

## Chapter 06

# Emotion Regulation and Mindfulness Acceptance: Implications to Anxiety Reduction Programs in College Students

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## Abstract

Mindfulness-based psychotherapy is grounded on Buddhist teachings and meditation, aiming to help people gain more awareness about the solution to emotional problems, maladaptive behaviors and acceptance of day-to-day problems. This third wave CBT model may provide a solution to anxiety that frequently impairs college students. The aim of the present study is to predict which components may prevent or decrease anxiety. 180 college students, from the Northern region of Portugal, composed the sample. The mean age was 19.94 years old ( $SD=2.04$ ) in female students, and 20.41 years old ( $SD=2.36$ ) in male students. The following measures were used: Zung Self-Rating Anxiety Scale (ZRAS); Philadelphia Mindfulness Scale (PHLMS); Emotion Regulation of Others and Self (EROS) Scale, and Perseverative Thinking Questionnaire (PTQ). Results clarify several correlations among emotional regulation, perseverative thinking and mindfulness acceptance with anxiety levels. Four multiple linear regressions were performed to predict the anxiety dimensions, including as independent variables the dimensions of EROS, PHMLS and PTQ. Intrinsic affect-worsening, negative repetitive thinking and acceptance were the main predictors of anxiety components. These aspects have important implications on defining future interventions addressing anxiety in students.

## Introduction

The concept of mindfulness, which originated in oriental practices of meditation, comes from Buddhism and from the 1990's onwards, became part of conceptualist behavioral therapies establishing themselves as a central characteristic of these. It consists in focusing attention on the present moment, with a particular purpose, and without judging either the phenomena arising in the individual consciousness during the practice of mindfulness, or the perceptions, cognitions, emotions or sensations – these are observed carefully but are not evaluated as good or bad, true or false, healthy or sick, important

or trivial [1]. Mindfulness is at the basis of various clinical manuals, including mindfulness-based stress reduction (MBSR [1]).

More recent definition attempts have resulted in a two-component model of mindfulness [2]. The first component involves the self-regulation of attention in the immediate experience, resulting in the recognition of events arising from the awareness of the present moment. The second component is the opening and acceptance of experience moment by moment, thus ending, because it is similar to the conceptualization of mindfulness as composed of intention, attention and attitude [3].

The deliberate attention to the present moment, without the realization of any relevant judgment on one's own experience, allows a greater focus of the mind with more awareness / full attention, self-knowledge, and reduction of automatic thoughts [3-5]. Mindfulness has been increasingly introduced into treatment protocols for various psychological disorders aimed at intervening in mental processes that may contribute to emotional disturbances and maladaptive behaviors [6].

Various researchers and mental health technicians are in agreement that the practice of mindfulness brings benefits to individuals suffering from various physical and psychological problems such as chronic pain, borderline personality disorder and major depressive disorder [7]. There have also been significant improvements in quality of life, stress-related symptoms, and sleep quality in cancer patients (breast and prostate). There is also a significant reduction in fatigue, anxiety, and improvements in mood disturbance after the participation in a mindfulness program [8,9]. When participants are in a state of mindfulness, they can be completely focused on what is happening right now. In mindfulness what matters is now. This does not mean that one never thinks about the past or the future, but when it is done, it is done in a mindful way, being aware of what is being done and the sensations of what we are doing wake us up, being able to redirect our mind to the present moment. When practicing mindfulness, participants can activate and feel their emotions, but do not judge or evalu-

ate these same emotions. In mindfulness, deep down, one does not value an emotion as good or bad, so one does not get upset by feeling certain emotion that is unwanted. Some advantages of mindfulness are, for example, better contact with yourself, other people and life around, dealing better with pain, developing self-acceptance and consequently also acceptance of others [1].

The definition of emotional regulation is a complex process derived from the processes involved in it. According to Garber and Dodge [10] emotional regulation occupies a very important place in scientific research. They considered that the term emotion regulation was used in three senses: the regulation of the emotions by an external regulator; the emotions as regulators of an external construct (cognitions); the emotion as a qualitative descriptor of the regulation, being some regulation non-emotional and some emotional. The authors consider that emotional regulation is an ‘intra-domain’, which, quoting Dodge [11], defines emotional regulation as the process by which activation of a response domain occurs that serves to alter, to dose, or to modulate activation in another response domain.

