

## Mindfulness-based interventions for adults and older adults with mental disorders: an integrative review\*

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Objective: to analyze the evidence of how the practice of mindfulness-based interventions has been used therapeutically and what are the effects of these interventions on adults and the elderly affected by mental disorders. Method: integrative review of articles published between 2008 and 2018, based on: Virtual Health Library, Scientific Electronic Library Online and PubMed. After applying the inclusion and exclusion criteria and the PRISMA methodology, 37 articles were selected to be analyzed. Results: variability was found in the methods of mindfulness-based interventions, with Mindfulness-Based Stress Reduction (MBSR), Mindfulness-Based Cognitive Therapy (MBCT) and Mindfulness-Based Relapse Prevention (MBRP) the most widely used. The practices of mindfulness-based interventions have shown physiological benefits, improved psychological and emotional well-being and have been shown to modulate social interaction. Positive influences were observed in the management of stress, in the reduction of the degree of anxiety and symptoms of depression and in the development of attention. Promising findings have been found on the use of these practices in individuals with psychotic symptoms. Conclusion: it is suggested that the practice of mindfulness-based interventions develops skills that assist in the therapeutic process of various mental disorders.

Descriptors: Mindfulness; Therapeutics; Mental Disorders; Mental Health; Adult; Aged.

\* This article refers to the call "Mindfulness and other contemplative practices".

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## **Intervenções baseadas em Mindfulness para adultos e idosos portadores de transtornos mentais: revisão integrativa**

Objetivo: analisar as evidências de como a prática das intervenções baseadas em mindfulness tem sido empregada terapêuticamente e quais os efeitos dessas intervenções em adultos e idosos acometidos por transtornos mentais. Método: revisão integrativa de artigos publicados entre 2008 a 2018, nas bases: Biblioteca Virtual em Saúde, Scientific Electronic Library Online e PubMed. Após aplicação dos critérios de inclusão e exclusão e da metodologia PRISMA foram selecionados 37 artigos a serem analisados. Resultados: encontrou-se variabilidade nos métodos das intervenções baseadas em mindfulness, sendo Redução de Estresse Baseado em Mindfulness (MBSR), Terapia Cognitiva Baseada em Mindfulness (MBCT) e, a Prevenção à Recaída Baseada em Mindfulness (MBRP) as mais utilizadas. As práticas de intervenções baseadas no mindfulness apresentaram benefícios fisiológicos, melhora no bem-estar psicológico e emocional e mostraram-se ser moduladoras de interação social. Influências positivas foram observadas no gerenciamento do estresse, na redução do grau de ansiedade e sintomas de depressão e no desenvolvimento da atenção. Achados promissores foram encontrados sobre o uso dessas práticas em indivíduos com sintomas psicóticos. Conclusão: sugere-se que a prática de intervenções baseadas em mindfulness desenvolve habilidades que auxiliam no processo terapêutico de diversos transtornos mentais.

Descritores: Atenção Plena; Terapêuticas; Transtornos Mentais; Saúde Mental; Adulto; Idoso.

## **Intervenciones basadas en mindfulness para adultos y ancianos con trastornos mentales: una revisión integradora**

Objetivo: analizar la evidencia de cómo la práctica de las intervenciones basadas en la atención plena se ha utilizado terapéuticamente y cuáles son los efectos de estas intervenciones en adultos y ancianos afectados por trastornos mentales. Método: revisión integradora de artículos publicados entre 2008 y 2018, basada en: Biblioteca Virtual en Salud, Biblioteca Electrónica Científica en línea y PubMed. Después de aplicar los criterios de inclusión y exclusión y la metodología PRISMA, se seleccionaron 37 artículos para ser analizados. Resultados: se encontró variabilidad en los métodos de intervenciones basadas en la atención plena, con la reducción del estrés basada en la atención plena (MBSR), la terapia cognitiva basada en la atención plena (MBCT) y la prevención de la recaída basada en la atención plena (MBRP) las más utilizadas. Las prácticas de las intervenciones basadas en la atención plena han mostrado beneficios fisiológicos, un mejor bienestar psicológico y emocional y han demostrado que modulan la interacción social. Se observaron influencias positivas en el manejo del estrés, en la reducción del grado de ansiedad y síntomas de depresión y en el desarrollo de la atención. Se han encontrado resultados prometedores sobre el uso de estas prácticas en individuos con síntomas psicóticos. Conclusión: se sugiere que la práctica de intervenciones basadas en la atención plena desarrolle habilidades que ayuden en el proceso terapéutico de varios trastornos mentales.

