IRB application for one semester empirical senior thesis:

Studying the Effect of One-Session Mindfulness Interventions on Sustained Attention Span and Levels of Rumination in College Students

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# Summary and Nature of Intent of Project

Past research has consistently pointed towards consistent mindfulness exercises as an effective method for alleviating anxiety and improving emotional well-being. Further studies have found that consistent mindfulness practices can significantly impact general cognitive processing as well. This study looks to determine whether or not a single session mindfulness intervention can significantly impact an individual’s levels of rumination and sustained attention. The study will consist of current undergraduate students at Bates College. Half of the participants will receive a single session focused breathing intervention while the other half will receive a mind wandering control intervention. It is predicted that participants receiving the focused breathing intervention will have significantly higher levels of sustained attention and significantly reduced feelings of rumination as compared to the participants receiving the control intervention. The results of this study could aid in providing evidence towards substituting heavy reliance on Adderall with consistent practicing of mindfulness interventions.

# Procedure Section of Research Proposal

**Participants**

The sample will be comprised of as many individuals as possible, pulled primarily from the Psychology 101 pool at Bates College. All participants will likely be between the ages of 18 and 22 years old. Participants will also be recruited using convenience-sampling methods, and will be contacted via email, text messages, and

Facebook messaging. If funding is provided for this study, it will be used as monetary incentive to upperclassmen students who agree to participate.

**Materials and Procedure**

Participants will sign up for individual blocks of time (45 minutes) in the evenings and/or weekends to come in and take part in the study. Prior to the start of the study, consent will be taken from all participants (see attached). Participants will be told that they are taking part in a study focused on measuring the relationship between breathing and cognition and emotion. Each participant, regardless of the experimental condition they are placed in, will have their initial levels of trait mindfulness measured. This will be completed using the Mindful Attention Awareness Scale, or MAAS (Brown & Ryan, 2003). This 15-item scale consists of statements such as “I find myself doing things without paying attention,” and “I find myself preoccupied with the future or the past.” All responses are measured on a six-point Likert scale, where 1 = *Almost Never* and 6 = *Almost Always*. The MAAS will be presented to participants via a Qualtrics survey.

Upon completing the MAAS, participants will be randomly assigned to one of two conditions. In the experimental condition, participants take part in a focused breathing task similar to a version that was modified from Arch and Craske’s (2006) Mindfulness Meditation (MM) task. Participants will use headphones to listen to a pre-recorded facilitated focused breathing exercise. Participants will be asked in the recording to follow along with the instructions, which will ultimately ask participants to spend the next 10-15 minutes engaging in deep breathing activities and focusing all of their awareness on nothing more than their breathing.

Participants in the control condition will use headphones to listen to a pre-recorded facilitated mind wandering exercise. Participants will be asked to spend the next 10-15 minutes allowing their mind to wander as it normally would, and will be asked to think about whatever they want.

Following either the focused breathing or mind wandering interventions, participants will be asked to complete two more measures. The first measure will be a sustained attention task known as the Continuous Performance Test 3 (Connors, 2004). The CPT 3 is a computerized attention task that is often used to assist in the diagnosis of ADHD. The CPT 3 itself has been tested numerous times to determine both reliability and validity, and has consistently been found to act as an accurate measure of attention span (Connors, 2004). The test itself takes approximately 14 minutes to administer, and simply requires participants to press the spacebar every time any letter except for “X” appears on the screen. The test can then score the participants on a range of four different dimensions, labeled as “Inattentiveness,” “Impulsivity,” “Sustained Attention,” and “Vigilance” (Conners, 2004).

The second measure for participants to complete will be the Rumination Report scale (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Because this scale focuses primarily on depression, the wording will be modified to encompass negative emotions and create a more global measure of rumination. For example, an item on the scale that refers to individuals analyzing “recent events to try to understand why you are depressed” will be changed to analyzing “recent events to try to understand why you are *down, sad, or depressed*.” The scale will also be modified to take into account participants’ feelings of rumination at the current

point in time, as opposed to how they generally feel on any given day. The rumination scale will consist of 22 items, with a precursor paragraph asking participants to read the items and indicate how strongly they currently agree with or feel about each item. These items will be rated on a four-point Likert scale, where 1 = *Almost Never*, and 4 = *Almost Always*. The Rumination Scale will be administered to participants via Qualtrics.

Finally, continuing with the Qualtrics survey, participants will be prompted to answer basic questions about their demographics, requesting information such as age, gender, race, and ethnicity. Participants will be informed yet again that all information will be kept entirely confidential. Upon completion of this final measure, participants will be shown a “thank you” debriefing screen (see attached) and their participation in the study will have ended.

