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Laidlaw Scholars Undergraduate Leadership and Research Programme
Research Proposal

Many Paths to Wellbeing: Towards an Understanding of Distinct Mindfulness Mechanisms and the Matching Potential for People to Practices

Scholar's Full Name: Alanna Jane Sethi

Research Advisor: Dr. Norman Farb

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STUDENT LIFE | Centre for International Experience

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Abstract

Post-secondary students are particularly vulnerable to academic[1], financial, health and interpersonal[2] stressors, which leaves them at heightened risk for mood, anxiety, and substance use disorders. Despite the existence of college mental health services, students often underutilize available supports due to cost, stigma, or information barriers, including long waitlists when care is finally sought.[1] Overcoming such barriers is critical since mental health interventions are effective, reducing 47-80% of disorders experienced by students within a 12-month period.[2]

By providing accessible mental health solutions, students can improve their wellbeing. One solution is through mindfulness training (MT), which encompasses different practices such as meditation, breathwork and yoga. By comparing the efficacy of different MT practices and exploring the potential to match individuals to practices, this research will inform best practices for MT delivery for student wellbeing to ensure student receive the greatest benefit from MT practices.

This research will use quantitative and qualitative measures through measuring physiological and psychological measures of stress and wellbeing to determine the efficacy of MT practices and match-fit to MT practices based on baseline characteristics of preference. This will be administered using pre-programmed H10 polar belts and surveys via the Qualtrics platform, and data analyzed using R.

Introduction

As a Yoga instructor who manages a mental health condition, I am interested in exploring holistic techniques such as Meditation, Breathwork, and Yoga to improve wellbeing, which provide accessible and affordable alternatives to conventional mental health services.

Through this research I hope to gain a deeper understanding of the mechanisms of mindfulness and whether it is possible to match people to practices based on baseline characteristics.

Research Objectives & Questions

1. Mechanism: which MT practices promote the greatest benefits to post-secondary student wellbeing?
2. Match: can participant preferences for particular mechanisms predict who will benefit from a particular MT practice?

Background

The popularization of holistic practices as evidence-based programs such as MT appear to be effective means for developing student resilience and coping skills. Growing evidence now supports MT for improving attention and emotional awareness[3], and reducing rumination and depressive symptoms.[4,5] Yet MT consists of multiple practices, including body scan meditations, breathwork, and yoga, which makes finding the right practice confusing and a potential barrier to adoption.

Comparing MT practices is important because different practices seem to employ distinct therapeutic mechanisms. Body Scan Meditation cultivates *interoceptive awareness*, the ability to use body awareness to support emotion regulation.[6] Breathwork such as Resonant Frequency Breathing focuses on improving *heart rate coherence,* the synchrony of the breath and heart rate, which is believed to be an adaptive and restorative physiological state.[7, 12] Yoga is based on ancient eastern wisdom traditions, with Yin Yoga in particular emphasizing *stress relief* by using long passive yoga postures appears to stimulate the feeling of energy in body, accompanied by muscular relaxation and fascial release.[3,8]

Methodology

Overview: The proposed study would compare three forms of MT, delivered through two workshops separated by a week of online 'booster' sessions.
Participants: Participants (N=120) eligibility criteria include those who after hearing the study description are believe themselves to be healthy enough to participate. Participants will be assigned randomly to one of the three training groups (Body Scan Meditation, Resonant Frequency Breathing, Yin Yoga). Recruitment will be conducted via the UTM Department of Psychology SONA system, where students will receive payment or course credit for completion of the study.
Training: The 8-day study period includes attending two in-person, 1.5-hour workshops surrounding six daily online 'booster' sessions. The Body Scan Meditation workshops will consist of guided attention towards the body and discussion of body awareness following the Mindfulness-Based Stress Reduction curriculum.[9] Resonant Frequency Breathing workshops will guide participants to identify and employ a slower and deeper restorative breathing pattern.[10] Yoga workshops will employ a Yin tradition of instruction to move through a sequence of ten poses, each held for 3 minutes.[11]
Daily 'Boosters' will be provided by email link via the Qualtrics survey platform, where participants in all groups will complete a brief questionnaire assessing pre-training stress and wellness, 5 minutes of group-specific training, and then repeating the stress and wellbeing ratings.
Materials: During the workshops, validated measures will assess all three hypothesized mechanisms in all three training groups. *Heart Rate Coherence* will be assessed through polar H10 sensor belts worn during training workshops.[13] *Interoceptive Awareness* will be assessed using Multidimensional Assessment of Interoceptive Awareness-2 (MAIA) questionnaire.[14] *Stress Relief* will be assessed using the Perceived Stress Scale.[15] *Preference* for particular mind-body practices will be assessed by having participants read training practice descriptions and then ratings their preference for each on a 7-point scale.

