to complete each week. This time commitment outside of the weekly meeting time was deemed permissible and unlikely to contribute to participant attrition (per the high attrition associated when crossing the threshold of 2+ hours of programming, as outlined in Shapiro and colleagues' 2005 study).

During the weekly meetings, the facilitator primarily encouraged conversation among the participants based on their experiences with the previous session's content, which created opportunities for shared learning. The facilitator asked participants about their experiences with the practices/activities from the past week, which was intended to allow participants to learn from each other and continue the development of the skills associated with each session, and occasionally, the facilitator offered didactic learning opportunities. Didactic opportunities included providing definitions of key terms presented in the workbook to ensure that all participants understood the concepts and knew how to properly engage in the mindfulness practices, in an effort to help ensure participants would be poised to reap as many benefits as possible from their involvement in the program.  For full information on the contents of the MAP, please refer to "The Mindfulness Ambassador Program (MAP)" section above (please see

pages 16-20), and to the participant workbook provided by MWB, entitled "the mindfulness ambassador program: Participant Workbook" (Diggins et al., 2022).

### Immediate Post-Intervention Assessments

Upon completion of the 6-week program, participants were sent an email inviting them to schedule a one-on-one semi-structured interview with the lead researcher to discuss the influence of the program on their levels of stress, and their relationships with themselves and meaningful others. Questions that were asked during the interview are outlined in Appendix I. The email also contained a link to a Qualtrics$^{XM}$ (Qualtrics, Provo, UT) questionnaire to assess participants' post-intervention levels of stress, self-awareness, and interpersonal skills, using the same tools used during the baseline questionnaire. This questionnaire also redirected the participant to a second survey containing the MAP-specific post-program questionnaire (see Appendix J). Participants had 1 week to complete both questionnaires. Over the course of the week, the lead researcher monitored the Qualtrics$^{XM}$ (Qualtrics, Provo, UT) platform for completion, and one day before the completion deadline, a reminder email was sent out to participants who had not yet completed the questionnaires.

## Measures

To address the primary purpose of this study (i.e., to [1] explore, qualitatively, the influence of the MAP on graduate students' experiences of stress and their relationship with themselves and meaningful others; and [2] to investigate, quantitatively, if participation in the MAP elicited changes in graduate students' levels of stress, self-awareness, interpersonal skills and/or social connectedness) open-ended questions, semi-structured interviews, previously validated tools, and MAP-specific program evaluation tools were used. To gain an understanding of graduate students' satisfaction with the MAP (i.e., the secondary purpose), data from the

open-ended survey responses, semi-structured interviews, and responses from the MAP post-

program questionnaire were used. Following an outline of the demographic questions asked of

participants, each data collection tool is detailed below.

**Demographic Questions.** The demographic questions asked for participants' age,

gender, ethnicity, employment status, year of enrolment, and faculty of registration at the host

institution. Demographic data were only collected at baseline.

**Semi-structured Interviews.** Semi-structured interviews were conducted post-

intervention by the lead researcher using an interview guide consisting of nine questions (see

Appendix I). The interview guide had undergone pilot testing using an internal testing approach

($n = 4$) to assess the clarity and relevance of the questions, as well as to determine if questions

needed to be omitted, reworded, and/or added (per Chenail, 2011; Kallio et al., 2016; Louise

Barriball & While, 1994). The semi-structured interviews took place at a mutually convenient

time between the participant and researcher, were conducted virtually over Zoom (n.d.), and

lasted 22 – 60 minutes. Verbal consent confirming the interview could be recorded for

transcription purposes was provided by participants prior to starting the interviews. Automatic

audio transcription, a feature on Zoom (n.d.), was utilized. A research assistant confirmed the

automatic transcriptions of the interviews were accurate or made the necessary changes to ensure

verbatim transcription.

**Open-Ended Questions.** Pre-intervention, as part of the baseline questionnaire,

participants responded to six open-ended questions focused on their current intra- and inter-

personal perspectives and to learn more about their motivations for joining the MAP. For

example, participants were asked to describe their relationship with themselves and their

meaningful others. A full list of questions asked can be found in Appendix G.

Post-intervention, participants were asked to provide responses to open-ended questions about their experience via the MAP-specific post-program questionnaire. An example of one such question is, "what were the most valuable aspects of this learning experience for you?" (see Appendix J).

**Perceived Stress Scale (PSS).** The PSS is used to measure how an individual appraises different life events as stressful (Cohen et al., 1983). Although there are different versions of the PSS (PSS-14, PSS-10, and PSS-4), the PSS-10 is considered to have the strongest internal validity (Lee, 2012). The PSS-10 has been validated for the university student population on multiple occasions (Örücü & Demir, 2009; Roberti et al., 2006). In both the Örücü and Demir (2009) and Roberti and colleagues' (2006) studies ($n = 508$ and $n = 281$, respectively), Cronbach's α was greater than 0.8, surpassing the threshold of Cronbach's α ($> 0.7$) for internal consistency (Nunnally, 1978). The PSS includes 10 questions (see Appendix D), with five corresponding response options (never, almost never, sometimes, fairly often, and often) which are scored zero through four, respectively (Cohen & Williamson, 1988). Questions four, five, seven, and eight are reversed scored (Cohen & Williamson, 1988).

**Situational Self-Awareness Scale (SSAS).** The SSAS measures an individual's public and private self-awareness levels (Govern & Marsch, 2001). It consists of three subscales and each of the subscales includes three items, for a total of nine items (Govern & Marsch, 2001). The three subscales (public self-awareness, private self-awareness, and self-awareness of immediate surroundings) are individually scored by summing the responses to the three items pertaining to each subscale. There are seven response options for each of the nine questions, with options ranging from 1, indicating strongly disagree, and 7, indicating strongly agree (see Appendix E). This tool has been deemed psychometrically sound in undergraduate-level

university students ($n = 383$), with a Cronbach's α of 0.82 for public self-awareness, a

Cronbach's α of 0.70 for private self-awareness, and a Cronbach's α of 0.72 for self-awareness

of immediate surroundings (Govern & Marsch, 2001).

**The Social Connectedness Scale – Revised (SCS-R).** This scale is a revised version of

the Social Connectedness Scale (Lee & Robbins, 1995); it was revised due to limitations and

negative skew of the original scale (Lee et al., 2001; Lee & Robbins, 1995). This scale was used

to gauge the interpersonal closeness of participants with their social connections, where social

connectedness is considered a form of a "cognitive structure representing regularities in patterns

of interpersonal relatedness" (Baldwin, 1992, p. 461). The SCS-R consists of 20 items, and a

higher score of the SCS-R indicates higher levels of social connectedness (Lee et al., 2001; see

Appendix F). Each question has six corresponding response options ranging from 1 (strongly

disagree) to 6 strongly agree (Lee et al., 2001). In a study validating the SCS-R among

undergraduate university students ($n = 100$), Cronbach's α was 0.92, representing good internal

consistency. The creator of this scale was contacted, and they granted permission to use this

scale and provided the scoring protocol (R. Lee, personal communication, May 26, 2022; see

Appendix K).

**MAP-Specific Participant Questionnaires.** The MAP protocol includes participants

completing a pre- and post-program MAP-specific questionnaire (see Appendices H and J).

These questionnaires are not validated tools and no formal scoring protocol exists, as they were

created for internal use and evaluation by MWB. Permission was granted by MWB to use their

pre- and post-program questionnaires for the purposes of this study (S. Hunter, personal

communication, May 12, 2022).  These participant questionnaires were used as data collection

tools for the present study as the questionnaire items aligned with the outcomes of interest and

thus, could provide data relevant to the objectives of the study. The pre-program questionnaire

(see Appendix H) consisted of 12 items prompting self-reflection, with five response options,

each ranging from "Never" to "Almost Always." The post-program questionnaire included three

sections: the first section consisted of the same self-reflection-focused 12 items used in the pre-

program questionnaire; the second section included a tool with statements relating to program

satisfaction (more details below); and the third section included six questions, which were a mix

of yes or no, descriptive, and open-ended questions that asked participants about the sharing of

the MAP-related learnings, as well as their reflections on the program's value and potential

improvements. As the administration of this tool was a requirement of the MAP offering, an

assessment of the tool's suitability for helping to address the current study's purposes was

required. Specifically, the lead researcher coded the questionnaire items with the specific focus

of identifying if they aligned with any of the current study's outcomes of interest. The Principal

Investigator confirmed the coding, which indicated a meaningful alignment between the

questions and the current study's purposes. Therefore, the research team determined that using

the data from this tool was suitable. The coding of the questionnaire items to the current study's

outcomes of interest can be seen in Table 1.

> ***Program Satisfaction Tool.*** This tool is a component of the MAP post-program

participant questionnaire (see section 2 of Appendix J). The tool consisted of five statements and

required participants to reflect on their satisfaction with the MAP on a five-point scale (ranging

from never to almost always). An example of one of the statements is "Overall, I was satisfied

with the learning experience."

**Table 1**

*Coding of the 12-Item Tool from the MAP-Specific Pre- and Post-Program Questionnaire*

*Associated with Study Outcomes*

| Questionnaire Items | Coding of Item |
|---|---|
| 1. I am mindful in my daily life. | Self-awareness |
| 2. I know effective ways to focus my attention. | Self-awareness |
| 3. I am aware of my personal strengths and weaknesses. | Self-awareness |
| 4. I consider other peoples' perspectives when they differ from my own. | Interpersonal skill |
| 5. I understand how to make responsible decisions. | Self-awareness |
| 6. I communicate effectively with others. | Interpersonal skill |
| 7. I am grateful in my daily life. | Self-awareness |
| 8. I know effective ways to manage my reactions when I am triggered. | Self-awareness |
| 9. I know effective ways to set goals and take action to support the future I want for myself. | Self-awareness |
| 10. I help others in my daily life. | Interpersonal skill |
| 11. I know effective ways to calm down and reduce stress. | Self-awareness |
| 12. While preparing for class and completing assignments I find myself being distracted. | Self-awareness |

**Data Analyses**

*Qualitative Analysis*

To analyze open-ended questionnaire responses and the transcripts from the semi-structured interviews, thematic analysis was used, and involved six main steps (Braun & Clarke, 2006). Throughout the six-step process, measures to ensure data trustworthiness were implemented to mitigate potential biases to the best of the research team's ability (see Appendix A). First, the lead researcher and a research assistant independently became familiar with the data by reviewing the transcripts from the interviews and the open-ended response data several times and making notes about prominent themes as needed. Next, the researchers independently

generated codes, which refers to identifying pieces of the data that were interesting to the analyst and/or were relevant to the purpose statement (Braun & Clarke, 2006). At this stage, codes were generated inductively (per Patton, 2014). When operationalizing the third and fourth steps (generating themes and reviewing the themes), an iterative process became necessary. Themes were first generated based on the inductive approach to thematic analysis; however, upon reviewing the themes, it became clear that many of the themes aligned with the initial and post-intervention questions. After this observation, themes were restructured (similar to the third step of generating themes) using a deductive analysis approach (per Boyatzis, 1998; Braun & Clarke, 2006). Themes were then reviewed, which involved creating a thematic map to see if the themes accurately represented the data as a whole. This step also included identifying illustrative quotations for each theme. The fifth step was to further define and name the themes, which when operationalized for this study, included finalizing the illustrative quotations used to support each theme. While many of the themes correspond to the questions asked to participants, it should be noted that the quotations presented in each theme are not limited to the responses generated by each particular question; some of the answers to different questions had overlapping content, which resulted in quotations relevant to multiple themes. Therefore, the quotations presented in the following chapter may be applicable to multiple themes, although they have been shared only once in the theme to which they most align. Additionally, while the interview recordings were transcribed verbatim, the illustrative quotations provided in the next chapter were edited using a denaturalized transcription approach to omit utterances, duplicate words, and stutters to improve the readability and clarity of the quotations for readers (Oliver et al., 2005). The sixth step to thematic analysis is generating the report, which is provided by means of this thesis.