**Consent Form**

**Bates College Department of Psychology**

Title of the Study: Breathing, cognition, and emotion

Researcher Name(s): Sania Mirza ([smirza@bates.edu](mailto:smirza@bates.edu)); faculty advisor Prof. Helen Boucher ([hboucher@bates.edu](mailto:hboucher@bates.edu))

The general purpose of this research is to examine the relationship between breathing and cognition and emotion. Participants in this study will be asked to complete several questionnaires, plus a task administered on the computer. Findings from this study will be reported in a senior thesis, and the psychology department’s fall semester poster presentation. Findings may also be published in a scholarly journal, or used in national conference presentations.

I hereby give my consent to participate in this research study. I acknowledge that the researcher has provided me with:

A. An explanation of the study’s general purpose and procedure.

B. Answers to any questions I have asked about the study procedure.

I understand that:

1. My participation in this study will take approximately 45 minutes.
2. The probability and magnitude of harm/discomfort anticipated as a result of participating in this study are not greater than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. My performance on the tasks in this study is in no way indicative of my intelligence. I can skip any questions I may feel uncomfortable answering. I will not be provided with information about my performance on any of the tasks in this study, even after the completion of the study.

C. The potential benefit of this study is being exposed to some of the questions and issues that researchers in the Psychology Department study, and the ways in which they study them.

D. I will receive .75 credits towards my research requirement for psychology classes for participating in this study (if applicable). Otherwise, I will receive no compensation.

E. My participation is voluntary, and I may withdraw my consent and discontinue participation in the study at any time. My refusal to participate will not result in any penalty or disadvantage.

F. Some aspects of the study purpose/procedure may be withheld from me until its end. What the investigators hope to learn from this study, the specific nature of and reasons for the procedure employed, and those aspects of my behavior that have been recorded for measurement purposes will all be fully explained to me at the end of the study. After the study’s purpose and procedure have been fully explained to me, I may, for any reason, choose to withhold use of any data provided by my participation, without penalty.

G. My responses in this study will be kept confidential, to the extent permitted by law. The data will be stored on a password-protected computer, will be available to the researcher and her advisor, and research reports will only present findings on a group basis, without any personally identifying information.

Name (printed): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Debriefing Form**

**Bates College Department of Psychology**

Title of the Study: Breathing, cognition, and emotion

Researcher Name(s): Sania Mirza ([smirza@bates.edu](mailto:smirza@bates.edu)); faculty advisor Prof. Helen Boucher ([hboucher@bates.edu](mailto:hboucher@bates.edu))

Thank you for participating in this research study. We are conducting this study to examine the relationship between mindfulness interventions and sustained attention and rumination. Past research has shown that extended sessions of mindfulness interventions—and focused breathing in particular— have the capacity to significantly increase an individual’s levels of sustained attention. Furthermore, these mindfulness interventions have also shown to significantly decrease an individual’s levels of state rumination, or feelings of negative contemplation. Our main research question is whether or not a single, 15-minute focused breathing exercise has the ability to immediately enhance an individual’s attention span and simultaneously decrease feelings of rumination.

While participating in this study, you filled out a questionnaire that measured overall levels of trait mindfulness. In other words, this questionnaire was used to determine whether or not individuals had already been practicing mindfulness consistently in the past, and if so, how experienced these individuals were prior to taking part in this study. Then, half of the participants in this study were placed in the Mindfulness Intervention experimental group. These participants listened to a 15-minute pre-recorded focused breathing exercise. The other half of the participants were in the control group, and they listened to a 15-minute pre-recorded mind wandering intervention, in which they were simply instructed to daydream as they normally would at any given point in time. All participants then took part in a cognitive task that focused on measuring attention span. All participants also filled out a questionnaire that measured feelings of rumination. Both of these tasks measured the individual’s cognitive and emotional states at this particular point in time.

We expect to find a difference between the levels of attention and rumination in the mindfulness intervention group as compared to the control group, with the mindfulness group showing better attention and less rumination.

If you are interested in learning more about this study, please feel free to ask us questions in person, or contact us at the email addresses above. If you would like to learn more about mindfulness, we recommend the following:

Johnson, S., Gur, R. M., Zhanna, D., & Currier. E. (2013). One-session mindfulness meditation: A randomized controlled study of effects on cognition and mood. *Mindfulness, 6*, 88-98.

Zeidan, F., Johnson, S. K., Diamond, B. J., Zhanna D., & Goolkasian, P. (2010). Mindfulness meditation improves cognition: Evidence of brief mental training*. Consciousness and Cognition, 19*,597–605.

If you have any concerns about your rights as a participant in this study, please contact the Bates College Institutional Review Board ([irb@bates.edu](mailto:irb@bates.edu)).

Thank you again for participating!