

Survey of Mindfulness Practices: Effects of Meditation, Tai Chi, and Yoga on the Stress

Levels of College Students

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### Abstract

In past studies, the practice of mindfulness has been associated with lower levels of stress and an overall well-being of individuals. Relationships between stress levels of college students and the frequency of Mindfulness-Based Stress Reduction (MBSR) practices were examined in this study via survey. Students were asked to answer questions regarding average stress levels and whether or not they practiced certain forms of MBSR techniques. The techniques surveyed were meditation, tai chi, and yoga. Methodological limitations for the study included small sample size and limited time frame to collect data. Statistical limitations for this study included a high ratio of females compared to males, and a low amount of participants who reported practicing any form of MBSR surveyed in the study. Results of this study found that there were no significant relationships between frequency of meditation practice and negative thinking (rumination), and frequency of meditation practice and nights with trouble sleeping. Results also showed no significant difference on frequency of MBSR practices in full-time and part-time college students, as well as no significant difference on frequency of rumination in male and female college students. For future research, we would want to recruit both more participants in general, and more participants who participate in the MBSR techniques used in this study.

*Keywords:* mindfulness, stress levels, college students

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Mindfulness is defined as a moment-to-moment of awareness of one's experience without judgment (Davis & Hayes, 2011). It is through this awareness of our consciousness that we develop insight about ourselves and our surroundings. We also learn to identify and cope with both internal and external stressors. Two major aspects of mindfulness are self-regulation and the ability to focus one's attention to the matter at hand (Bishop et al., 2004) and the adoption of a forgiving attitude by exhibiting a general sense of acceptance (Wisner, 2013). Mindfulness has been shown to reduce anxiety and depression, and as a result, improve physical health, mental health, and overall quality of life (Shearer, Hunt, Chowdhury, & Nicol, 2016). Studies have also shown that mindfulness has been associated with lower levels of stress, which links together mindfulness with an improved overall well-being (Roberts & Danoff-Burg, 2010).

As students transition into college life, they can become burdened with different stressors that affect their physical, emotional, and mental well-being. Many college students report feeling overwhelmed by the demands of college, and according to a recent study, roughly one-third of students in college report that their stress has had a negative effect on their overall well-being (Bickerstaff, Barragan, & Rucks-Ahidiana, 2017). Specific stressors that college students typically encounter can include: enrollment status, academic workload, testing anxiety, and sleeplessness (Mahfouz et al., 2018).

Without knowing how to manage these stressors and their effects, such as feelings of loneliness and nervousness, these feelings can take over students' thoughts which can lead to rumination. To help combat the negative effects of stress students can practice Mindfulness-Based Stress Reduction (MBSR) techniques, such as meditation, yoga, and tai chi. These

techniques can help students to acknowledge their stressors and manage their responses to them (Davidson et al., 2003).

### **Current Study**

The purpose of the current study was to expand on existing knowledge of MBSR techniques and their effects on stress to determine what benefits mindfulness has on the overall well-being of college students. Previous studies have shown that practice of various MBSR techniques were associated with lower overall stress levels and improved physical, mental, and emotional health. We wanted to further solidify these hypotheses for our study. Data collection via survey was the most appropriate methodology for this study because we were able to ask college students directly which practices they participate in (meditation, yoga, tai chi, none) and on average how much stress they experience.

We were also able to ask participants how often they engage in negative health behaviors related with stress such as frequency of negative thinking or rumination and frequency of trouble sleeping at night. By using this survey method, we were able to get a direct report of answers from our participants. This method also allowed us to collect quantitative data by asking participants to fill in blanks with numbers for ease of data collection and analysis. Below are the research questions and hypotheses that were pursued through the survey:

RQ 1: Do full-time college students and part-time college students differ in how often they practice MBSR techniques?

H 1: Full-time college students and part-time college students differ in how often they practice MBSR techniques.

RQ 2: Is there a relationship between how often students practice mindfulness meditation and how many nights per week they have trouble sleeping?

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RQ 3: Do male and female college students differ in how often they ruminate?