*Quantitative Analysis*

Quantitative data analysis involved computing measures of central tendency and dispersion (descriptive statistics), the computation of the validated scales, as well as paired *t*-tests. Paired *t*-tests were used to analyze the PSS, the SSAS, the SCS-R, and the 12-item tool from the MAP pre- and post-program questionnaires. Descriptive statistics were used to analyze the program satisfaction tool from the MAP post-program questionnaire. Both the computations of the descriptive statistics from the demographic data, as well as of the measures from the validated tools occurred using SPSS software (version 28).

**Chapter 3: Results**

**Participants**

Nine participants completed the program (see Figure 1 for recruitment outcome details).

The mean age of participants at baseline was 30.5 years, and the majority identified as white ($n =$

7), and as a woman ($n = 6$). Most were enrolled in a Doctoral program ($n = 6$). Full demographic

information can be found in Table 1.

**Figure 1**

*Recruitment Outcome Details*
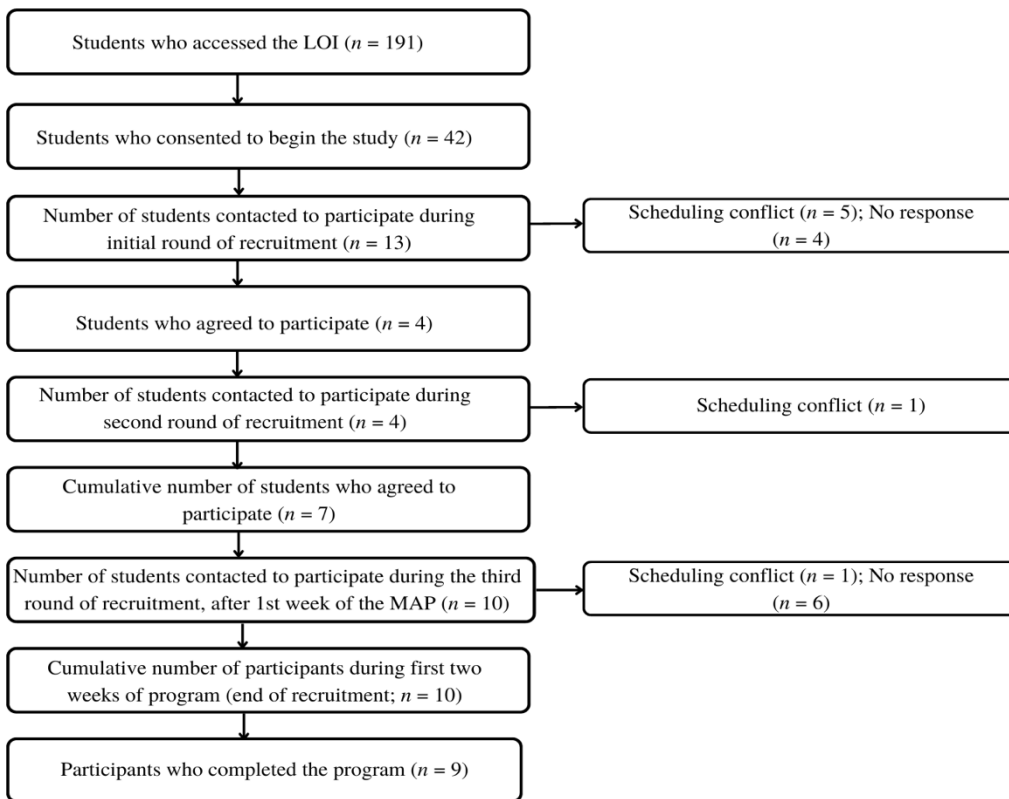
**Table 2**

*Demographic Information of Participants at Baseline (N = 10)*

Participant Characteristic

| | Mean (*SD*[a]) |
|---|---|
| **Mean Age in Years** | 30.50 (7.457) |
| | |
| **Gender** | **N (Percentage)** |
| Man | 3 (30%) |
| Woman | 6 (60%) |
| Non-Binary | 1 (10%) |
| | |
| **Self-Identified Ethnicity**[b] | |
| Indigenous origins | 1 (10%) |
| White | 7 (70%) |
| East Asian | 2 (20%) |
| West Asian/Arab | 1 (10%) |
| | |
| **Employment Status**[b] | |
| Employed full-time | 1 (10%) |
| Employed part-time | 6 (60%) |
| Unemployed and currently looking for work | 1 (10%) |
| | |
| **Degree and Enrolment Year** | |
| Master's Year 1 | 1 (10%) |
| Master's Year 2 | 2 (20%) |
| Doctoral Year 1 | 2 (20%) |
| Doctoral Year 2 | 2 (20%) |
| Doctoral Year 3 | 1 (10%) |
| Doctoral Year 4 | 1 (10%) |
| Combined Program – Year 3 | 1 (10%) |
| | |
| **Faculty** | |
| Arts and Humanities | 1 (10%) |
| Engineering | 1 (10%) |
| Health Sciences | 2 (20%) |
| Information and Media Studies | 1 (10%) |
| Ivey Business School | 1 (10%) |
| Schulich School of Medicine & Dentistry | 1 (10%) |
| Social Science | 3 (30%) |

[a]SD = Standard Deviation

[b]For some of the characteristic categories, the values may not equal 10 when summed due to

participants being able to self-select more than one option, or due to missing data.

Since the intended sample size was not reached, a post-hoc power analysis was conducted

to determine the true power of each of the paired *t*-tests based on their calculated effect sizes.

These results can be seen in Table 3. The full results of each of the paired *t*-tests are presented

later in this chapter.

**Table 3**

*Post-hoc Power Analyses of the Study's Tools*

| Pair | Post-Hoc Power | Effect Size (Cohen's d) |
| --- | --- | --- |
| PSS[a] | 0.559 | -.800 |
| SSAS[b] (Private) | 0.896 | 1.217 |
| SSAS (Public) | 0.259 | -.496 |
| SSAS (Immediate Surroundings) | 0.554 | .795 |
| SCS-R[c] | 0.893 | 1.223 |
| Self-awareness items | 0.900 | 1.238 |
| Interpersonal skills items | 0.163 | .369 |

[a]Perceived Stress Scale

[b]Situational Self-Awareness Scale

[c]Social Connectedness Scale-Revised

The remainder of this chapter will present the qualitative (pre- and post-intervention) and

quantitative findings as they pertain to the study's purposes. For the qualitative sections, the

major themes and sub-themes will be presented, along with illustrative quotations.

**Pre-Intervention Qualitative Findings – Open-Ended Survey Responses**

At baseline, participants described their relationships with stress, themselves, and their meaningful others; their levels of stress, self-awareness, and interpersonal skills; and what they hoped to gain from MAP participation. Four major themes (and three subthemes) were identified at baseline: (1) moderate to high stress levels juggling competing responsibilities; (2) intrapersonal conflict (conflict between awareness and action); (3) difficulty connecting with meaningful others; and (4) a work in progress (stress management from MAP participation, intrapersonal development from MAP participation).

*Moderate to High Stress Levels Juggling Competing Responsibilities*

Participants reported moderate to high stress levels about their competing academic and personal responsibilities. For instance, when asked about their current stress level, one participant wrote, "high stress. Life as a grad student, trying to be a loving spouse, trying to be a good parent, trying to not disappoint my advisor's seemingly unreasonable expectations. It's like they design this program to destroy your sanity? ☺ Joking, not joking" (R11RP40). The assortment of responsibilities that participants discussed often came with a sense of urgency, as demonstrated by one participant who said, "I am working full time until the end of this week, I have comprehensive exams on the [date] and am moving to [city] on the [date]. Plus, I also have to somehow put together a [tri-agency scholarship] application and do a class remotely" (A10LF58). The experience of high stress was underscored by a third participant, who wrote:

> right now my stress levels are fairly high. Entering the new academic year, I am taking on
>
> stress for tasks and obligations that have not yet occurred, but in anticipation for things I
>
> know I will need to do, my stress is elevating making my current tasks and obligations

more stressful [than] they need to be. But even with this awareness, my stress continues

to be elevated. (L7WC60)

### *Intrapersonal Conflict*

Participants described conflicting views about themselves, with a level of tension

regarding their intrapersonal relationship. For example, one participant explained, "I have a good

relationship [with myself] but can also be my harshest critique. A lot of my self-validation comes

from doing well academically and having success with my research, so when I encounter

challenges that can be tough" (L12BB80). Another participant described conflicting views about

themselves by writing:

I regularly analyze different aspects of myself (facial expressions, body language,

communication skills, actions that were or were not taken, etc.) but my perception is

typically tainted with a negative lens, quite a bit of fear and anxiety and so I don't think

my perceptions are always accurate (but I am aware of that and am aware that my

perceptions are subjective). (M11TB66)

A third participant described the conflict they experienced in their relationship with themselves

by writing "I spend a lot of time thinking about myself and the way I react to external stimuli,

but I don't always feel like I have an accurate impression of myself" (E24OM36).

### Conflict Between Intrapersonal Awareness and Action

Despite feeling varying levels of internal conflict regarding their self-awareness, several

participants described having an awareness of certain needs; however, they also reportedly

struggled to attend to those needs, often due to competing demands on their time. For example,

one participant wrote:

I know intellectually that I have a tendency to react [in] certain ways in certain

circumstances (for example, when I'm busy working on something, I often forget to eat,

and then I feel irritable), but that doesn't always help me avoid those reactions in the

moment (e.g., I forget to eat, and the logical part of my brain is telling me, "I'm feeling

cranky because I haven't eaten anything lately" but I still struggle to actually do anything

about it). (E24OM36)

Similar struggles were expressed by another participant who explained, "I know when I am tired,

need food, and exercise, but don't always act on those needs given my busy schedule"

(L12BB80). A third participant expressed the conflict between their awareness and action more

broadly by writing, "I feel like I should take more time to reflect, but I feel like I don't have time

to reflect. I don't have time to figure things out because I have too much stuff to do that needs to

get done" (R11RP40).

### Difficulty Connecting with Meaningful Others

Connecting with meaningful others was a challenge reported by most participants.

Several specific reasons for this challenge were shared by participants, although the innuendo of

isolation seemed common to them all, including: "differing levels of risk-tolerance [due to the

pandemic]" (E24OM36); being "socially anxious" (K29HS81); "feel[ing] stressed and

overwhelmed with school sometimes which impacts my relationship with others (I don't feel like

I'm my best self)" (L12BB80); and not "feel[ing] comfortable talking about my issues with

anyone and feel[ing] like I have too much trauma for anyone to ever be able to relate to it"

(A10LF58).