Analysis Plan:
For each of the primary dependent measures (body awareness, heart rate coherence, and stress) the research questions will be tested using multilevel models in the R statistical programming environment. **RQ1** (relative efficacy) will compare change [baseline to post-intervention] between training groups to determine if any practice is superior. **RQ2** (matching) will then examine whether baseline preference scores predict the magnitude of change within each group.

Involvement:
My research supervisor, Dr. Norman Farb, and his lab, the Regulatory and Affective Dynamics Lab (RAD Lab) will be involved in this research. I will meet with Dr. Farb biweekly starting in May leading up to the Fellowship period, and weekly during the Fellowship period. The University of Toronto Mississauga Recreation, Athletics and Wellness Centre (RAWC) will be involved in the research through venue hire for the in-person components of delivering MT workshops to participants. This research may inform future research at the RAD Lab and mental health community-based work, such as at HOPE.

Training/ Certifications Needed

The Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2) training has been completed by myself as the primary investigator before the summer. All research members who have not already completed this, will gain this certification before the summer. I have also completed a teaching certification in Yoga and Meditation (over 480 hours), Mental Health First Aid and Standard First Aid prior to the summer.

Prior to or during Summer 1, I will conduct a one full-day in-lab training with research volunteers prior to commencement of research, so that all volunteers are trained in protocols.

Prior to and during Summer 1, I will also complete an evidence-based training in fascia science and yin yoga (Yin Yoga, Myofascial Release and Spine Anatomy by Yintelligence School of Yin & Functional Yoga) to gain a better understanding of underlying science and physiology in efficacy-based mindfulness training delivery. The 8-week training is approximately 60 hours from the 11 May to 26 May.

Research Location

I will be in Canada to conduct my research up to the 19 July. I will conduct research virtually from 20 to 26 July from Hong Kong.

Research Ethics Board

Yes, the research requires REB approval. The process will be initiated on the week of April 22nd and the proposal will be submitted in early May.

Timeline

May	22 April to 10 May – Prepare and submit research proposal for REB approval, including preparing poster for recruitment, construct questions for the Qualtrics survey assessments for data collection and develop the training manual. 11 May to 26 May – Training is conducted for the Yin Yoga, Myofascial Release and Spine Anatomy program by Yintelligence School of Yin & Functional Yoga.
June	1 June – Obtain REB approval and submit to Laidlaw Coordinators Fellowship Period: June 17-23: Construct Qualtrics survey, develop digital booster trainings, storyboard, and finalize workshop trainings. Room booking made at the RAWC for Workshops. June 24-30: Pilot trainings with research volunteers and collect feedback for refinement. In-Lab training of research volunteers, including learning to use and collect data from H10 belts. Early promotion of study using social media and posters distribution. *June 28: University is closed for Presidential Day*
July	*July 1 – University is closed for Canada Day* July 2-July 7: Recruitment* of 120 participants using UTM's SONA system, social media, and flyers. Participants will complete an eligibility screening and Baseline Assessments administered by Qualtrics. July 8 – First Workshop (1.5 hours) will be delivered at the RAWC. July 9 – July 14: Daily 'Booster' Trainings will be administered to participants via Qualtrics questionnaires with group-specific trainings and wellbeing survey ratings. July 15: Second Workshop (1.5 hours) will be delivered at the RAWC. July 16 – July 19: Download data from H10 belts and organize data July 20 – July 21: Travel to Hong Kong July 22 onwards: Assess data for quality control
August	Conduct data analysis, preparation of report, figures, and graphs for final deliverables to be submitted by September 1.

**Students are recruited for the study via the UTM Department of Psychology SONA system which operates according to UTM's term dates of: May 6 – June 17, July 2 – August 12. Due to student unavailability from June 18 – July 1, recruitment will only commence from July 2.*

Resources & Support Needed

As methods are already established at the RAD Lab, it is unlikely that further resources are needed. However, if needed, we may reach out for expert consults such as to Dr. Christine

Dunkley, HOPE Clinical Advisory Board Member and Consultant DBT Trainer with expertise in emotion regulation mechanisms and mindfulness.

Potential Impact

By comparing MT practices, we can characterize whether specific practices are more likely to target mechanistic markers of mental health: interoceptive awareness, heart rate coherence, and stress relief. Furthermore, by assessing participant preferences for different practices, it may be possible to improve MT benefits even if there is no universally superior practice - maximizing training benefits may be a matter of finding the correct fit. Currently no evidence-based model of matching people to MT practices exists, so the proposed research would have both academic and public impact.

This research can then be used to inform program design for community-based initiatives, increasing participant comfort with training. Critically, the proposed research would generate best practices for delivering student-focused MT that could be applied in other communities and contexts, both within Canada and internationally, such as through the Laidlaw Leadership-in-Action experience.

Budget

References

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