Descriptorios: Atención Plena; Terapéutica; Trastornos Mentales; Salud Mental; Adultos; Anciano.

## Introduction

In the clinical health context, meditation was brought to the USA in the late 1970s by Kabat-Zinn, who created an 8-10 week program initially for those suffering from chronic pain, with no medical possibilities<sup>(1)</sup>. Subsequently, the program was expanded to anxious individuals and obtained promising results for the reduction of anxiety and depression<sup>(1)</sup>. This program, at that time, was entitled "Mindfulness-Based Stress Reduction Therapy" (MBSR), and is a model for several adaptations made in research studies.

It is important to highlight that mindfulness, when translated into Portuguese, is synonymous with full attention. And practicing it is to being consciously and intentionally aware of the present moment and the experience of the moment, without feeling absorbed by it<sup>(2)</sup>.

Training mindfulness or full attention develops the ability to be less reactive to everyday events; however, it requires regular practice to maintain the benefits<sup>(3)</sup>. Mindfulness practices are divided into formal and informal<sup>(3)</sup>. Meditation refers to the formal practice, which allows for the training of attention through disciplined introspection and the experience of mindfulness at deep levels, through breathing or movement exercises: conscious progressive muscle relaxation. The informal practice, on the other hand, occurs through the application of mindfulness abilities in daily life<sup>(3)</sup>, that is, directed to listening to ambient sounds, describing emotions or perceiving bodily sensations, or the taste and texture of food, for example.

Among chronic diseases, and occupying a large space in relation to worldwide prevalence, there are mental disorders (MDs), of multiple etiologies, which can affect individuals regardless of sex, gender and social class. In this context, the therapeutic effect of mindfulness has been positive for depression<sup>(4)</sup>, generalized anxiety<sup>(5)</sup>, social anxiety, abuse of alcohol and other drugs<sup>(5)</sup>, and post-traumatic stress disorder, among others.

High rates of disability and mortality among people with MD are evidenced from a study<sup>(7)</sup> on the global burden of diseases, injuries and risk factors (GBD). In the American continent, GBD estimates point to alcohol abuse and suicide as the main causes of disability and mortality<sup>(7)</sup>. In Brazil, according to data from the World Health Organization<sup>(8)</sup>, it is estimated that, for every 100 people, 30 may come to develop mental health problems, such as depression (5.8%) and anxiety (9.3%).

In this sense, from the perceived need of auxiliary practices for those in psychological distress, in contrast to hegemonic practices that induce the medicalization of life, the objective was to conduct an integrative literature

review to analyze the evidence of how the practice of the mindfulness-based interventions has been used therapeutically and what the effects are of these interventions in adults and the older adults affected by mental disorders.

## Method

This is an integrative literature review in which both theoretical and empirical elements can be used<sup>(9)</sup>. The stages leading to this review were the following: identification of the theme and selection of the research question; establishment of inclusion and exclusion criteria for data collection; identification of the pre-selected and selected studies and categorization of the selected studies; evaluation of the studies included in the integrative review; analysis and interpretation of the results and presentation of the knowledge review/synthesis<sup>(10)</sup>.

It was sought to answer the following research question: "What is the scientific production on the practice of mindfulness in adults and in older adults with some mental disorder?", elaborated by means of the "Population/Problem, Interest and Context" (PICO) strategy. Strategy based on the segmentation of the research question allowing the researcher to select words that bring out the appropriate definition to the initial questioning, identifying the best scientific information on the topic<sup>(11)</sup>.

Data collection took place in August 2019. The following databases were used to select these articles: Virtual Health Library (*Biblioteca Virtual em Saúde*, BVS), Scientific Electronic Library Online (SCIELO) and PubMed. The descriptors in health sciences (DeCS) being used and combined were the following: "mindfulness" AND "mental health".

Original studies and literature reviews written in the form of electronic articles were included from 2008 to 2018, in Portuguese, English and Spanish. The following were excluded: theses, dissertations, editorials, non-scientific materials, articles in which no relationship with the theme was identified, duplicates, or that did not address the adult and older adult population.

Two reviewers carried out the search and selection of the articles independently, conferring greater accuracy to this procedure. Initially, the studies were selected by reading the titles and abstracts based on the inclusion and exclusion criteria. From this selection, the remaining articles were read in full, with the objective of including only the relevant publications pertinent to the problem of this study. Figure 1 shows the study selection process according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses<sup>(12)</sup> (PRISMA) protocol.