Some participants attributed their difficulties in establishing connections with meaningful

others to the aptitude of their interpersonal skills. One participant wrote, "my interpersonal skills

are lacking. If I were left to my own devices, I would likely become isolated" (L7WC60). There

was a considerable amount of variation in the responses given by participants regarding their

interpersonal skills, with some of the challenges mentioned being a reduced opportunity to use

these skills during the COVID-19 pandemic, perfectionistic tendencies leading to

communication difficulties, and difficulty in transitioning from superficial to intimate

relationships. In describing their hopes and challenges with their interpersonal skills, one

participant wrote:

> I am hoping to improve in and learn to put the school/research stress to the side when I'm
>
> interacting with others. With the pandemic I was working a lot at home independently so
>
> I think I lost some of those interpersonal skills because I wasn't having to interact with
>
> people on a regular basis.  (L12BB80)

A second participant wrote, "I struggle with perfectionism and this leads to problems in my

interpersonal relationships" (A25GP75). A third person described their experience maintaining

depth in their current relationships and building new ones, explaining:

> a lot of my relationships have become more superficial than I would like them to be and I
>
> struggle to reciprocate energy/effort lately. I find it difficult to initiate/build new
>
> relationships due to anxiety in social situations and a lack of self-confidence. I find it
>
> difficult to verbally articulate and communicate my thoughts, which I have found most
>
> frustrating recently. I still struggle to set boundaries, express, and communicate my needs
>
> in challenging situations. (M11TB66)

> Some participants did mention that they had meaningful relationships and felt a strong

connection with certain individuals. For example, one said, "I feel that I am close with a few

meaningful people, and most of them I know feel close to me too" (K29HS81). Among those

who reported having positive relationships with meaningful others, all but one participant mentioned that the positive relationship to which they were referring was with their partner or spouse. One participant explained, "with regards to my significant other, our relationship is healthy and growing but relatively new and so we are still figuring things out" (M11TB66). A third participant echoed the quality of their closest relationships saying, "I have a loving partner that I adore, a strong group of friends, and some family relationships" (A25GP75).

### A Work in Progress

Many participants considered themselves to be a work in progress. Although self-criticism was evident throughout their responses, so too was an acknowledgement of participants' progress in their personal journeys. For instance, one participant described themselves as a:

> work in progress. I find myself frequently engaging in a lot of negative self-talk around my self-worth, communication skills, ability to take on leadership roles, lack of energy towards/engagement in exercise, academic coursework, and extracurricular activities, and ability to maintain professional/interpersonal relationships. I often feel like a burden and I tend to rely only on myself. Although I still struggle with these things, I have come quite far over the past 1.5 – 2 years. I am better at (but still working on) setting boundaries and taking rest when I feel tired. (M11TB66)

Another participant echoed this work in progress sentiment by writing, "I'm trying to figure myself out. How to be more patient and caring (and not frustrated or upset) towards those I love and how to be more focused and diligent in the work I do. It seems complicated" (R11RP40). In describing how they intended to progress further, one participant explained, "I sometimes feel dissatisfied with the way I respond to situations or my reactions in certain circumstances, but I

am trying to be more understanding of my emotional needs and be more non-judgemental about giving myself space to process" (E24OM36).

When asked what they hoped to gain from partaking in the program, participants' responses aligned with the study outcomes of stress, self-awareness, and interpersonal skills, but from a hopeful, developmental perspective; those responses contributed to the following two sub-themes.

### Stress Management from MAP Participation

Participants hoped to learn how to better manage their stress. One participant wrote, "ways to manage stress or better understanding my stress would be what I hope to gain most [from the program]" (K29HS81). Another participant wrote, "I'd like to develop better strategies for helping me manage stress, especially at times of the year when I have a lot of competing deadlines or demands on my time" (E24OM36). A third participant wrote that they hoped to "get some ideas on how to be … patient and calm when things get stressful" (R11RP40).

### Intrapersonal Development from MAP Participation

Participants indicated wanting to develop their intrapersonal skills by participating in the MAP. Specifically, participants described wanting more self-awareness, being in a positive mental state, and improving their mindfulness skills. For example, one participant wrote:

> I hope to gain more self-awareness and self-confidence. … I hope to build the habit of setting aside some time each day/a couple times a week to check in with myself and become more attuned to what I am feeling or need." (M11TB66)

Another participant wrote that they hoped to "refresh [their] mindfulness skills and reset [their] mental energy" (A25GP75).

Some participants indicated that they perceived their potential intrapersonal development would have positive impacts on their interpersonal skills. For example, one participant wrote, "I am hoping to learn how to take time for myself and deal with the stress I may encounter in grad school. Specifically strategies I can use to minimize it and improve relationships with those around me" (L12BB80). Another participant echoed this response when they wrote, "I hope to get a better understanding of how stress impacts my life, how to handle stress, and hopefully how to better my relationships with those who are important to me" (L7WC60). Similarly, a third participant wrote, "I would also love to get better at focusing my attention on the people around me and being a better, more engaged listener" (E24OM36).

**Post-Intervention Qualitative Findings**

Five themes and four sub-themes emerged from the post-intervention semi-structured interview data pertaining to participants' experiences in the MAP: (1) improved stress management; (2) increased consideration for oneself (increased awareness of the self); (3) increased consideration for others (deep listening); (4) feelings of connection; and (5) logistics (virtual format, program timing and length).

*Improved Stress Management*

Many participants reported their engagement with the MAP brought forth an increased awareness of the stress and stressors they were experiencing, and this awareness helped some to better manage stressful experiences. For example, one participant described, "I'm kind of realizing 'okay, I'm actually being stressed right now' … I am objectifying the stress as a thing that I can be aware of rather than just experiencing it" (J6WB85). Another participant conveyed:

> the month I was participating in the program was probably one of my busiest months
>
> throughout my entire PhD process … But I think on the flip side, I was kind of more

aware of what was going on, more aware of how I was feeling. And so, maybe making

more changes to … try and reduce that stress as best as I could during that period.

(L12BB80)

A third participant mentioned their increased stress awareness by saying:

prior [to participating in the MAP] … if I had … free moments, I would spend them

stressing out and thinking about what I should be doing and feeling guilty that I'm not

doing what I should be doing. But now it's, "okay no, I have it written down, I have it

planned out, I'm going to work on this project in the next couple of hours." So …

knowing that it will get done, allows me to just be in the moment. (L7WC60)

Specific to stress management, some participants described that, since going through the

MAP, they felt more in control when they were experiencing stress and did not feel as

overwhelmed by stressful times. For example, one participant described: "I'm able to handle

[stress] a little bit better, my response to my stress seems more in control… as the program went

on I grew more capable and able to respond to my stress in a more positive manner" (R11RP40).

A different participant shared a powerful story about a major stressor in their life and how the

MAP was able to provide some support. They said:

my partner had a medical emergency 2 weeks ago … he had an emergency surgery. So

that really increased my stress level … but I found myself less reactive during this

difficult time than I would have been in the past. So, I think that the MAP actually helped

me deal with this very stressful emergency … usually [pre-MAP] I would be freaking out

and very anxious. I was still anxious, but I feel like it would have been worse without the

MAP, and I didn't skip any sessions, even on the day of my partner's surgery I attended

because I actually wanted to attend MAP. It [helped] me go through this." (L24NK88)

Another participant described the impact of the MAP on their stress management:

> there are certain instances where I feel I was able to sit back and reflect on things a little
>
> bit more based on techniques I learned in the MAP program. So, I think maybe it's
>
> helped keep my stress level lower instead of potentially increasing. (K29HS81)

A third participant described shifts in the way they handle stress, since attending the MAP. They

said:

> if I'm stressed, I'm able to communicate that better to people in my life. I feel [since
>
> attending the MAP] I have a bit better coping skills, I used to just kind of shut down and
>
> internalize everything when I would get stressed, and I wouldn't really communicate
>
> about that with people, and I wouldn't do anything positive about it, I wouldn't exercise,
>
> I wouldn't I don't know journal or do anything really constructive. I would kind of just
>
> sit and mindlessly scroll or just kind of let it build up until it got really bad, and then I
>
> guess it would eventually go away once the school stuff had passed, but yeah I feel like
>
> it's not quite as bad. (M11TB66)

### *Increased Consideration for Oneself*

Participants described being more considerate of themselves post-MAP, offering

examples such as taking time for themselves, being more aware of their emotions, and being

kinder to themselves. For instance, one participant described a situation that came up pertaining

to their dental-related anxiety, and how participating in the MAP helped with this. They said that

their parent was:

> texting me all this information about dentists, and I was trying to get work done, and I
>
> didn't really want to read a bunch of reviews of dentists … and … it completely sort of
>
> derailed my focus … and it made me pretty … anxious. Like it had sort of a negative

impact on m[e] emotional[ly] … often, what I would do is just sort of go into this kind of

spiral of not getting anything done all day, and instead this time I kind of noticed myself

doing this and closed the [internet] page and then took like half an hour to step away

from my computer and look out the window … browse some TikToks and have a cup of

tea and just do things that I find a little bit more relaxing and I was sort of able to get

back to working. … I was able to acknowledge, kind of in-the-moment, that this is what I

*needed* on that day … I needed to sort of step away for a few minutes, and I … often feel

really guilty about … looking at my phone for a long periods in the day, and … I often

tell myself, "oh, this is a waste of time" but I think I was able to sort of appreciate in the

moment that, I wasn't going to get work done for the rest of the day, unless I kind of reset

my focus a little bit by taking some time away from my computer … I guess that was the

difference … understanding or recognizing in the moment that I needed to do something

that maybe didn't look productive in order to be productive again. (E24OM36)

Another participant discussed how, since attending the MAP, they were more considerate of their

emotions by saying:

I also tried to practice observing the emotions without putting too much stress on it,

because … I find that sometimes trying too hard could backfire … if I feel anxious and I

tell myself, "Don't be so anxious. Why are you so anxious? Try not to be anxious." And,

that sometimes makes it worse. So now [since attending the MAP] I'm just trying to be

like, "okay, that's like a float in the sea. It comes and goes." And I just try not to think

that [it is] bad, or that [it is] good, [I] just observe it.  (L24NK88)

Another participant described the impact of the program on themselves and their emotions by

stating:

I would describe the skill [I gained from the MAP] as being more calm in response to those tensions where … there's a discontinuity between what I want to do and what I'm capable of doing or … what I'm expected to do and what I want to do. (J6WB85)

Participants seemingly recognized that they wanted to be kinder to themselves, especially in academic contexts. For instance, one participant conveyed:

the biggest takeaway that I took from the program was this idea of being kind to myself. Beforehand, I felt I had to have really exacting standards. Because, you know, I wanted to be a good [spouse]. I wanted to be a good [parent]. I was in a really difficult, world-class program, I wanted to deserve to be there … make my advisor and everyone feel like they made the right decision in terms of choosing me and so on … so, you know, if I couldn't meet exact standards then there was a lot of [self-talk of] like "you suck." … However, this program [MAP], you know it's sparked that idea that it makes sense to be kind to myself. (R11RP40)

Another participant described the impact the MAP had on their academic expectations, stating:

I've always tried to hold the standard of "you don't need to get 90s to be [academically] successful, you just need to get through the program." But I think I was still kind of pushing for academic excellence, [such as] publish[ing] as much as possible and now … I'm … jump[ing] through the hoops that are important, and everything else is sort of droppable. That's important to … have reestablished for myself.  (A10LF58)

A third participant shared similar sentiments about academic expectations, saying:

I think … [from attending the MAP, I'm] being more aware and also try[ing] to be more kind to myself … I think … in academia, there's a lot of gratification you … get from … doing well in school and so when you don't do well that can be really hard … [since the

MAP] I'm thinking about things and phrasings and trying to look at more positive spins

on things which I think has really helped myself feel a little bit better about where I'm at.

