CAN EMOTIONAL BALANCE TRAINING REDUCE STRESS AND ANXIETY, AND PROMOTE TRAIT MINDFULNESS AMONG COLLEGE STUDENTS? – A BRAZILIAN INVESTIGATION

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Abstract

Stress in the academic environment can lead to negative consequences in concentration, memory, and problem solving, which affect student retention and academic success. The purpose of this study was to evaluate the impact of an emotional balance training in the levels of anxiety, depression and mindfulness in college students. Method: A pretest/posttest design with 59 undergraduate and graduate female students (treatment group (TG): n = 27; control group (CG): n = 32) in a Brazilian public university was performed between October and December 2016. TG completed an 8-week program with the Cultivating Emotional Balance (CEB) based course and Hatha Yoga exercises. All participants completed self-report questionnaires at baseline and after 8 weeks (Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Lipp Stress Symptoms Inventory for adults (LSSI), and the Mindful Attention Awareness Scale (MAAS)). Results: Anxiety (t(26) = 2.57; p = .016) and depression scores (t(26)= 3.63, p = .001) were significantly reduced at the posttest. Results for MAAS (t(26) = -1.663; p = .108) was not significant in TG. Conclusions: The CEB based course (CEB short version) associated to Hatha Yoga exercises were able to reduce the anxiety and depressive symptoms in college students.

Keywords: stress, anxiety, depression, mindfulness, attention, college students, intervention.

1 INTRODUCTION

The academic environment requires student's abilities and resources to face stressful daily situations. Academic stress can occur through the interaction of specific stressors (high productivity, college exams, competitiveness, interpersonal conflicts), subjective stress experiences, stress moderators and the stress' impact in the university context [1].

American College Health Association indicated that 54% of the students felt very stressed; 59.1% were overwhelming anxious, and 82.1% felt exhausted. Moreover, 48.7% considered academic's situations “traumatic or very difficult to handle” [2]. This stressful situation can lead to negative consequences in concentration, memory, and problem solving, which affect student retention and academic success [3]. Furthermore, intense and continuous stress can cause physical and mental illness, have being related to the emergence of mood and anxiety disorders [4].

Therefore, it is important for college students learning how to manage stress while actively engaging with healthy challenges that promote growth [5]. Interventions focused in meditation and emotions regulation training have been demonstrated to be able to improve emotional self-management, relaxation and wellbeing, and to reduce symptoms related to stress and depression, and promote trait of mindfulness [6, 7].

Mindfulness is a cognitive skill that allows pay attention in the present moment without judgment, to be aware of both internal sensations, thoughts and feelings and the external environment, allowing responding by conscious choice rather than reaction [8, 9]. Mindfulness meditation is a method that may improve coping skills to enhance cognitive functioning and reduce stress. Learning mindfulness meditation strategies can increase one's mindfulness in everyday life to improve health and functioning [3].

A literature review cited numerous studies that used mindfulness interventions in academic settings and found that mindfulness influences in: cognitive and academic performance; mental health and psychological well-being; and development of the whole person. In the cognitive and academic performance mindfulness improves preparedness and orient attention, and quickly and accurately
processing information, which over a long-term may have a positive impact on academic achievement. Regarding to mental health and psychological well-being, mindfulness decreases stress, anxiety, and depression, and supports better regulation of emotional reactions and the cultivation of positive psychological states. Finally, concerning to the development of the whole person, mindfulness supports the development of creativity and interpersonal relationship skills and may help to cultivate self-compassion [7].

The purpose of this study was to evaluate the impact of an emotional balance training in the levels of anxiety, depression and mindfulness in college students.

2 METHODOLOGY

2.1 Design

It was a pretest/posttest design study with undergraduate and graduate female students in a Brazilian public university. Participants were assigned to a 8-week program with the Cultivating Emotional Balance (CEB) based course and Hatha Yoga exercises or a wait-list control group. Participants in both groups were measured two times: at baseline and after 8 weeks. The project was approved by the University Research Ethics Committee.