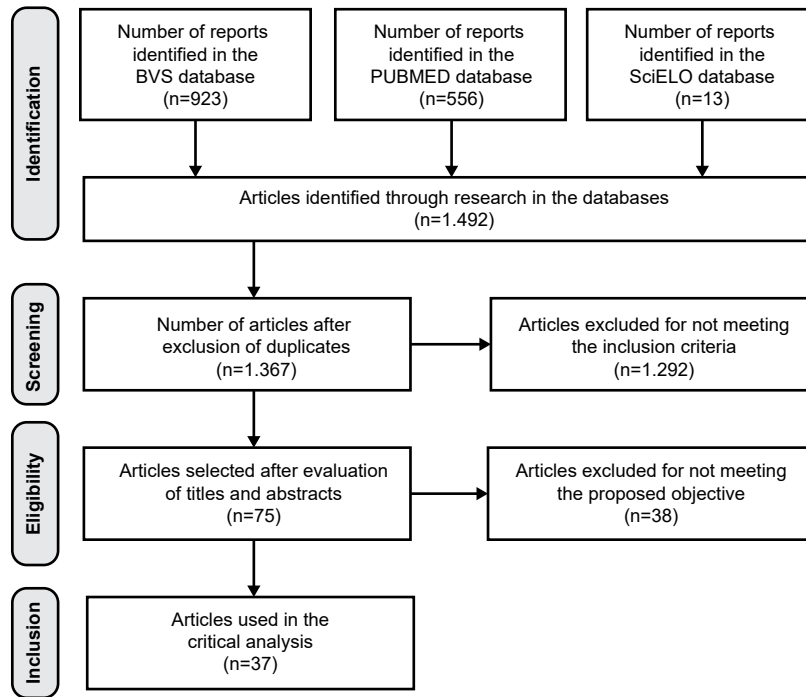


Figure 1 – Flowchart for the stages of identification, screening, eligibility and inclusion of articles according to the PRISMA Flow Diagram. Santo Antônio de Jesus, Bahia, Brazil, December 2019

The corpus of analysis consists of 37 studies, which were submitted to new reading for extraction of relevant information, considering the guiding question of this study. To organize the data collected, the researchers developed an instrument including the following information: authors, year of publication, language, location and type of study.

In this review, the type of study/level of evidence was classified into: Level I: Systematic review or meta-analysis of randomized controlled trials or clinical guidelines based on systematic reviews of randomized controlled trials; Level II: At least one well-designed randomized controlled clinical trial; Level III: Well-designed clinical trials without randomization; Level IV: Well-designed cohort or case-control studies; Level V: Systematic review of descriptive and qualitative studies; Level VI: A single descriptive or qualitative study; Level VII: Authority opinion and/or expert committee report<sup>(13)</sup>.

## Results

From the search in online platforms, 1,492 articles were found. Of these, following the PRISMA methodology, 37 were selected to compose the database of this integrative review. The studies were published as original articles (89.1%), review articles (5.4%), case reports (2.7%) and meta-analyses (2.7%) between 2008 and 2018, with 2016 being the year with the largest number of publications (35.1%). The place where the studies were carried out varied

mostly between the United States (48.6%), the United Kingdom (13.5%), and Australia (8.1%). All were published in English (Figure 2).

According to the systematization of levels of evidence<sup>(13)</sup>, the largest and smallest number of articles have been classified as Level VI<sup>(19,21,23-24,28-30,35-37,40,42,45,48)</sup> (37.8%) and Level I<sup>(25,49)</sup> (5.4%), respectively; none of the 37 items were classified as levels V and VII; 21.6% corresponded to Level II<sup>(20,27,32,38-39,44,46-47)</sup>; 18,9% to Level III<sup>(15,17,22,24,33-34,43)</sup>; and 16.2%, to Level IV<sup>(14,16,18,31,41,50)</sup>. As for the design of the studies, 43.2% have a quantitative characteristic<sup>(15-18,20,26-27,32-34,38,41,43-44,46-47)</sup>, 40.5% qualitative<sup>(19,21,23-25,28-29,35-37,40,42,48-49)</sup> and 16.2% quanti-qualitative<sup>(14,22,30-31,39-50)</sup>.

The target audience of the studies, previously established as adults and older adults (individuals over 18 years old), showed a variation among undergraduate and/or graduate students<sup>(14,16-18,22,32,34,37,41)</sup>, health professionals<sup>(29,31,35)</sup>, and mental-health teams<sup>(23,30)</sup>, among others.