I think too, being in grad school, imposter syndrome that whole thing is really common

… so just kind of taking more time to recognize the accomplishments I've made to get to

this point … just trying to be more self-aware of what I'm feeling, maybe how I can

change that [imposter syndrome feeling]. (L12BB80)

Another participant spoke about their increased feelings of academic confidence since engaging

in the MAP, saying:

this will seem like such a small thing maybe, but for me it's not. I have literally never

answered a question in lectures my entire … post-secondary career but I did on Friday,

and I didn't even think twice about it, and I did it with a lot of confidence. (M11TB66)

**Increased Awareness of the Self**

A few participants discussed feeling more considerate of themselves as they were better

able to respond to their needs because of their increased awareness since participating in the

MAP. They described being more adept at recognizing the signs when something requires

attention, as demonstrated by the following quotation:

[since taking the MAP] I've become a little bit more aware of [my anxiety] and just a

little bit more responsive to my own needs. If I need to take a minute and do some self-

care, whatever that may be, or opt out of a situation or an event, I'll do that now. I feel, I

definitely have my days where I'm-, you're almost going on autopilot. Just not super in

tune with life and other people, and … my own internal experience. But I feel like for the

most part it has *slowly* gotten better to the point where I can recognize what my body is

telling me, or what you know what's going on in my head, and what I need. (M11TB66)

Another individual recounted how, since being in the MAP, they started to develop greater self-awareness and were able to identify personal indications that something was requiring their attention. They said:

> the biggest [take]away from [the MAP] was just taking time to recognize what the signs are, in myself. I think a big one this month, because of everything going on, has been just when I'm really tired … I would get headaches and so I think I've started to recognize it's when I'm really tired of staring at a screen. And so just recognizing, taking those breaks has been important and then, similarly just, you know, when I do need a break or when I'm stressed just … making time to either go for a walk or do some exercise and things like that. So … because the program enforced [me] to think about those things a lot more than perhaps I was before … those signs haven't changed, it's just now that I'm more aware of, "oh, if I like have a bad headache, what is that from?" So, I can kind of think about that a little bit more. And same with … taking breaks as well. Yeah, just kind of being more aware of sort of what my body needs. I think has been a big thing.
>
> (L12BB80)

Another participant described how improved self-awareness helped with their goal setting:

> I need to also be more consistent in my life, I need to consistently eat better, or at least at regular times, or I need to consistently be practicing like a mindfulness technique, *because* this is an area that I'm so weak in. … It's a great area for me to challenge myself and sort of develop myself further … I think even if I don't use TUZA [a MAP guided mediation] per se, I'm going to establish that sort of like daily routine or at least try to. … That was a major self-awareness piece for me. It was kind of going, "okay, I'm really bad at this." And

this is something I'll need to continually work on with myself in terms of consistency.

(A10LF58)

### *Increased Consideration for Others*

Participating in the MAP translated into participants experiencing improvements in terms of being considerate of others' perspectives, which seemingly helped to facilitate change in some of their own perspectives. For example, one participant said:

my stressors in life are different than some of my friends who aren't in school anymore

and so … reflecting on like, they're equally going through like stressful times, it's just

different for them than what it is for me. … Having that perspective of taking a moment

to realize … you can't really see everything that's going on with them but just

recognizing that they … could still be experiencing some challenges or difficulties,

they're just different than yours. (L12BB80)

Another participant described improvements in their interpersonal communication since taking the MAP. They said:

[since attending the MAP] I'm … responding to text messages, more often than before,

actually making an effort to acknowledge people even if I don't have time to see them, at

least keeping that line of communication open … it's a work in progress. (L7WC60)

Another participant described how the MAP influenced consideration of their family. They said:

this program has helped me figure out how to deal with such emotionally difficult

scenarios so that I don't get into fights like I used to […] with my [partner]… I don't

want [my child] growing up in a household where the parents are always fighting. … I

want [my child] to grow up in a household where they see … civil conversation, civil

behaviour. (R11RP40)

**Deep Listening**

A sub-theme of 'increased consideration for others' was deep listening, a communication strategy, described in the MAP sessions as, requiring a listener to pay attention to a speaker without judgement or expectation and with a quiet mind. Participants seemed to be particularly receptive to the MAP-discussed skill of deep listening to improve interpersonal connection. The participants mentioned that, through learning about and reflecting on this skill, they realized that they were often formulating their own responses while listening to others instead of just listening; they expressed a desire to improve on this behaviour. One participant expressed their intention to improve by saying, "I just really wanted to make sure that I was listening to them, and not just thinking about how to solve their problems, [which distracts from] my listening" (A10LF58). Another participant shared a reflection they had regarding deep listening saying, "it's okay, if … I don't say the perfect thing but as long as someone knows I'm there" (K29HS81). A third participant described their experience of practicing deep listening since learning more about it during the MAP. They said:

> when I'm with [other people] the thoughts are less fast … having them around is more
> grounding or "okay let's see what they're saying and thinking" whereas before it was
> always them and then me … now I can kind of just be like "well, let's just … see what
> they're saying before I input my position in this … setting" … I'm just looking at them in
> front of me, even if they're talking about something that happened, in another space and
> time it's like okay well I'm listening to you *now* telling me this story. So, it is … more
> present spatially and temporarily. (J6WB85)

*Feelings of Connection*

Participants seemingly valued the opportunity to connect with other graduate students

taking the MAP. They explained that they benefited from hearing about other participants'

experiences, whether similar to or different from their own. One participant mentioned it was a

unique experience to discuss topics such as personal struggles or stressors in a positive setting

such as the MAP, by stating:

> I think it [the MAP] was a valuable experience … There [are] not many contexts where
>
> you kind of hear people's … untempered perspectives on … big emotional stuff that isn't
>
> necessarily tied to a conflict, right, … So, that was really interesting for me to hear …
>
> some of it was so wildly different from myself that I was like "whoa" and some of it was
>
> really similar … it was kind of really cool to see where everyone sort of sat on the
>
> spectrum of emotion. (A10LF58)

The conversations among participants were deemed relatable, often from an academic

perspective, which seemingly contributed to feeling understood and helped lessen feelings of

isolation and/or loneliness. For instance, one participant commented, "it [sharing with other

participants] was very helpful to make me feel connected to my fellow grad students, because a

lot of them share my struggles in slightly different ways and being able to listen to their stories

makes me feel less alone" (L24NK88). Conversations that took place during the MAP sessions

seemed to help participants reframe feeling alone in their struggles to feeling more connected to

graduate students as a whole. One participant described:

> it [group sharing] was still kind of nice to see and not feel like you're so alone with some
>
> of those challenges you're facing, it's not just for your program or you alone, it's
>
> common in grad students. And so, it was just kind of nice to have that safe space where
>
> we could share what we were going through and hear other people's stories and then

maybe what they were doing or how they kind of implement the strategies … that was

just nice to kind of hear other perspectives and not just from my department or lab.

(L12BB80)

As a consequence of being in the MAP, another participant expressed feeling less isolated in

their struggles by saying:

it was helpful to get to listen to other people's perspectives each week, and then their own

stories and struggles and challenges. … That was helpful, because … it reminded me, and

I feel like it probably reminded others, too, that everyone is having this human experience

and that … we're all experiencing suffering at one point, just to know that you're not

alone in that makes me feel a little bit less hard on myself. (M11TB66)

One participant mentioned how they are even more inclined to connect with others because they

realized that just because they do not know what another graduate student's story is, it may not

be all that different from their own by saying:

[participating in MAP] made me more open and willing to connect with others, hearing

the other participants' stories and how completely different all of our lives are but how

similar all of our feelings are. And being able to freely talk about experiences and make

connections [as] to why I'm feeling certain things now. And … seeing it in those few

participants … it's made it easier to connect with others, because, like, you don't *know*

what their stories are even if they're different from yours, it doesn't mean that you're not

feeling the exact same things at that time, which I think that's another part that's helped

me be more willing to interact with new people and listen. (L7WC60)

Participants discussed feelings of academic connection too, stating that they were often

one of the few individuals in their social circles who were still in school, let alone in graduate

school. One participant said, "I have a couple friends that are still doing their undergrads [and] it's different relating to them than it was to these people [in the MAP] who I've never actually met in real life [in person]" (L7WC60). Another participant's comment resonated with this notion. They said:

> most of my friends aren't graduate students … so, their stresses are so different from my stresses that truthfully, they just don't get it. I just went through my comprehensive exams, and they [friends] just didn't get why or what actually writing a comp[rehensive] exam is like … if you've written it you're like, "oh yeah, that's like … it's its own thing" right so … there [were] points [during the MAP] where … there was a general understanding in the [virtual] room where everybody's just been through the sort of baseline [graduate student] experience and so they all have that kinship because, as I said, superficially it can look like they don't. And so, I felt this [the MAP] really was able to sort of separate, separate those two things and sort of focus in on more on that shared experience of graduate school being terrifically stressful in some ways and also, I think something that everybody there [in the MAP] wanted to do more than like just working right. They want[ed] to research, and they think about ideas in a specific way and that's a very different modality. (A10LF58)

The importance of partaking in the MAP as a group was highlighted by participants, where they described being engaged in meaningful conversations despite being essentially strangers. One participant described this experience with the following quote:

> it [was] not until this program that I realized "oh, this little connection really … it kind of like lightened up my day" even though that sounds cheesy [laughs]. Just being able to … hear their [other participants'] stories … I'm very touched that they are willing to open

up about their stories. I feel a sense of trust … a lot of the positive effects I got from this

program were not from the meditation itself, it [was] from this connectedness with the

group. (L24NK88)

Another participant underscored the importance of the group experience for their progress with

the MAP, stating:

I think if I was going through this stuff individually, it would not have been as impactful.

Part of it was just this commitment of wanting to keep up with peers who are going

through this program with me. The other part of it was seeing how other people were

vulnerable and experiencing things similar to what I was experiencing. And then also just

… seeing them think mindfully, take mindfulness aspects … into their life, and seeing

them comment about how they feel, and so on … all that stuff was helpful, too. So yeah

… I think the program being in a group format where I could interact with other people

was important because I don't know if I would have seen all of the same benefits if I

didn't have all of those factors … motivating me and also explaining to me and giving me

examples to see what all this kind of stuff [mindfulness] really is. If it was just

independent … I mean who knows? I might have just stopped halfway through the

program. … We didn't like become friends or anything … however, participating

together with them was really important for driving points home and … helping me to

understand [the MAP content] and motivating me to keep going back.  (R11RP40)

Similar to what was shared in the semi-structured interviews, participants reported in the

MAP post-program questionnaire that they felt supported by each other and the facilitator

throughout the MAP, which helped to create feelings of connection and decreased feelings of

loneliness and isolation.  One participant described that they valued:

listening to the other participants' stories/perspectives. It helps to know that you are not

alone and that the human experience of challenges/difficulties/feelings is shared. I find I

often forget this and having group discussions was helpful to remind me of this.

(M11TB66)

Similarly, another explained that they appreciated:

learning from each other in an open, welcoming, non-judgmental, relaxing setting with

guidance from a group leader. Many of the group members' experiences were relatable.

Listening to their nuanced perspectives on these relatable experiences were both

affirming and thought-provoking to me. Their openness to share was heart-warming and

made me feel comfortable [being] vulnerable. (L24NK88)

A third participant described the most valuable aspect of MAP to them as: "having the

opportunity to connect with other grad students and hear[ing] that they are experiencing similar

challenges" (L12BB80).

Another way in which participants connected with others was by sharing what they

learned from the MAP. Several participants reported that they did teach others about MAP

concepts, and those individuals included their partner, parents, friends, and siblings. In terms of

what they taught others, no major themes emerged from the responses although there were a

variety of answers that included: "how to deal with conflict, active listening, and conflict

resolution over reactivity" (A10LF58); "tools, like mindful eating, mindful listening, and trying

to be aware of your emotions" (K29HB81); and "[the] importance of being kind to [one]self"

(R11RP40).