Cicheti, Ganibar, and Barret [12] define emotion regulation as the intra and extra organic factors by which emotional stimulation is redirected, controlled, modulated and modified to allow the individual to function adaptively but emotional situations. Systems that regulate emotions are essentials for individuals to maintain a more tolerable but at the same time flexible level of affective expressions, which is necessary for adaptive functioning throughout life. Masters [13] considered that the acquisition of an effective emotional regulation is one of the fundamental aspects for social and personality development, considering it by its deliberate strategies for the purpose of controlling the affection, thus being a conscious or implicit intention.

The aim of the present chapter is to find out which mindfulness strategies have an effect on anxiety. This research is important because the results can clarify which mindfulness components reduce anxiety [14], and enable to design new and more focused interventions. The aim of the present study is to predict which mindfulness components have effect preventing or decreasing anxiety levels.

## Method

### Sample

The sample was composed by 180 college students, 41 males and 139 females, mostly from *Instituto Universitário de Ciências da Saúde*. The mean age was 19.94 years old ( $SD=2.04$ ) in female students, and 20.41 years old ( $SD=2.36$ ) in male students. The most represented courses were Nursing (43%), Psychology (22%), Physiotherapy (15%), and Pharmaceutical Sciences (7%).

### Measures

The *Zung Self-Rating Anxiety Scale* (ZRAS; [15]; Portuguese version by Vaz-Serra, Ponciano, & Relvas, [16]) was used to evaluate anxiety symptoms. This scale identifies state-anxiety levels (cognitive, motor, vegetative, and Central Nervous System - CNS), and is composed of 20 items on a 4-point Likert scale, of which 1 corresponds to 'none or rarely', 2 to 'sometimes', 3 to 'a good part of the time' and 4 corresponds to 'most of the time'. The Portuguese version has a reliability research with internal consistency Cronbach alpha of .61.

The *Philadelphia Mindfulness Scale* (PHLMS; [7]; Portuguese version by Teixeira, Pereira, & Ferreira, [17]) is a self-report scale composed of 20 items and two large subscales (awareness and acceptance), in a Likert scale of 1 to 5 where 1 corresponds to 'never' and 5 corresponds to 'always', respectively (except items 4, 8 and 10, which are marked inversely). For the reliability analysis, a study of internal consistency was performed which found values of Cronbach's  $\alpha$  of .76 for the quality of mindfulness, .77 for consciousness and .85 for acceptance.

The *Perseverative Thinking Questionnaire* (PTQ; [18]; Portuguese version by Chaves, Pereira, & Castro, [19]) is an instrument with 15 items on a 5-point Likert scale, with 0 being 'never', 1 'rarely', 2 'sometimes', 3 'many times' and 4 corresponds to 'almost always'. The instrument aims to assess repetitive negative thinking and is composed of 3 dimensions: central characteristics of repetitive negative thinking

(repetitiveness, intrusiveness, difficulties with disengagement), perceived unproductiveness of repetitive negative thinking, and capturing mental capacity. The Cronbach's alphas ranged between .88 and .93. It has validity, based on confirmatory factor analysis.

The *Emotion Regulation of Others and Self Scale* (EROS; [20]; Portuguese version by Teixeira, Pereira, & Chaves, [21]) evaluate the use of emotional regulation strategies, of oneself and others, in four factors: improvement of the intrinsic and extrinsic affect-worsening, and intrinsic and extrinsic affect-improving. Those four subscales showed reliability results between .74 and .82.

## Procedure

In order to apply the questionnaires, it was requested an institutional authorization from the ethical committee. We included an informed consent procedure, with a specific document informing about the research goals and how important participant collaboration was, also that the participants were free to withdraw at any time, and that the data was confidential and anonymous. Data was collected online using LimeSurvey and the results were transferred to IBM Statistics SPSS database.