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RQ 4: Is there a relationship between frequency of mindfulness meditation practice and how often college students ruminate?

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## **Method**

### **Participants**

Participants for this study were students enrolled in Psychology 101 at CWI. A total of 72 students participated in the study. Demographics collected from our participants included gender, student enrollment status, and age. Our sample included 14 male students and 58 female students, as well as 38 full-time college students and 34 part-time college students. Ages of our participants ranged from 18 years - 80 years.

### **Measures**

Survey questions were used for collecting quantitative data to measure students' relative stress levels, frequency of negative thoughts or rumination, frequency of trouble sleeping, and frequency of Mindfulness-Based Stress Reduction (MBSR) practices. Practices surveyed in the study included meditation, tai chi, and yoga. We also asked demographic questions to gather info on participants' age, gender, and student enrollment status. Most of the scales used in the study were fill in the blank, with others being a 1–5 rating scale. See Appendix A for complete list of survey questions and scales used in the study.

## Procedure

Participants were students enrolled in PSYC 101, and they were recruited using a standard announcement to students through their faculty. The survey was delivered through Google Forms. We obtained informed consent on the first page of the Google Form survey, which required participants to “Agree” to continue or close the browser if they did not consent to participate. The consent page of the survey included a brief description of the research study, potential risks and benefits, and a statement of voluntary participation with contact info if participants had any questions regarding the study. The survey was open for 17 days to collect data. Data was collected anonymously. This data was collected anonymously so that students would feel more comfortable about being open and honest in their responses. Data was stored and protected using a password protected site. All data that was collected will be destroyed after five years.

After all data was collected and the survey was closed, a data cleaning step was performed. This step allowed us to quantify our data into numbers for easy analysis and it also allowed us to throw out any data that was not helpful or that did not make sense. For this step we gathered all answers from our participants into one Excel spreadsheet so that we could make sure all our data was in numbers for analysis. For a few of our survey questions that were fill in the blank, some of our participants answered with a range of numbers instead of just one number (i.e., 1-2 instead of 1 or 2). For these answers, we took the average of the two numbers. For our demographic questions asking about student enrollment status and gender, we coded the participants’ answers into numbers for easy data analysis. Student enrollment status options were full-time and part-time, and these answers were coded as 1 and 2, respectively. Gender options included male, female, and other, and these answers were coded as 0, 1, and 2, respectively.

For our third survey question which asked how many nights per week the participant had trouble sleeping, three of our participants answered with 1-2 nights per week. We took the average of these two numbers and 1.5 was entered. For the same question, one participant answered with 3-4 nights per week, and 3.5 was entered in the data set.

Our fourth survey question asked participants how often in times per week they practiced MBSR techniques. The techniques listed in this question were meditation, tai chi, and yoga. One of our participants answered with 3-4 times per week, and this answer was entered as 3.5. One of our participants answered with 4-5 times per week, and this answer was entered as 4.5. One of our participants answered with 7+ times per week, which we changed to 7 times per week. For this question we also had to throw out two answers that were not quantifiable: one participant answered with “meditation,” and one participant answered with “sometimes yoga.”

Question five in our survey asked participants how often in times per week they practiced mindfulness meditation. We had one participant who answered 5-7 times per week, which we entered as 6 times per week. One participant answered 4-5 times per week, which was entered as 4.5 times per week, and one participant answered with 1-6 times per week, which was entered as 3.5 times per week.

Question seven in our survey asked participants how often they practice yoga in times per week. One participant answered with 3-4 times per week, which was entered as 3.5 times per week in our data set.

## **Results**

It was hypothesized that there would be a relationship between frequency of mindfulness meditation practice and how often college students ruminate. Data was collected from 72 college students. On average, students reported practicing mindfulness meditation 1.01 times ( $SD = 1.71$ )

per week and ruminating 3.08 times ( $SD = .98$ ) per week. To test the relationship between frequency of mindfulness meditation and frequency of rumination, a Pearson correlation analysis was conducted,  $r(70) = -.02, p = .856$ . No significant relationship was found between the two variables (see Table 1).

It was hypothesized that there would be a relationship between how often students practice mindfulness meditation and how many nights per week they have trouble sleeping. Data was collected from 72 college students. On average, students reported practicing mindfulness meditation 1.01 times ( $SD = 1.71$ ) per week and having trouble sleeping 3.24 nights ( $SD = 2.41$ ) per week. To test the relationship between frequency of mindfulness meditation and how many nights students have trouble sleeping, a Pearson correlation analysis was conducted,  $r(70) = -.10, p = .410$ . No significant relationship was found between the two variables (see Table 1).

To test the hypothesis that full-time college students and part-time college students differ in how often they practice MBSR techniques, data was collected from 72 students that were split into two groups, full-time ( $N = 38$ ) and part-time ( $N = 34$ ). On average, students practiced MBSR techniques 1.13 times ( $SD = 1.75$ ) per week. An independent samples  $t$ -test revealed that there was no significant difference between the two groups,  $t(70) = -1.35, p = .183$ .

To test the hypothesis that male and female college students differ in how often they ruminate, data was collected from 14 male college students and 58 female college students. On average, students reported ruminating 3.08 times ( $SD = .98$ ) per week. An independent samples  $t$ -test was conducted,  $t(70) = -.66, p = .512$ . No significant difference was found between the two groups on frequency of rumination (see Figure 1).

## Discussion

### Methodological Limitations



One methodological limitation for this study was the small sample size. We only sampled students at CWI who were enrolled in PSYC 101, which is only a very small part of the general population. In the small group that was sampled, we ended up not having many participants who participated in any form of MBSR technique. This made it difficult to analyze whether or not practicing these techniques had an effect on stress levels of the participants. Because of this sample size, our study was not very generalizable to the population as a whole. In addition to having a small sample size to start with, not every single student in PSYC 101 at CWI may have been willing to participate, which makes our sample size even smaller for data collection and data analysis. Future study would want to include more people so that we could get a more accurate and generalizable sample for people who practice MBSR techniques.

Another methodological limitation for the study was a limited amount of time to collect data. Data was collected over a period of 17 days. This may have not been enough time for all the participants in our sample to take the survey. For future studies we would want to have the survey open for a longer period of time to ensure that all of the participants in the sample would have an adequate amount of time to complete the survey.

A third limitation for this study might be some of the questions in our survey. A lot of our questions were fill in the blank, which allowed participants to enter whatever number they wanted. Participants who may not have been taking the survey seriously could have entered in a random number that might have skewed our data. For future study we may want to rewrite some of the survey questions to ensure that this does not happen so we can obtain more useful and more reliable data.

### **Statistical Limitations**

One statistical limitation for the study was the high ratio of female participants compared

to male participants. Our study consisted of 14 male college students and 58 female college students. This high ratio of female participants could have skewed our data for our research question that surveyed if male and female college students differed in how often they ruminate. Future research would want to have a roughly equal or closer to equal amount of male and female participants so that we could get a more accurate analysis for this particular hypothesis.

Another statistical limitation for the study was the low amount of participants that participated in any form of MBSR technique surveyed in the study was the sample size. Our study only included 72 participants. In addition to a small amount of participants, a majority of participants in the study reported not practicing any forms of MBSR techniques (yoga, tai chi, meditation) that were included in our survey questions. This may have skewed our data and caused us to fail to reject our null hypotheses because our sample was not very generalizable to the population.

It would be important for future study of these hypotheses to include more participants (and ideally more participants that practice MBSR techniques) because past research of mindfulness practices and stress levels have shown that there is some sort of relationship between the two variables. Previous research has shown that practicing mindfulness can lead to a better overall quality of life (Shearer et al., 2016) and reduced levels of stress (Davidson et al., 2003), and we wanted to expand on this by testing whether or not there was a relationship between how often students practice mindfulness meditation and how many nights per week they had trouble sleeping. Because very few of our participants reported participating in this activity, it was difficult for us to test this hypothesis, and thus our data showed that there was no relationship between the two variables.

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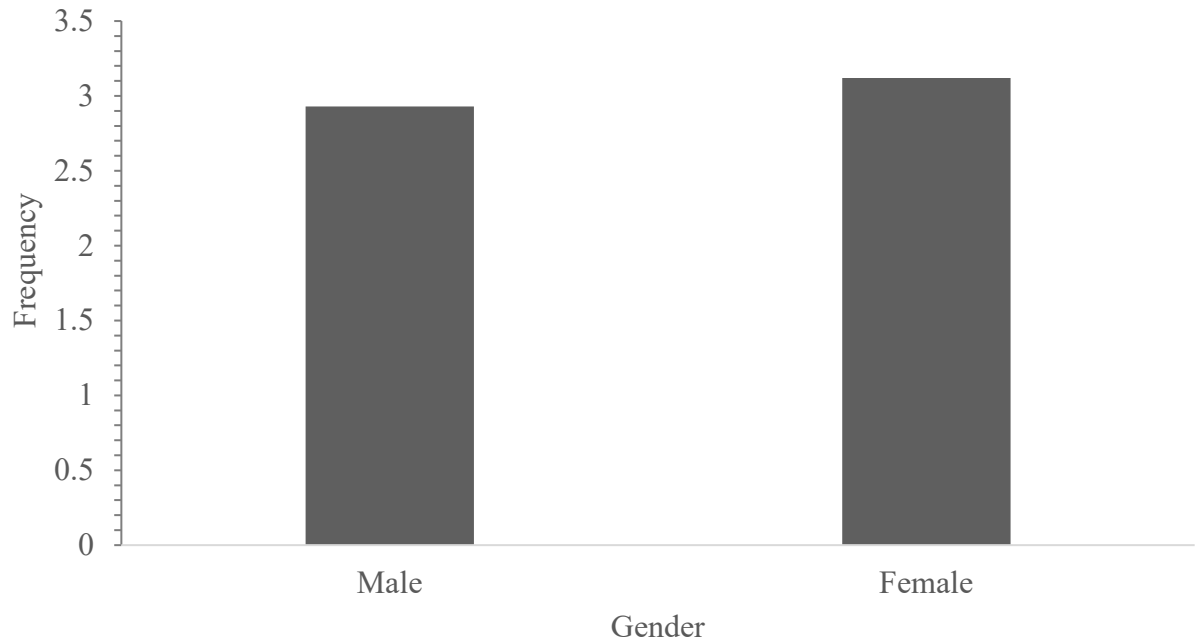
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Table 1

*Relationships of Mindfulness Meditation Practice, Rumination, and Nights of Troubled Sleeping*

Variable	1.	2.	3.
1. Mindfulness Meditation	–	-.02	-.10
2. Rumination	-.02	–	–
3. Nights of Troubled Sleeping	-.10	–	–

*Note.* Correlation scores between meditation practice and rumination, and meditation practice and nights of troubled sleeping. There was no significant relationship found,  $p = .856$  for meditation practice and rumination, and  $p = .410$  for meditation practice and nights of troubled sleeping.



*Figure 1.* Average scores of rumination in times per week for male and female college students. Average for males = 2.93, and average for females = 3.12. There was no significant difference found between males and females in frequency of rumination,  $p = .512$ .

## Appendix A

Complete list of survey questions used in this study:

1. Rate your average levels of stress:

A: No stress, low stress, some stress, lots of stress

2. How often do you find yourself ruminating (thinking negative thoughts)?

A: Never....always

3. On average, how many nights per week do you have trouble sleeping?

A: Fill in the blank

4. How many times do you practice Mindfulness-Based Stress Reduction (MBSR) techniques per week (example: meditation, tai chi, yoga)?

A: Fill in the blank

5. How often (in days per week) do you practice mindfulness meditation?

A: Fill in the blank

6. How often (in days per week) do you practice tai chi?

A: Fill in the blank

7. How often (in days per week) do you practice yoga?

A: Fill in the blank

8. What gender do you identify as?

A: Man, Woman, Other

9. Are you a full time (12+ credits) or a part time (1-11 credits) student?

A: Circle one

10. How old are you (in whole years)?

A: Fill in the blank