***Logistics***

The theme of logistics includes two attributes of the MAP: the delivery of the program using a virtual format and the timing of the program.

**Virtual Format**

Offering the MAP virtually (using Zoom) was very well-received by participants. The participants described that one of the greatest benefits of offering the program virtually was that it afforded them the ability to be more vulnerable and engage more authentically with the MAP and each other. The virtual format allowed the participants to be in the comfort of their own environment when discussing topics that were personal or sensitive. Additionally, participants were not required to keep their cameras on during the MAP sessions; however, most did keep their cameras on for the whole duration of each session with the exception of the mindfulness practice portions of the session. Turning off cameras during the mindfulness practices was encouraged, by the facilitator, as a tool to help participants fully immerse themselves in the practice. Participants seemingly appreciated the flexibility regarding their camera being on/off, especially during the mindfulness practices. For example, one participant said "I think I would have felt like I couldn't … let go of control [of my emotions] in the same way. … I would have been conscious of there being people around me watching me and stuff like that" (E24OM36). Another participant spoke to the comfort of being in a virtual format by saying:

> I think for the subject matter where you're just dealing with strangers and you're talking about some … more personal or … novel stuff like mental health, it does help to have a little bit of distance and it can make people feel more comfortable to sharing so that's one point on the practicality. (J6WB85)

Another participant shared similar sentiments as included in the previous quote. They said:

it [the virtual environment] create[d] … distance that makes me feel comfortable. … I

know that some people prefer in-person group meetings, that makes them feel more

connected to the fellow humans, but for me, that makes me very uncomfortable to sit in

the same room face-to-face with strangers. So … the Zoom format really worked for me.

And I felt I was welcome to follow up, to open up about my experiences without feeling

awkward. (L24NK88)

However, one participant did mention that they would have felt more secure during the

sessions if everyone was in the same room. They explained that:

sometimes people were accessing it [the MAP] from a public space and so they might

have had headphones in … it just doesn't feel as safe and secure as it would have been if

we're all in a room together and there's no one else there. (L12BB80)

A secondary benefit to the program being offered via a virtual format was that

participants found it more accessible; they explained that joining the MAP sessions virtually

reduced travel time and allowed them to fit this program into their busy schedules. One

participant, who was living in a different city than the host institution, underscored the

importance of the virtual format for them. They said, "I couldn't have done this program if it was

in person right, so I think it [virtual format] still gives me more opportunities" (A10LF58).

Furthermore, as previously noted, there was an instance when a participant joined the MAP

session while their partner was undergoing surgery, proving the accessibility and versatility of

Zoom as this participant joined from the hospital. Another person mentioned the accessibility of

the virtual format by saying:

I usually pick Zoom [when there is the option to so] just, you know, in case something

comes up, and I'm not … able to get to campus that day. Or you know … I mean it's kind

of bad to say, but just with some of my anxiousness, it's easier to kind of hide on a screen than if you were in person. (K29HS81)

**Program Timing and Length**

Regarding the program timing and length, participants' suggestions included meeting over 12 weeks instead of 6, changing the time in which the sessions were offered, and providing more opportunities to attend sessions or to miss sessions. One participant wrote, "it may have been more difficult to arrange, but I wonder if having the sessions separately may have been useful to spread out what we're learning (so meeting 12 times instead of [including] two [of the MAP] sessions in [each of the] 6 meetings)" (K29HB81).

Participants mentioned they would have appreciated more flexible time options besides the 11 a.m. Eastern Standard Time session each week. Many participants mentioned the time of day was inconvenient, stating they would be productive in the morning and felt like they had to stop their flow of work to attend to the MAP session. One participant said:

> I just wasn't as focused as I feel I would have been if maybe it was later in the day or earlier and I don't know, my emails [were] still going off … it's a popular time for people to be sending emails and so I'm just sitting here like "Oh, I need to respond to these" but I need to focus on this at the same time … I'm sure it depends depending on the person and what their kind of work style is but yeah just offering more times if that's possible to better fit some people's schedules. (L12BB80).

Another participant mentioned the time "worked out okay with my schedule but an hour and a half could be an awkward amount of time to try to sort of fit in between classes and stuff like that if I had other stuff going on" (E24OM36).

Some participants mentioned they would have appreciated more options from which to choose each week, as reflected in the following quotation, "if they had more frequent sessions or … more flexible scheduling times that would make it, I guess even better for graduate students because they are typically busy" (J6WB85).

**Quantitative Findings**

The difference between the pre- and post-intervention scores for stress, self-awareness, and interpersonal skills from the validated tools are presented in Table 4. Of the five paired *t*-tests that were conducted and analyzed, four were statistically significant ($p < 0.05$).

From pre- to post-intervention, there was a statistically significant decrease in participants' perceived stress ($p = .043$). Participants' private self-awareness increased after participating in the program ($p = .006$). The results of the SSAS subscale for self-awareness of immediate surroundings showed a positive change from baseline to post-intervention, indicating participants experienced greater awareness of their immediate surroundings post-intervention ($p = .044$). Lastly, participants experienced significant increases in their scores of social connectedness from pre- to post-program ($p = .006$).

**Table 4**

*Difference in Means between Baseline and Post-intervention Scores for Perceived Stress, Situational Self-Awareness, and Social Connectedness*

| Pair | Baseline Means | Post-Intervention Means | Difference in means (Post-Intervention – Baseline) | 95% Confidence Interval of the difference | $SD^d$ | *p*-value |
|---|---|---|---|---|---|---|
| PSS[a] | 29.222 | 25.222 | -4.000 | [-7.843, -.157] | 5.000 | .043 |
| SSAS[b] (Private) | 12.222 | 15.556 | 3.333 | [1.228, 5.438] | 2.739 | .006 |

| Pair | Baseline Means | Post-Intervention Means | Difference in means (Post-Intervention – Baseline) | 95% Confidence Interval of the difference | $SD^d$ | $p$-value |
|---|---|---|---|---|---|---|
| SSAS (Public) | 14.222 | 12.111 | -2.111 | [-5.382, 1.160] | 4.256 | .175 |
| SSAS (Immediate Surroundings) | 12.333 | 15.333 | 3.000 | [.098, 5.902] | 3.775 | .044 |
| SCS-R[c] | 63.778 | 80.111 | 16.333 | [6.064, 26.603] | 13.360 | .006 |

[a]Perceived Stress Scale

[b]Situational Self-Awareness Scale

[c]Social Connectedness Scale-Revised

[d]Standard Deviation

The difference in self-awareness- and interpersonal skills-coded items from the MAP-specific questionnaires can be seen in Table 5.

**Table 5**

*Difference in Means between Baseline and Post-Intervention Scores from the MAP-Specific*

*Questionnaires*

| Pair | Baseline Means | Post-Intervention Means | Difference in means (Post-Intervention – Baseline) | 95% Confidence Interval of the difference | $SD$ | $p$-value |
|---|---|---|---|---|---|---|
| Self-awareness items | 30.000 | 36.000 | 6.0000 | [2.274, 9.726] | 4.848 | .006 |
| Interpersonal skills items | 11.667 | 12.444 | 0.778 | [-.843, 2.398] | 2.108 | .301 |

Participants' satisfaction with the program is presented in Table 6.

**Table 6**

*Program Satisfaction Results from the MAP-Specific Post-Program Questionnaire*

| Question | $N$ | Mean | Minimum[a] | Maximum[a] | *SD* |
|---|---|---|---|---|---|
| Overall, I was satisfied with the learning experience | 9 | 4.33 | 3 | 5 | .87 |
| The content of the learning experience was appropriate for my needs. | 9 | 4.11 | 3 | 5 | .93 |
| I gained a solid understanding of the topics covered in this learning experience. | 9 | 4.44 | 3 | 5 | .73 |
| It's clear how I will apply the knowledge gained from this learning experience. | 9 | 4.11 | 2 | 5 | 1.05 |
| This learning experience made good use of time. | 9 | 4.22 | 2 | 5 | 1.09 |

[a]Participants selected a score for each of the five questions from a range of 1 to 5. The options were never (1), rarely (2), once in a while (3), sometimes (4), and almost always (5).

## **Chapter 4: Discussion**

The two-fold primary purpose of this pilot study was to: (1) explore, qualitatively, the influence of the MAP on graduate students' experiences of stress and their relationship with themselves and meaningful others; and (2) investigate, quantitatively, if participation in the MAP elicited changes in graduate students' levels of stress, self-awareness, interpersonal skills, and/or social connectedness. The secondary purpose of this pilot study was to gain an understanding of graduate students' satisfaction with the MAP. The following sections will include a discussion of the findings pertaining to the primary and secondary purposes of this study. Afterwards, the strengths, limitations, and future directions from this study are discussed.

The meaningful reduction in perceived stress reported by participants after completing the MAP is especially noteworthy given the timing of the program offering. Specifically,

academic stressors and associated experiences of stress tend to increase from the start to the end

of a term (Moffat et al., 2004; Pitt et al., 2018). However, participants in the current study (which

began in mid-September and ended in mid-October) described gaining stress-management tools

while actually perceiving a reduction in their stress by the end of the program. This is an

important finding, particularly given Dai and colleagues (2014) reported that joining a behaviour

change program in concert with other new beginnings is an effective approach for encouraging

aspirational behaviour change. Dai and colleagues (2014) proposed a 'fresh start effect' which

describes the galvanizing effect a new temporal landmark (e.g., a new academic semester,

month, or year) has on beginning positive behaviour changes (e.g., new year's resolutions).

While there may be momentum for students to begin a positive behaviour change – such as

participating in a mindfulness-based program – at the beginning of a semester, having multiple

new responsibilities associated with the start of the term (e.g., teaching assistantships, research

responsibilities) might also pose challenges to participant engagement and/or attrition. Issues of

attrition and engagement were apparent in the present study, and future researchers might

consider adding incentives to their program offerings in the future, as White and colleagues

(2019) did in their study. The researchers offered a 12-week, behavioural self-care intervention

as part of a graduate course and bonus points were offered to incentivize students to meet their

behavioural goals (White et al., 2019). Given the MAP was originally intended to be a 12-week

program, and some participants stated that they might have preferred participating in the MAP

with shorter weekly sessions offered over a longer duration, a MAP offering at the beginning of

the semester coupled with incentives over a longer duration of the program could be a promising

engagement strategy for graduate students. That said, it is important to note that White and

colleagues' (2019) study occurred in a public health class, where the curriculum content aligned

with the behaviour change intervention; perhaps the students in that program were more amenable to behaviour change, which could have facilitated the positive results of their study. Embedding a mindfulness-based program into a health promotion or other health-focused class could be another way to enhance the engagement of graduate students.

Although stress levels tend to increase as the semester progress, the beginning of an academic year can also be a stressful time for students (Pitt et al., 2018; Radcliffe & Lester, 2003). Navigating transitional stressors (e.g., moving to a new city, creating new social support systems, new routines, and other lifestyle changes that coincide with beginning a new degree) can be challenging without established social support networks (Radcliffe & Lester, 2003; Robotham, 2008). The lack of social support at the outset of a graduate student's degree can be especially challenging, as low social support levels/satisfaction are associated with negative impacts on perceived stress (Crutcher et al., 2018; King et al., 2014; Suwinyattichaiporn & Johnson, 2022). It is likely that all of the participants in the present study began their current graduate degree during the COVID-19 pandemic, as all but one reported being in their first, second, or third year of study. Therefore, it is possible the participants in our study may not have had the same opportunities to develop social support systems at the start of their degrees, compared to a student starting their degree before the pandemic (Vaterlaus et al., 2021), and participating in the MAP might have helped to fill this social support gap. Specifically, the participants of the present study responded quite favourably to the group component, indicating that it provided a means of social support and interaction with their peers. The positive response to the group component of the MAP is consistent with perceptions of group-based learning for graduate students (Ferguson, 2009; Jackson et al., 2014; Maher et al., 2008; Remmes Martin & Ko, 2011). Given mindfulness-based interventions' efficacy in reducing stress in post-secondary

students (Bamber & Kraenzle Schneider, 2016; Hindman et al., 2015; Regehr et al., 2013) and the positive influence mindfulness can have on students' social interactions (Aspy & Proeve, 2017; Cohen & Miller, 2009; Dai et al., 2022), the value of offering a mindfulness-based group program at the start of a new academic year with special consideration to graduate students transitioning into a new program is something other programmers may wish to consider moving forward.

Participants in the current study described a positive shift in their consideration and awareness of themselves. In fact, participants' descriptions of how participating in the MAP influenced their intrapersonal relationship reflected an overall experience of enhanced self-compassion, per Neff's (2003a) characterization of the term. Neff (2003a) proposed that self-compassion includes the three elements of self-kindness, common humanity, and mindfulness. Participants' descriptions of improved self-compassion after completing the MAP are consistent with the literature, as previous studies (Shapiro et al., 1998, 2005; Willgens & Palombaro, 2019) have indicated self-compassion improvements among premedical/medical students, graduate students, and healthcare professionals after participation in mindfulness-based programs, including a MAP-specific study on healthcare workers (Kim et al., 2022). This is an important finding as self-compassion has been associated with positive outcomes for undergraduate students. For example, in a study of first-year undergraduate students starting university in the United States, Terry and colleagues (2013) found that those higher in self-compassion reported less homesickness and depression, and greater satisfaction in attending university. Researchers studying undergraduate students at a Czech university found a negative association between self-compassion and mental health concerns (i.e., depression, anxiety, and stress; Kotera et al., 2022). Self-compassion has also been associated with benefits to the general adult (i.e., non-student)

population, including decreased psychopathology (MacBeth & Gumley, 2012), lower levels of

personal distress (Neff & Pommier, 2013), enhanced motivation to change self-reported personal

weaknesses (e.g., being shy, lacking self-confidence, having social difficulties; Breines & Chen,

2012), and higher levels of relationship satisfaction of partners and improved relational

wellbeing (Neff & Beretvas, 2013). Self-compassion has also been negatively associated with

pain-related anxiety and depression severity (Edwards et al., 2019). Researchers of another study

found that undergraduate students in the United States who participated in a brief self-

compassionate letter-writing intervention experienced significant reductions in global shame,

external shame, and self-criticism (Swee et al., 2023). While all of the above-noted benefits of

self-compassion appear relevant to graduate students, the decrease in self-criticism found in the

study by Swee's team is especially notable given self-criticism is a part of maladaptive

perfectionism (Brennan-Wydra et al., 2021) and perfectionism has been shown to predict

feelings of imposter syndrome in graduate students (Cowie et al., 2018). Given the results from

this study indicate the MAP can bolster self-compassion, researchers could offer the MAP to a

larger sample of students in the future and measure self-compassion using a validated tool, such

as the Self-Compassion Scale (Neff, 2003b) to quantitatively capture the MAP's impact on self-

compassion in graduate students.

An increase in self-compassion might contribute to explaining why participants in the

current study reported feelings of connection with others through taking the MAP.  That is,

Edwards and colleagues (2019) explained that an integral characteristic of practicing self-

compassion includes individuals actively recognizing that they are part of a community (as

opposed to isolated individuals), which may improve feelings of connection with others.

However, Edwards et al. (2019) also noted that this recognition and appreciation of being part of

a larger community is a unique strength of self-compassion and may not be an inherent part of all

mindfulness-based programming. That said, it is important to note that participants underscored

these connections being made particularly via the MAP's group-based programming/discussions.

The value of group discussions was also highlighted by health science graduate students in

Willgens and Palombaro's (2019) 6-week mindfulness-based program in the United States. The

participants of that study reported benefitting from meeting people outside of their typical

academic stream of health science and learning that they were experiencing similar (if not the

same) challenges (Willgens & Palombaro, 2019). This notion is consistent with the current study

participants' descriptions of recognizing the challenges they face as graduate students being

echoed by their peers, which some described as helping to mitigate feelings of loneliness. The

implications of not feeling alone in one's struggles are important, as isolation in undergraduate

students predicted increases in depression and anxiety levels, worsened global mental health, and

an increased risk for an eating disorder in a longitudinal study by Richardson and colleagues

(2017). Although specific to undergraduate students, findings from Richardson et al. (2017) are

likely relevant for graduate students also, given nearly 20% of participants in Ray et al.'s (2019)

study of graduate and professional health science students in the United States reported being

socially isolated. Willgens and Palombaro (2019) explained that graduate students rarely have

formal opportunities to practice interpersonal skills such as managing conflict or active listening,

which might further contribute to feelings of isolation. Moreover, graduate students reported not

having many opportunities to interact with students outside of their discipline due to the structure

of their program (Swain et al., 2016). For example, in Swain and colleagues' 2016 study of

graduate students in special education, school psychology, and speech-language pathology in the

United States, the school psychology program had more built-in opportunities to collaborate with

individuals from the other two disciplines on graduate coursework. The limited formal

opportunities graduate students tend to have to interact with students outside of their discipline

(Swain et al., 2016; Willgens & Palombaro, 2019) might further contribute to feelings of

isolation. The MAP could be a forum for graduate students to have allocated time for regular

interpersonal interactions, while also benefitting from the other strengths of the MAP (e.g., stress

management tools, mindfulness strategies).

The graduate students in the current study were satisfied with their MAP experience. In

fact, the mean scores for all five questions from the satisfaction-oriented questionnaire never

dipped below a four out of five, reflecting widespread satisfaction among participants in terms of

MAP's content, the learning experience, and suitability for application. These findings are

consistent with MacDougall and colleagues' study (2018) assessing the acceptability of the MAP

for youth experiencing early psychosis. MacDougall et al. (2018) administered the Client

Satisfaction Questionnaire (Larsen et al., 1979) to measure the program's acceptability, and they

too found high scores. Future studies may wish to use a separate, external tool, such as the Client

Satisfaction Questionnaire, to assess the satisfaction/acceptability of the MAP more definitively,

as the present study used a non-validated tool to assess satisfaction. While 'satisfaction' was

measured via the program satisfaction tool from the MAP-specific post-program questionnaire,

additional content from the qualitative components of the current study pointed to some specific

experiences/outcomes that were particularly satisfying. For instance, before starting the program,

participants identified that they wanted to learn how to improve their stress management and

intrapersonal skills, and both of these skill sets were described as being bolstered after

completing the MAP.

Some of the satisfaction-related findings from this study seem to align with the adaptability construct from the Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2009). The CFIR is a widely used implementation framework consisting of five domains (McKay et al., 2019). Adaptability is a construct associated with the implementation characteristics domain and refers to the ability of an intervention to be tailored to the needs of its participants (Damschroder et al., 2009). Adaptability of the MAP was achieved both by offering the program on Zoom (n.d.; although it was originally designed to be offered in-person) and by the inherent flexibility of the MAP, which allowed us to offer the program over 6 weeks instead of 12. The MAP was offered quite seamlessly over a virtual format, as there were no major technical difficulties. While some individuals expressed a slight preference to attend an in-person offering, most identified that the virtual format was ideal (beyond maintaining pandemic-related safety protections); the virtual format allowed attendance by participants who were living outside of the city or due to extenuating circumstances, needed to join remotely to where and when the current study was conducted. The adaptability of the program might be important for extending the reach of MAP for additional populations of graduate students.

**Strengths, Limitations, and Future Directions**

An important strength of this study was the triangulation of data due to the inclusion of both qualitative and quantitative components. That is, at both time points, the mixed methods approach afforded the research team a composite understanding of the findings related to the study's purposes. Although the current study provides meaningful contributions to understanding the value of the MAP for graduate students, it was not without limitations. The small sample size impacted the power of the study and, therefore, the quantitative results. The sample lacked racial and gender diversity, with the majority of participants being white and female-identifying. The

low sample size and lack of diversity in the sample limit the potential transferability of these findings by other researchers to other groups of graduate students. Lastly, due to the voluntary nature of the program and the convenience sampling strategy used, individuals who were interested in mindfulness and/or believed it to be helpful were likely those who chose to participate and this might have contributed to some of the positive feedback (Murphy, 2021).

Researchers wishing to explore the MAP's influence on graduate students should consider purposefully recruiting and studying the impact of the program on a larger and more diverse participant profile.  It would also be valuable to assess differences when offering the program over 6 compared to 12 weeks. Providing graduate students with the option to choose among multiple session days and times each week might further enhance the flexibility of the program for graduate students and is recommended. Researchers could also consider incorporating more elements from the CFIR (Damschroder et al., 2009) to assess the implementation of the MAP for graduate students.

## Conclusion

To the best of the research team's knowledge, this was the first study to explore the influences of the MAP on a sample of graduate students. Participants reportedly experienced various stress-related, intrapersonal, and interpersonal benefits from their MAP participation, and they found the MAP to be highly satisfactory. In combination, the findings from the study indicate that the MAP is a viable approach to help positively influence graduate students' wellbeing. These findings should be explored with a larger and more diverse group of graduate students. Graduate student-focused interventionists who aim to improve graduate student wellbeing may benefit from incorporating the MAP into their program offerings.

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**Appendix A**
**Data Trustworthiness Measures**

| Credibility | During the semi-structured interviews, member checking of participants occurred by the lead researcher to verify that what is being understood by the researcher is what the participant intended in their response (Birt et al., 2016). |
|---|---|
| **Dependability** | The lead researcher maintained detailed notes regarding any changes to the research plan or setting in order to provide an audit trail (per Thomas & Irwin, 2009). The lead researcher also used reflexivity to be mindful of any biases (Patton, 2014). |
| **Confirmability** | During data analysis, the lead researcher and a research assistant independently reviewed and coded the open-ended responses to minimize bias and support the data confirmability (Lincoln & Guba, 1985; Patton, 2014). Upon completion of the coding, the researchers convened to determine the final themes with corroborative quotations (Lincoln & Guba, 1985). |
| **Transferability** | Transferability was achieved by ensuring the thesis document accurately and comprehensively reports on all of the contextual details necessary to achieve the same study elsewhere (Lincoln & Guba, 1985). |

**Appendix B**
**Ethics Approval Notice**

Western
Research

**Date:** 18 July 2022

**To:** Dr. Jennifer Irwin

**Project ID:** 121112

**Review Reference:** 2022-121112-68812

**Study Title:** MindMAP: The Influences of the Mindfulness Ambassador Program on Graduate Students

**Application Type:** HSREB Initial Application

**Review Type:** Delegated

**Meeting Date / Full Board Reporting Date:** 09/Aug/2022

**Date Approval Issued:** 18/Jul/2022 11:55

**REB Approval Expiry Date:** 18/Jul/2023

_____

Dear Dr. Jennifer Irwin

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the above mentioned study as described in the WREM application form, as of the HSREB Initial Approval Date noted above. This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study**.