The practice of Mindfulness-based interventions in adults and older adults with some MD was explored in different aspects in the articles. In addition to variations in the way the technique is applied, the types of MD submitted by the study participants are also varied, including those derived from and/or aggravated in work environments.

From the central themes identified in the reviewed studies, four thematic categories emerged: (1) Types of interventions in mindfulness<sup>(14,18-20,23-24,30-31,36-40,42-43,45-49)</sup>;

(2) Mindfulness and mental disorders<sup>(14-16,18-28,30-32,34-50)</sup>;  
 (3) Mindfulness and the work environment<sup>(14,17,23,29,31,34-35)</sup>;  
 and (4) Benefits of mindfulness<sup>(14,16-20,23,25-33,35,37,39,41-42,44,47)</sup>.

In the "Types of interventions in mindfulness" category, there are studies that explore the methodology and principles of applying mindfulness. In the "Mindfulness and mental disorders" category, MDs presented by the study participants are addressed, seeking to relate possible effects of the practice of mindfulness on the characteristic behaviors and symptoms. Also in this context, in "Mindfulness and the work environment", there are studies that cover

mindfulness interventions in organizations/corporations in order to prevent burnout and/or mitigate it. Finally, studies regarding the effects perceived from the practice of mindfulness in physiological, psycho-emotional, social, physical and/or environmental spheres were gathered in the "Benefits of mindfulness" category.

Among the types of mindfulness-based interventions (MBIs), a variety of methodologies and purposes of application of the technique were noted, and distinctions such as: whether the interventions occur in a group or individually, and in a face-to-face manner or online.

Author(s)	Year	Language	Place	Type of study
Aherne et al. <sup>(14)</sup>	2016	English	Ireland	Original Article
Antonova et al. <sup>(15)</sup>	2016	English	United Kingdom	Original Article
Beck et al. <sup>(16)</sup>	2017	English	USA	Original Article
Bentley et al. <sup>(17)</sup>	2018	English	USA	Original Article
Bergen-Cico et al. <sup>(18)</sup>	2015	English	Sweden	Original Article
Berk et al. <sup>(19)</sup>	2018	English	USA	Original Article
Boettcher et al. <sup>(20)</sup>	2014	English	USA	Original Article
Brewer et al. <sup>(21)</sup>	2013	English	USA	Original Article
Buitron et al. <sup>(22)</sup>	2016	English	USA	Original Article
Byron et al. <sup>(23)</sup>	2015	English	USA	Original Article
Chesin et al. <sup>(24)</sup>	2016	English	USA	Review Article
Cramer et al. <sup>(25)</sup>	2016	English	Germany	Review Article
Frias, Whyne <sup>(26)</sup>	2015	English	USA	Original Article
de Vibe et al. <sup>(27)</sup>	2013	English	Norway	Original Article
Desrosiers et al. <sup>(28)</sup>	2013	English	USA	Original Article
Di Benedetto, Swadling <sup>(29)</sup>	2013	English	Australia	Original Article
Dobie et al. <sup>(30)</sup>	2016	English	Australia	Original Article
Dos Santos et al. <sup>(31)</sup>	2016	English	Brazil	Original Article
Galante et al. <sup>(32)</sup>	2017	English	United Kingdom	Original Article
Gawrysiak et al. <sup>(33)</sup>	2016	English	USA	Original Article
Gerzina, Porfeli <sup>(34)</sup>	2012	English	USA	Original Article
Harker et al. <sup>(35)</sup>	2016	English	Australia	Original Article
Hazlett-Stevens <sup>(36)</sup>	2012	English	USA	Case report
Hjeltnes et al. <sup>(37)</sup>	2016	English	Norway	Original Article
Hoge et al. <sup>(38)</sup>	2016	English	USA	Original Article
Hosseinzad, Hosseinalipour <sup>(39)</sup>	2014	English	Turkey	Original Article
Jacobsen et al. <sup>(40)</sup>	2011	English	United Kingdom	Original Article
Kang et al. <sup>(41)</sup>	2008	English	Korea	Original Article
Lacaille et al. <sup>(42)</sup>	2017	English	Canada	Original Article
Lilja et al. <sup>(43)</sup>	2016	English	Sweden	Original Article
López-Navarro et al. <sup>(44)</sup>	2015	English	United Kingdom	Original Article
Mitchel, