

# Mindfulness-Based Intervention for College Faculties and Students in Brazil

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## ABSTRACT

**Background:** Teacher and students' stress has been a challenge in education. An approach to stress reduction is mindfulness training. The Mindfulness-based stress reduction (MBSR) has been used to improve the condition of individuals with various health outcomes. The aim of this study was to examine whether MBSR may improve depression, well-being, and perceived stress of Brazilian college faculty and students. **Methods:** MBSR was performed with college faculty and students from Centro Universitario de Belo Horizonte (UniBH). Participants answered questionnaires (Psychological General Well-Being Index, Perceived Stress Scale, and Beck Depression Index) at the beginning and end of the intervention. A control group of teachers also answered the questionnaires but did not participate in the MBSR intervention. Statistical analyses were performed using paired Student's *t*-test ( $P < 0.05$  significance). **Results:** The MBSR intervention positively impacted all conditions measured in the questionnaires in faculty and students who attended the intervention. Faculty and students in the control group had shown conditions being maintained or worsened. **Discussion:** The MBSR was effective as faculty and students from the experimental group exhibited improvement in general well-being, depression levels, and perceived stress after attending the intervention.

**Keywords:** College faculty and students, depression, mindfulness, stress, well-being


## Background

Many diseases may be associated with stressful conditions at work, especially in the field of education. Studies have alerted us to the significant increase in psychological distress among teachers and students which has been exacerbated by high levels of anxiety, depression, and low self-esteem. It may even have reached the point of negatively affecting their performance.<sup>[1-4]</sup>

An approach to stress reduction is meditation. The mindfulness-based stress reduction (MBSR) program is a standardized 8-week course developed by Jon Kabat-Zinn that focuses on developing mindfulness through meditation in both formal and informal settings. Observational and experimental studies have demonstrated the potential of MBSR to improve the condition of individuals with various health outcomes.<sup>[5]</sup> Although MBSR programs have been shown to be effective, the applications of mindfulness for college faculty and students from other courses besides medicine are just beginning to be explored. Therefore, the aim of this study was to examine whether MBSR is effective and has the potential to improve

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depression, well-being, and perceived stress in Brazilian college faculty and students from Centro Universitário de Belo Horizonte (UnBH).

## Methods

This study was approved by the Committee of Ethics in Research at Centro Universitário de Belo Horizonte (UnBH).

### The mindfulness-based stress reduction intervention

A mixed-methods cross-sectional design was used to obtain responses from college faculty and students that participated in an experiential MBSR intervention. A group for faculty was separate from the group of students. The groups had 8–10 participants and one leader and met for 2 h every week during 12 consecutive weeks. The MBSR intervention gave the participants the opportunity to learn about and practice a variety of specific mind–body skills including relaxation techniques; slow, deep breathing; autogenic training; biofeedback; guided imagery; and several forms of meditation as well as to use drawings and written exercises.

### Participants

Study participants were college faculty and students from Centro Universitário de Belo Horizonte (UnBH) teaching/studying for, at least, 10 h/week. The control group also consisted of active faculty and students working/studying at least for 10 h/week with no intervention. Faculty and students were recruited by an advertisement in pamphlets distributed on the campus, as well as by institutional e-mail. Informed consent was obtained from all participants. Faculty and students that reported any inflammatory and autoimmune diseases were excluded from the study, as well as those with a history of cancer, dementia, cigarette smoking, and actual pregnancy. Participants responded to questionnaires with questions regarding the participants' age, gender, residence, relationships, physical activity practices, family and personal history of affective disorders, and use of medication.

### Evaluation of the mindfulness-based stress reduction intervention

Before and immediately after the MBSR intervention, participants were surveyed regarding the impact of the MBSR techniques using a quantitative questionnaire. Subjects from the control group also responded to the questionnaire. The assessment was carried out with three questionnaires: (i) Psychological General Well-Being Index (PGWBI)<sup>[6]</sup>; (ii) Perceived Stress Scale (PSS)<sup>[7]</sup> and (iii) Beck Depression Index (BDI).<sup>[8]</sup>

### Statistical analysis

The results are expressed as mean  $\pm$  standard deviation. Statistical analyses were performed using paired Student's *t*-test. In each case,  $P < 0.05$  was considered statistically significant.