**Documents Approved:**

| Document Name | Document Type | Document Date |
|---|---|---|
| MindMAP_Baseline - July 13 | Online Survey | 13/Jul/2022 |
| MindMAP_EligibilityConsentID - July 13 | Online Survey | 13/Jul/2022 |
| MindMAP_Mindfulness_without_Borders_Pre-Program_Participant_Survey - July 13 | Online Survey | 13/Jul/2022 |
| MindMAP_Mindfulness_without_Border_Post-Program_Tool - July 13 | Online Survey | 13/Jul/2022 |
| MindMAP_Immediate_Post-Intervention - July 13 | Online Survey | 13/Jul/2022 |
| MindMAP Recruitment June 2 | Recruitment Materials | 02/Jun/2022 |
| MindMAP - Social Media Recruitment Messaging | Email Script | 13/Jul/2022 |
| MindMAP The Influences of the Mindfulness Ambassador Program on Graduate Students - July 15 | Protocol | 15/Jul/2022 |
| MindMAP Post-Intervention Interview Guide July 15 | Interview Guide | 15/Jul/2022 |
| MindMAP - Mass Email Recruitment July 13 | Email Script | 13/Jul/2022 |
| MindMAP Pre-Intervention Email Template June 17 | Email Script | 17/Jun/2022 |
| MindMAP Post-Int Assessments Email Template June 17 | Email Script | 17/Jun/2022 |
| MindMAP_LOI July 15 | Written Consent/Assent | 15/Jul/2022 |

**Documents Acknowledged:**

| Document Name | Document Type | Document Date |
|---|---|---|
| Ethics Rationale References | References | 15/Jul/2022 |

No deviations from, or changes to, the protocol or WREM application should be initiated without prior written approval of an appropriate amendment from Western

HSREB , except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

REB members involved in the research project do not participate in the review, discussion or decision.

The Western University HSREB operates in compliance with, and is constituted in accordance with, the requirements of the TriCouncil Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2); the International Conference on Harmonisation Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The HSREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Please do not hesitate to contact us if you have any questions.

Electronically signed by:

**Reason:** I am approving this document

*Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations, See* **Electronic System Compliance Review***)*

**Appendix C**
**Demographic Questions**

1. What is your age in years?

_____

2. To which gender do you most identify? (Refers to current gender which may be different from sex assigned at birth and may be different from what is indicated on legal documents)

☐ Man
☐ Woman
☐ Non-binary
☐ Two-Spirit
☐ Gender Fluid
☐ Not listed – please specify

_____

☐ Prefer not to answer

3. What is your self-identified race/ethnicity? (Select all that apply)

☐ Indigenous origins

☐ White (e.g., Caucasian, European)

☐ Black (e.g., African Black, Canadian Black, West-Indian Black)

☐ East Asian (e.g., Chinese, Japanese, Korean, Polynesian)

☐ South Asian (e.g., Indian, Pakistani, Sri Lankan, Bangladeshi)

☐ Southeast Asian (e.g., Burmese, Cambodian, Filipino, Malaysian, Laotian, Thai,

   Vietnamese)

☐ West Asian / Arab (e.g., Syrian, Egyptian, Turkish, Iranian, Israeli, Lebanese)

☐ Latin, Central, or South American

☐ Mixed Race

☐ Not listed – please specify

_____

☐ I prefer not to respond to this question

4. What is your current employment status? (Select all that apply)

☐ Employed full-time

☐ Employed part-time

☐ Unemployed

☐ Unemployed and currently looking for work

☐ Unemployed and not currently looking for work

☐ Self-employed

☐ Unable to work

☐ Not listed – please specify

_____

☐ I prefer not to respond to this question

5. What is your year of enrolment?

☐ Master's – Year 1

☐ Master's – Year 2

☐ Master's – Year 3+

☐ Doctoral – Year 1

☐ Doctoral – Year 2

☐ Doctoral – Year 3

☐ Doctoral – Year 4

☐ Doctoral – Year 5

- ☐ Doctoral – Year 6+

- ☐ Professional Program – Year 1

- ☐ Professional Program – Year 2

- ☐ Professional Program – Year 3

- ☐ Professional Program – Year 4

- ☐ Professional Program – Year 5

- ☐ Professional Program – Year 6

- ☐ Combined Program (e.g., Meng/MBA, PhD/OT, MD/PhD) – Year 1

- ☐ Combined Program (e.g., Meng/MBA, PhD/OT, MD/PhD) – Year 2

- ☐ Combined Program (e.g., Meng/MBA, PhD/OT, MD/PhD) – Year 3

- ☐ Combined Program (e.g., MEng/MBA, PhD/OT, MD/PhD) – Year 4

- ☐ Combined Program (e.g., MEng/MBA, PhD/OT, MD/PhD) – Year 5

- ☐ Combined Program (e.g., MEng/MBA, PhD/OT, MD/PhD) – Year 6+

- ☐ Not listed – please specify

  _____

6. What is your faculty of registration?

- ☐ Arts and Humanities

- ☐ Engineering

- ☐ Health Sciences

- ☐ Don Wright Faculty of Music

- ☐ Education

- ☐ Information and Media Studies

- ☐ Law

- ☐ Ivey Business School

- ☐ Schulich School of Medicine & Dentistry

- ☐ Science

- ☐ Social Science

- ☐ Not listed – please specify

      _____

**Appendix D**
**Perceived Stress Scale - 10**

**Perceived Stress Scale - 10 Item** (Cohen and Williamson 1988)

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

2. In the last month, how often have you felt that you were unable to control the important things in your life?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

3. In the last month, how often have you felt nervous and "stressed"?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

5. In the last month, how often have you felt that things were going your way?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

7. In the last month, how often have you been able to control irritations in your life?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

8. In the last month, how often have you felt that you were on top of things?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

9. In the last month, how often have you been angered because of things that were outside of your control?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

**Appendix E**
**Situational Self-Awareness Scale**

| | 1 (Strongly Disagree) | 2 | 3 | 4 | 5 | 6 | 7 (Strongly Agree) |
|---|---|---|---|---|---|---|---|
| 1. Right now, I am keenly aware of everything in my environment. | | | | | | | |
| 2. Right now, I am conscious of my inner feelings. | | | | | | | |
| 3. Right now, I am concerned about the way I present myself. | | | | | | | |
| 4. Right now, I am conscious about the way I look. | | | | | | | |
| 5. Right now, I am conscious of what is going on around me. | | | | | | | |
| 6. Right now, I am reflective about my life. | | | | | | | |
| 7. Right now, I am concerned about what other people think of me. | | | | | | | |
| 8. Right now, I am aware of my innermost thoughts. | | | | | | | |
| 9. Right now, I am conscious of all objects around me. | | | | | | | |

*Note.* Adapted from "Development and Validation of the Situational Self-Awareness Scale" by J. M. Govern and L. A. Marsch, 2001, *Consciousness and Cognition, 10*(3)*,* p. 369
https://doi.org/10.1006/ccog.2001.0506

**Appendix F**
**Social Connectedness Scale -Revised**

*Study 1: Factor Loadings, Item Means, and Standard Deviations for Three-Factor Solution for the Social Connectedness Scale—Revised*

| Item | Factor | | | M | SD |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | | |
| 1. I feel distant from people. | .83 | .32 | −.01 | 2.68 | 1.35 |
| 2. I don't feel related to most people. | .79 | .20 | −.07 | 2.61 | 1.29 |
| 3. I feel like an outsider. | .78 | .23 | −.01 | 2.58 | 1.32 |
| 4. I see myself as a loner. | .75 | .22 | .05 | 2.66 | 1.52 |
| 5. I feel disconnected from the world around me. | .73 | .14 | −.19 | 2.45 | 1.29 |
| 6. I don't feel I participate with anyone or any group. | .71 | .11 | .07 | 2.28 | 1.34 |
| 7. I feel close to people. | −.69 | .22 | −.14 | 4.41 | 1.25 |
| 8. Even around people I know, I don't feel that I really belong. | .67 | .12 | .18 | 2.41 | 1.35 |
| 9. I am able to relate to my peers. | −.67 | .16 | .06 | 4.59 | 1.01 |
| 10. I catch myself losing a sense of connectedness with society. | .67 | .21 | −.15 | 2.72 | 1.31 |
| 11. I am able to connect with other people. | −.65 | .37 | .08 | 4.60 | 1.08 |
| 12. I feel understood by the people I know. | −.61 | .24 | −.11 | 4.23 | 1.22 |
| 13. I see people as friendly and approachable. | −.61 | .31 | .21 | 4.15 | 1.09 |
| 14. I fit in well in new situations. | −.60 | .39 | .37 | 4.06 | 1.78 |
| 15. I have little sense of togetherness with my peers. | .59 | −.10 | .16 | 2.64 | 1.33 |
| 16. My friends feel like family. | −.59 | .35 | −.45 | 4.43 | 1.30 |
| 17. I find myself actively involved in people's lives. | −.57 | .23 | −.07 | 4.15 | 1.23 |
| 18. Even among my friends, there is no sense of brother/sisterhood. | .55 | −.03 | .40 | 1.99 | 1.21 |
| 19. I am in tune with the world. | −.51 | .09 | .15 | 4.41 | 0.97 |
| 20. I feel comfortable in the presence of strangers. | −.49 | .25 | .32 | 4.01 | 1.21 |

*Note.* Reprinted from Lee, R.M., Draper, M., & Lee, S. (2001). Social connectedness, dysfunctional interpersonal behaviors, and psychological distress: Testing a mediator model. Journal of Counseling Psychology, 48, 310-318.

**Appendix G**
**Baseline Open-Ended Questions**

Please describe your relationship with yourself.

_____

_____

_____

_____

_____

Please describe your relationship with your meaningful others.

_____

_____

_____

_____

_____

Please describe your current stress levels.

_____

_____

_____

_____

_____

Self-awareness be described as "knowledge about the self." Please describe the extent to which you perceive yourself to be self-aware.

_____

_____

_____

_____

_____

Interpersonal skills can be thought of as mechanisms used by an individual to maintain their relationships. Please describe the level of satisfaction you currently experience with regard to your interpersonal skills.

_____

_____

_____

_____

_____

What do you hope to gain from your participation in this program?

_____

_____

_____

_____

_____

**Appendix H**
**MAP-Specific Pre-Program Questionnaire**

# MINDFULNESS WITHOUT BORDERS

Participant Survey (Pre-Program)                                                 ID: _____

**Instructions:** To complete this questionnaire, simply read the question and circle the number that best describes you.

|  | Never | Rarely | Once in a While | Sometimes | Almost Always |
|---|---|---|---|---|---|
| 1. I am mindful in my daily life. | 1 | 2 | 3 | 4 | 5 |
| 2. I know effective ways to focus my attention. | 1 | 2 | 3 | 4 | 5 |
| 3. I am aware of my personal strengths and weaknesses. | 1 | 2 | 3 | 4 | 5 |
| 4. I consider other peoples' perspectives when they differ from my own. | 1 | 2 | 3 | 4 | 5 |
| 5. I understand how to make responsible decisions. | 1 | 2 | 3 | 4 | 5 |
| 6. I communicate effectively with others | 1 | 2 | 3 | 4 | 5 |
| 7. I am grateful in my daily life. | 1 | 2 | 3 | 4 | 5 |
| 8. I know effective ways to manage my reactions when I am triggered. | 1 | 2 | 3 | 4 | 5 |
| 9. I know effective ways to set goals and take action to support the future I want for myself. | 1 | 2 | 3 | 4 | 5 |
| 10. I help others in my daily life. | 1 | 2 | 3 | 4 | 5 |
| 11. I know effective ways to calm down and reduce stress | 1 | 2 | 3 | 4 | 5 |
| 12. While preparing for class and completing assignments I find myself being distracted. | 1 | 2 | 3 | 4 | 5 |

**Appendix I**
**Semi-structured Interview Guide**

Preamble: Before we begin, I want to ask for your verbal consent to record this call, the recording will be used to transcribe the interview and the transcriptions will be used for data analysis. [wait for response]. Thank you so much for your participation in my thesis study and for taking the time to meet today. The reason for today's interview is to follow-up on your experiences after the program ended. Your participation in this interview is voluntary and we anticipate it will take 30 - 45 minutes; however, we have up to an hour. The interview may not take the full hour and that is fine. I want you to know that there are no right or wrong answers, and you can refuse to any answer questions you wish. You may keep/turn on your camera if you are comfortable doing so, but this is not a requirement. As a reminder, this interview will be audio recorded and transcribed by Zoom for analysis purposes.

1. Compared to before your participation in the MAP, changes if any, have you noticed since being in the program with respect to your stress?

2. Compared to before your participation in the MAP, what changes, if any, have you noticed since being in the program with respect to your relationship with yourself?

3. Compared to before your participation in the MAP, what changes, if any, have you noticed since being in the study with respect to your relationships with your meaningful others?

4. Compared to before your participation in the MAP, what changes, if any, have you noticed since being in the program with respect to your self-awareness? As a reminder, self-awareness be described as "knowledge about the self."

5. Compared to before your participation in the MAP, what changes, if any, have you noticed since being in the program with respect to your interpersonal skills? As a reminder, interpersonal skills can be thought of as mechanisms used by an individual to maintain their relationships.

6. What other changes, if any, have you noticed since being of the program?

7. What else have you noticed about how the program has impacted you (so far)?

8. Please describe the extent to which participating in this program is practical for graduate students, with consideration anything you think is worthwhile to note.

**General Probes:**
- What's an example of…?
- Please say more about…
- Please elaborate…

**Appendix J**
**MAP-Specific Post-Program Questionnaire**

## MINDFULNESS WITHOUT BORDERS

Participant Survey (Post-MAP)                                    ID:_____

**Instructions:** To complete this questionnaire, simply read the question and circle the number that best describes you in comparison to how you felt and what you knew before starting the MAP program.

| SECTION ONE | Never | Rarely | Once in a While | Sometimes | Almost Always |
|---|---|---|---|---|---|
| 1. I am mindful in my daily life. | 1 | 2 | 3 | 4 | 5 |
| 2. I know effective ways to focus my attention. | 1 | 2 | 3 | 4 | 5 |
| 3. I am aware of my personal strengths and weaknesses. | 1 | 2 | 3 | 4 | 5 |
| 4. I consider other peoples' perspectives when they differ from my own. | 1 | 2 | 3 | 4 | 5 |
| 5. I understand how to make responsible decisions. | 1 | 2 | 3 | 4 | 5 |
| 6. I communicate effectively with others | 1 | 2 | 3 | 4 | 5 |
| 7. I am grateful in my daily life. | 1 | 2 | 3 | 4 | 5 |
| 8. I know effective ways to manage my reactions when I am triggered. | 1 | 2 | 3 | 4 | 5 |
| 9. I know effective ways to set goals and take action to support the future I want for myself. | 1 | 2 | 3 | 4 | 5 |
| 10. I help others in my daily life. | 1 | 2 | 3 | 4 | 5 |
| 11. I know effective ways to calm down and reduce stress. | 1 | 2 | 3 | 4 | 5 |
| 12. While preparing for class and completing assignments I find myself being distracted. | 1 | 2 | 3 | 4 | 5 |

| SECTION TWO | Never | Rarely | Once in a While | Sometimes | Almost Always |
|---|---|---|---|---|---|
| 1. Overall, I was satisfied with the learning experience | 1 | 2 | 3 | 4 | 5 |
| 2. The content of the learning experience was appropriate for my needs. | 1 | 2 | 3 | 4 | 5 |

**MINDFULNESS WITHOUT BORDERS**

| SECTION TWO – Continued | Never | Rarely | Once in a While | Sometimes | Almost Always |
|---|---|---|---|---|---|
| 3. I gained a solid understanding of the topics covered in this learning experience. | 1 | 2 | 3 | 4 | 5 |
| 4. It's clear how I will apply the knowledge gained from this learning experience. | 1 | 2 | 3 | 4 | 5 |
| 5. This learning experience made good use of time. | 1 | 2 | 3 | 4 | 5 |

**SECTION THREE**

1.  Have you taught anyone else any of the things that you learned about in the MAP? ☐ Yes      ☐ No

2.  If yes, who did you teach? Circle all that apply

Colleague         Siblings         Boyfriend/Girlfriend/Partner    Parents         Friends        Other

Describe what you taught them: _____

3.  Would you recommend this learning experience to your friends?                    ☐ Yes    ☐ No

4.  What were the most valuable aspects of this learning experience for you?

_____

_____

5.  How could this learning experience be improved?

_____

_____

6.  Do you have additional comments or reflections?

_____

_____

_____

**Appendix K**
**Permission to use the Social Connectedness Scale - Revised**

---

**From:** Richard Lee ▮▮▮▮▮▮▮▮▮▮▮▮
**Sent:** 26 May 2022 10:33
**To:** Varsha Vasudevan ▮▮▮▮▮▮▮▮▮▮▮▮
**Cc:** Jennifer Irwin ▮▮▮▮▮▮▮▮▮▮▮
**Subject:** Re: Request to Use the Social Connectedness Scale -Revised

Thank you for your interest in my measures. I have attached a copy of the scales, including different versions, scoring procedures, select references, and terms for usage. There is no separate scoring or interpretation manual. There also is no recommended cut-off score as the scale should be used as a continuous variable. I recommend using the SCS with both positive and negative items, rather than the original 8-item version with all negative items. In addition to the 20-item revised version, I

included a 2008 paper in which we dropped five items from the 20-item revised scale due to overlap with extraversion. If you need to translate one of the scales, please use a translation-back-translation method with independent translators. I also request a copy of any translation and the English back-translation. You may use any version. Please read the terms for usage described in the attached documents and let me know if they are acceptable prior to the use of the scales. If you are unable to provide access to de-identified SCS item level data, along with basic demographics, just let me know the reason and I can provide a waiver to this one condition. There is no copyright form beyond responding to this email.  Best, Rich

-----------------------------

Richard M Lee, PhD
Distinguished McKnight University Professor | Distinguished University Teaching Professor
Psychology | University of Minnesota
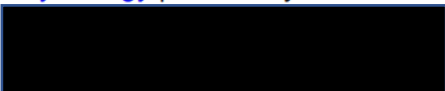
**Curriculum Vitae**

| | |
|---|---|
| **Name:** | Varsha Vasudevan |

**Post-Secondary Education and Degrees:**

Western University
London, Ontario, Canada
M.Sc., Health Promotion, Health and Rehabilitation Sciences
2021-Present

Western University
London, Ontario, Canada
B.HSc., Honours Specialization in Health Promotion with Western Scholars
2017-2021

**Honours and Awards:**

Western Graduate Research Scholarship
2022-2023

Canada Graduate Scholarship – Master's
2022-2023

**Related Work Experience:**

HS 4200 Advanced Health Promotion – Graduate Teaching Assistant, Western University
Winter 2023

HS 1110 Personal and Social Determinants of Resilience and Wellbeing- Graduate Teaching Assistant, Western University
Fall 2022

HS 2250 Introduction to Health Promotion - Graduate Teaching Assistant, Western University
Fall 2021

**Publications ($n = 1$)**

**Vasudevan, V**., Karmali, S., & Irwin, J. (2023). Parents' A priori Expectations of an Obesity-Focused Intervention and What They Found Valuable from its Health Education Webinars. Western Undergraduate Research Journal: Health and Natural Sciences, 11(1), 1-12. https://doi.org/10.5206/wurjhns.2021-22.5

**Conferences ($n = 4$)**

**Vasudevan, V**., Burke, S.M., Tucker, T., & Irwin, J. D. (2023). MindMAP: The Influences of the Mindfulness Ambassador Program on Graduate Students. Western Research Forum, Western University, London, ON, Canada. March 17, 2023 (Poster Presentation).

**Vasudevan, V**., Burke, S.M., Tucker, T., & Irwin, J. D. (2023). MindMAP: The Influences of the Mindfulness Ambassador Program on Graduate Students. Health and Rehabilitation Sciences Graduate Research Conference, Western University, London, ON, Canada. February 1, 2023 (Poster Presentation).

**Vasudevan, V.,** Karmali, S., & Irwin, J. D. (2021, March 27-28). Parents' A priori Expectations of an Obesity Focused Intervention and What They Found Valuable from its Health Education Webinars [Oral Presentation]. Western Student Research Conference, London, ON, Canada.

**Vasudevan, V.,** Karmali, S., & Irwin, J. D. (2021, March 22). Parents' A priori Expectations of an Obesity Focused Intervention and What They Found Valuable from its Health Education Webinars. School of Health Studies' First Annual Research Showcase, Western University, London, Ontario. March 22, 2021. Flash Talk. **\*First Place Flash Talk Award ($150 CAD).**

## Acknowledgements in Peer-Reviewed Journals (*n* = 8)

Shillington, K. J., Vanderloo, L. M., Burke, S. M., Ng, V., Tucker, P., & Irwin, J. D. (2022). A cross-sectional examination of Canadian adults' prosocial behavior during the COVID-19 pandemic. Journal of Rural Mental Health. Advance online publication. https://doi.org/10.1037/rmh0000201

Shillington, K. J., Vanderloo, L. M., Burke, S. M., Ng, V., Tucker, P., & Irwin, J. D. (2021). Not so sweet dreams: adults' quantity, quality, and disruptions of sleep during the initial stages of the COVID19 pandemic. Sleep medicine. https://doi.org/10.1016/j.sleep.2021.02.028

Shillington, K. J., Vanderloo, L. M., Burke, S. M., Ng, V., Tucker, P., & Irwin, J. D. (2021). Ontario adults' health behaviors, mental health, and overall well-being during the COVID-19 pandemic. BMC public health, 21(1), 1-15.

Shillington, K. J., Johnson, A. M., Mantler, T., & Irwin, J. D. (2021). Kindness as an intervention for student social interaction anxiety, affect, and mood: The KISS of kindness study. International Journal of Applied Positive Psychology, 6(1), 23-44.

Shillington, K. J., Johnson, A. M., Mantler, T., Burke, S. M., & Irwin, J. D. (2021). Kindness as an Intervention for Student Social Interaction Anxiety, Resilience, Affect, and Mood: The KISS of Kindness Study II. Journal of Happiness Studies, 1-31.

Moulin, M. S., Lee, C. J., Tucker, P., Prapavessis, H., & Irwin, J. D. (2020). Weekly recall of sedentary time: Validity of 2 weekly self-reported measures in undergraduate students. Translational Sports Medicine, 3(2), 127-133.

Moulin, M. S., Prapavessis, H., Tucker, P., & Irwin, J. D. (2020). Using mixed-method feasibility studies to examine the impact of a mobile standing desk on undergraduates' sedentary time. Journal of American College Health, 1-10.

Karmali, S., Battram, D. S., Burke, S. M., Cramp, A., Johnson, A. M., Mantler, T., ... & Irwin, J. D. (2020). Perspectives and impact of a parent-child intervention on dietary intake and physical

activity behaviours, parental motivation, and parental body composition: A randomized controlled trial. International Journal of Environmental Research and Public Health, 17(18), 6822.

**Service (*n* = 3)**

Councillor, Health & Rehabilitation Sciences Representative Society of Graduate Students, Western University, London ON
Sep 2021 – Aug 2022

Student Partner, Information Literacy Curriculum Review Western Libraries, Western University, London ON
Mar 2022

Panelist, Graduate School Question & Answer Event Western University, London ON
Nov 2021