2.2 Participants

Participants were recruited from a Brazilian public university through internal divulgation. The inclusion criteria of the study were: undergraduate or graduate students regularly enrolled in any university course; women in reproductive age between 18 and 49 years; physically fit for the Hatha Yoga practice; and agreed to participate in the study by signing the Informed Consent Form. The exclusion criteria were: diagnosis of asthma or chronic obstructive pulmonary disease; abusive use of alcohol or other illegal drugs; use of psychotropic medications; being diagnosed with psychiatric illness and/or undergoing psychiatric treatment.

The sample consisted of 62 undergraduate and graduate female students who willingly applied to participate and matched the inclusion and exclusion criteria. Participants were allocated to treatment group (TG) and control group (CG) according to their time availability.

2.3 Intervention

The intervention consisted in a 8-week program, 2 and half hours per week with the Cultivating Emotional Balance (CEB) based course and Hatha Yoga exercises.

The Cultivating Emotional Balance (CEB) is a 42-hour training program designed to reduce emotional experiences “destructive” to oneself or others and to promote skills in experiencing and expressing emotion constructively. It integrated didactic presentations, discussion, and practice related to both meditation and emotional skills. Three categories of meditative practice were included: concentration practices involving sustained and focused attention; mindfulness practices entailing the close, experiential examination of one’s physical presence, feelings, and other mental processes; and directive practices designed to promote empathy and compassion. The training also included instruction in understanding the features of emotions and their elicitors and consequences; methods for recognizing emotions in self and others; understanding relations between emotion and cognition; and techniques for recognizing one’s own emotional patterns [10]. The CEB based course was a short adapted version (16 hours) for the research and it was led by a trained instructor.

The Hatha Yoga is one of the yoga practices and it uses three main elements: the body (physical part of man); the mind (the subtle part); and the breath (element that relates the body with the mind in a special way). This practice offers special techniques for each one of these elements and promotes consciousness and physical relaxation [11]. It was also led by a trained instructor.

2.4 Measures

Participants completed a questionnaire with personal and educational questions before intervention. Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Lipp Stress Symptoms Inventory for adults (LSSI), and the Mindful Attention Awareness Scale (MAAS) were applied in pre and post intervention.
BAI is a 21-item self-report inventory for measuring anxiety. Participants rated the extent to which they were bothered by symptoms during the past week. Responses were scored on a 4-point scale (0 = not at all; 3 = severely), with higher scores indicated more anxiety [12]. Depression was accessed by BDI, a 21-item self-report, multiple-choice format survey. Respondents rated their experience during the past week on a scale ranging from 0 (least severe) to 3 (more severe); higher scores indicated worst levels of depression [13]. Stress was measured by LSSI, a multiple-choice format survey that respondents marked the symptoms related to stress in the last 24 hours, last week and last month to categorize stress according to a four-phase model (alertness, resistance, quasiexhaustion and exhaustion) [4]. The MAAS is a 15-item self-report designed to measure the state of attention and the awareness of what is occurring in the present moment. Items are scored on a 6-point scale (1 = almost always to 6 = almost never). Higher scores indicated higher states of mindfulness [14]. Cronbach’s alphas for internal consistency reliabilities for the sample were 0.893 (BAI), 0.890 (BDI) and 0.828 (MAAS).

2.5 Data analysis

Descriptive and T test paired analyses were performed to all inventories with a significance level of 5% for all statistical tests. Clinical significance test by Jacobson and Truax method (JT method) [15] was used to analyze BAI and BDI results.

The Statistical Package for the Social Sciences (SPSS 20.0) was used for the analyses.

3 RESULTS

Sixty-two undergraduate and graduate female students responded the baseline questionnaires (TG n = 30; CG n = 32). The drop-out during the intervention was low. Only three TG’s participants dropped out the study because of personal issues (TG n = 27; CG n = 32).