## Results

### Demographic data

The experimental group of faculty had 40 participants and the control group 45 participants. The experimental group of students had 71 participants and the control group 64 participants. In both the groups, participants were predominantly women (65%) and lived with family. Most of the faculty were married, with a mean age around 40 years. Most of the students were single or were dating, with a mean age around 24 years. One-half of the participants (from both the groups) were physically active. The control group of students had less family history of affective disorders than the experimental group of students ( $P < 0.001$ ). The control group of faculty had a significantly less personal history of affective disorders ( $P < 0.001$ ) than the experimental group of faculty. Faculty and students from the control group used less medication compared to the experimental group of faculty and students ( $P < 0.05$ ) (data not shown).

### Evaluation of the mindfulness-based stress reduction intervention

*Mindfulness-based stress reduction ameliorates college faculty and student general well-being*

Table 1 shows that the MBSR intervention significantly improved ( $P < 0.05$ ) all conditions measured in the PGWBI questionnaire (anxiety, depression, general health, positive

**Table 1: Summary of general well-being evaluation from the experimental group of faculty and students before and after the mindful-based intervention program**

Measured questions	X $\pm$ SD		P*
	Before MBI program (beginning of the semester)	After MBI program (ending of the semester)	
Faculty			
Anxiety	16.45 $\pm$ 0.63	19.90 $\pm$ 0.54	0.000
Depression	13.25 $\pm$ 0.36	14.87 $\pm$ 0.31	0.000
General health	12.65 $\pm$ 0.31	14.22 $\pm$ 0.36	0.000
Positive well-being	14.45 $\pm$ 0.49	15.85 $\pm$ 0.47	0.002
Self-control	11.97 $\pm$ 0.42	13.60 $\pm$ 0.40	0.000
Vitality	14.97 $\pm$ 0.47	16.40 $\pm$ 0.41	0.000
Global index	83.75 $\pm$ 2.16	94.85 $\pm$ 1.95	0.000
Students			
Anxiety	16.88 $\pm$ 0.64	19.86 $\pm$ 0.59	0.000
Depression	12.75 $\pm$ 0.43	14.76 $\pm$ 0.33	0.000
General health	12.28 $\pm$ 0.47	13.75 $\pm$ 0.34	0.000
Positive well-being	14.78 $\pm$ 0.50	17.18 $\pm$ 0.47	0.000
Self-control	12.30 $\pm$ 0.42	13.91 $\pm$ 0.35	0.001
Vitality	15.66 $\pm$ 0.50	17.56 $\pm$ 0.43	0.000
Global index	83.98 $\pm$ 2.48	96.76 $\pm$ 2.04	0.000

\*Significance determined by paired Student's *t*-test. The higher the score, the more positive outcome. Data correspond to mean (X) $\pm$ SD relative to responses to the PGWBI instrument. PGWBI: Psychological General Well-Being Index, SD: Standard deviation, MBI: Mindful-based intervention

well-being, self-control, vitality, and the global index) from faculty and students who attended the intervention. The same did not occur with faculty from the control group, who maintained previous conditions. Students from the control group had most conditions maintained and had worsened conditions for depression, vitality, and global index [Table 2].

#### The mindfulness-based stress reduction ameliorates college faculty and student perceived stress and depression

Figure 1, panel A, shows that the MBSR intervention significantly impacted ( $P < 0.05$ ) the perceived stress measured by the PSS questionnaire from faculty and students who attended the intervention. The same did not occur with faculty from the control group, who had this condition maintained. Students from the control group had a worsened result for this condition.

**Table 2: Summary of general well-being evaluation from the control group of faculty and students before and after the mindful-based intervention program**

Measured questions	X±SD		P*
	Beginning of the semester	Ending of the semester	
Faculty			
Anxiety	18.83±0.78	19.63±0.76	0.18
Depression	15.59±0.29	15.18±0.42	0.24
General health	14.16±0.33	13.87±0.34	0.35
Positive well-being	16.26±0.48	16.12±0.49	0.69
Self-control	14.40±0.37	14.14±0.40	0.48
Vitality	16.32±0.43	15.81±0.50	0.21
Global index	95.59±2.21	94.77±2.48	0.63
Students			
Anxiety	19.55±0.50	18.43±0.67	0.08
Depression	13.87±0.33	12.94±0.41	0.02
General health	13.39±0.26	13.05±0.30	0.20
Positive well-being	14.93±0.43	14.15±0.45	0.07
Self-control	10.75±0.46	10.62±0.39	0.74
Vitality	15.08±0.50	13.89±0.43	0.00
Global index	87.25±1.97	81.69±2.40	0.00

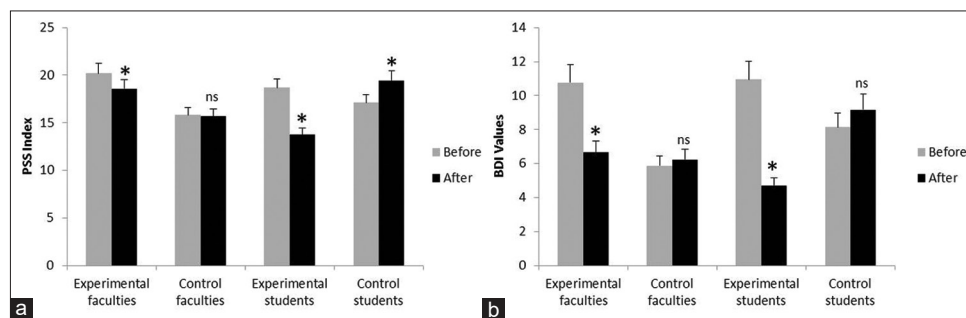
\*Significance determined by paired Student's t-test. Higher scores indicate more positive outcomes. Data correspond to mean (X)±SD relative to responses to the PGWBI instrument. PGWBI: Psychological General Well-Being Index, SD: Standard deviation

Figure 1, panel B, shows that the MBSR intervention also significantly positively impacted ( $P < 0.05$ ) depression levels measured by the BDI questionnaire in faculty and students who attended the intervention, where depression levels from this group were diminished after MBSR intervention. This did not occur for faculty and students from the control group, whose condition was maintained.

## Discussion

In this study, the MBSR was administered to faculty and students from Centro Universitário de Belo Horizonte (UniBH). It was observed that faculty and students who attended the MBSR intervention had improvements on general well-being, perceived stress, and depression. Most studies in this field reported an improvement in teacher well-being, stress, depression, anxiety, and psychological symptoms. However, none of the past studies focused on college faculty. Napoli<sup>[2]</sup> conducted a pilot study with three elementary school teachers who reported improved ability to manage conflict and anxiety and improved productivity in the classroom after mindfulness training. They reported improvements in burnout, psychological symptoms, and attention in the intervention group. Davidson *et al.*<sup>[3]</sup> observed, in 18 elementary school teachers, significant reductions in psychological symptoms and burnout, improvements in observer-rated classroom organization and performance on a computer task of affective attentional bias, and increases in self-compassion. In contrast, teachers who did not receive any intervention during the school year were prone to increased physiological stress. Gallego *et al.*<sup>[1]</sup> worked with teachers of secondary school education and observed a reduction of three general measures of psychological distress, as well in all its dimensions, in the experimental group compared with the control group.

In regard to students, results from the present work corroborate the literature as Erogul *et al.*,<sup>[4]</sup> Rosenzweig *et al.*,<sup>[9]</sup> and Dijk *et al.*<sup>[10]</sup> demonstrated a decrease in stress on medical students after a MBSR intervention. Most of the studies focused on students in the health-care arena, especially medical students.



**Figure 1:** (a-b) Perceived Stress Scale index and Beck Depression Index values from the experimental and control groups at the beginning and end of the semester related to the mindful-based intervention program. Data reflect the mean values of responses to the Perceived Stress Scale and Beck Depression Index. \*Significance based on paired Student's t-test ( $P < 0.05$ )

The present work studied students not only from the health area, as students from the human psychology, administration, and (engineering) areas were also included in the study.

This study has limitations that could be addressed in future research. The study focused only on results based on questionnaires. The next step of this study will be to measure inflammatory markers in the participants before and after attending the program. This could not be done because we have not yet developed the methodology.

## Conclusion

The present study suggests the MBSR appears to be an effective method for reducing stress, depression, and anxiety that accompanies the daily life of college faculty and students. The MBSR techniques improved the general well-being, perceived stress, and depression levels from the experimental group. Such experiences may significantly contribute to attenuating potential burnout by supporting healthy personal and professional formation among faculty and students in academic centers.

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## Conflicts of interest

There are no conflicts of interest.

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