## Results

Correlations between the four subscales of the ZRAS and the subscales of EROS, PHLMS and the subscale negative repetitive thinking of PTQ were performed (see Table 1). The extrinsic affect-worsening subscale of EROS showed a statistically significant positive correlation with the cognitive anxiety subscale (.296), the intrinsic affect-worsening subscale of EROS showed positive correlations with cognitive anxiety (.357), motor anxiety (.217) and vegetative anxiety (.358). There was also a statistically significant weak positive correlation between the acceptance subscale of PHLMS and motor anxiety (.162). Finally, there were moderate positive correlations between negative repetitive thinking subscale of PTQ and cognitive anxiety (.503), motor anxiety (.381), vegetative anxiety (.337) and CNS anxiety (.249).

**Table 1:** Correlations among ZRAS anxiety dimensions and EROS, PHLMS and PTQ results.

	<i>Contve Anxiety</i>	<i>Motor Anxiety</i>	<i>Vegetative Anxiety</i>	<i>CNS Anxiety</i>
Extrinsic affect-improving (EROS)	.119	-.021	.067	-.118
Extrinsic affect-worsening (EROS)	.296**	.125	.132	.220
Intrinsic affect-worsening (EROS)	.357**	.217**	.358**	.132
Intrinsic affect-improving (EROS)	.043	.031	.028	.027
Awareness (PHLMS)	.098	.129	.057	.064
Acceptance (PHLMS)	.076	.162*	.06	.006
Negative repetitive thinking (PTQ)	.503**	.381**	.337**	.249**

Note. \*Correlation is significant at the 0.05 level; \*\*Correlation is significant at the 0.01 level.

Four multiple linear regressions using a stepwise approach (see Table 2) were performed to predict the anxiety dimensions, including the dimensions of EROS, PHMLS and PTQ as independent variables. The procedure provided models that include the intrinsic affect-worsening subscale of EROS, acceptance of PHLMS and negative repetitive thinking of PTQ, in order to predict how they influence ZRAS's cognitive, motor, vegetative, and CNS anxiety. A model with intrinsic affect-worsening subscale of EROS, along with the subscale of negative repetitive thinking of PTQ, predicted cognitive anxiety in 30.3%. The acceptance subscale and the negative repetitive thinking predicted motor anxiety in 18.4%. The model with intrinsic affect-worsening and negative repetitive thinking subscales predicted 15.7% of vegetative anxiety. The model with the intrinsic affect-worsening negative repetitive thinking subscale predicted 9.6% of CNS anxiety.

**Table 2:** Regressions for each anxiety component using stepwise method, with emotion regulation, perseverative thinking and mindfulness components as independent variables.

	<i>Betas Cognitive Anxiety</i>	<i>Betas Motor Anxiety</i>	<i>Betas Vegetative Anxiety</i>	<i>Betas CNS Anxiety</i>
Intrinsic affect-worsening (EROS)	.215	-----	.256	.181
Acceptance (PHLMS)	-----	.178	-----	-----
Repetitive negative thoughts (PTQ)	.469	.398	.210	.223
<i>R</i> <sup>2</sup>	.303	.184	.157	.096

## Discussion

Mindfulness-based psychotherapies help people gaining awareness on the solutions to emotional problems, maladaptive behaviors and acceptance of day-to-day problems. This third wave Cognitive Behavioral Therapy model may provide a solution to reduce anxiety in university students. Emotion regulation, issues related to perseverative thinking, awareness and acceptance of difficult emotional states are components targeted by mindfulness manuals. This research provided evidence of the potential negative effects of some of those components. Worsening of the emotional states, as emotion regulation component, is a good predictor of anxiety symptoms. The perseverative, ruminative, intrusive and repetitive thinking is also a good predictor of anxiety. Unexpectedly, the acceptance component of mindfulness is a predictor of higher values of motor anxiety. This aspect should be considered as a potential negative side effect of this component. This could be explained by a decrease of inhibitory systems (versus increase of acceptance) that could trigger improvement of emotion states and self-regulatory thinking and behavior for motor anxiety. This aspect could be much more relevant concerning motor related activities, but should be considered in future research, probably with physical performance impairment assessment. These aspects can have important implications on future interventions.

Naturally this research design only includes some of the components of mindfulness, not their totality. So, to provide a full evidence for this effect, this should be included in future field trials or randomized controlled trials. However, mindfulness manuals could target these specific components, like perseverative thinking, emotion worsening and acceptance limitations issues, in order to increase effectiveness of such type of interventions.

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