The average age of the TG was 25.67 years (standard deviation (SD) = 6.1) and CG was 24.53 (SD = 4.36). Table 1 shows sociodemographic characteristics of the participants.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>TG (n = 27)</th>
<th>CG (n = 32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>M=25.67;SD=6.10</td>
<td>M=24.53;SD=6.10</td>
</tr>
<tr>
<td>Academic status</td>
<td>TG (n = 27) (%)</td>
<td>CG (n = 32) (%)</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>14 (51.9)</td>
<td>17 (53.1)</td>
</tr>
<tr>
<td>Graduate</td>
<td>13 (48.1)</td>
<td>15 (46.9)</td>
</tr>
</tbody>
</table>

TG presented 12 (40%) students in resistance phase and 12 (40%) in exhausted phase; at the post test, 08 (29.6%) students were in resistance phase and 03 (11.1%) in exhausted phase. The T test paired demonstrated that depression was significantly reduced to the TG (t (26) = 3.63, p = .001), and no differences was found to CG (t(31) = .015, p = .881). Anxiety analysis showed that TG’s volunteers had scores reduction at the post test (t(26) = 2.57; p = .016) and CG (t(31) = .28, p = .774). These findings were consistent with other studies that have proposed cognitive/behavioral/mindfulness-based interventions with college students. Two studies with only female college students identified significantly decrease in anxiety and depression [16, 17]. Other researches with college students of both genders also found significantly decrease in anxiety and depression in the treatment groups [18, 19, 20, 21, 22, 23].

Reliable Change Index among the TG’s volunteers, 37.03% (n = 10) had a significant clinical improvement in anxiety (clinical significance (CS) = 21.300; confidence interval (CI) = 13.485; standard error (SE) = 3.508) and 40.74% (n= 11) in depressive symptoms (CS =18.070; CI = 0.272; SE = 3.480) (Fig. 1 and 2). These positive results about the clinical significance are important to evaluate the intervention’s effectiveness. The JT method seeks to answer two questions. The first one is the score changed was caused by an oscillation (positive or negative) due to a measurement error. The second one concerns the participant's final condition in relation to the scores of non-clinical reference groups [24]. Therefore, these findings suggest that the CEB based course associated to Hatha Yoga exercises was able to reduce the anxiety and depressive symptoms in college students.
Figure 1 - Scatter plot for confidence intervals and magnitude differences between BAI pre and post tests scores.

Figure 2 – Scatter plot for confidence intervals and magnitude differences between BDI pre and post tests scores.
Results for MAAS ($t(26) = -1.663; p = .108$) was not significant in TG, although MAAS scores are higher in the posttest than pretest (Table 2). These findings were consistent with other studies with college students. Shapiro et al [25], Drew et al [26] and Phang et al [27] conducted researches with cognitive/behavioral/mindfulness-based interventions and they reported no significantly increase in MAAS scores in both intervention and control groups. The interventions/training programs provide tools that participants apply in their own daily living. As participants become more engaged in the practices, their levels of mindfulness increase [25]. This supports the concept of mindfulness as a skill that can be developed over time with practice [28, 29].

**Table 2.** MAAS means at pre intervention and post intervention.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>TG (n = 27)</th>
<th>CG (n = 32)</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>MAAS</td>
<td>53.52±12.69</td>
<td>57.56±10.91</td>
<td>53.38±11.19</td>
<td>52.88±13.61</td>
</tr>
</tbody>
</table>

4 CONCLUSIONS

The current study found that the CEB based course associated to Hatha Yoga exercises were able to reduce the anxiety and depressive symptoms in college students. These findings support the use of this intervention as possible coping tool for college students to manage stress. It is important that universities promote students’ access to stress management interventions to reduce negative mental states that result from the pressures and demands of the academic environment [30].

Although mindfulness scores were higher in posttest, no evidence was found at present study. Whereas the complete CEB course has 42 hours practice, and CEB based course is a short adapted version (16 hours) future researches are necessary to investigate the correlations among the constructs and over time.

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REFERENCES


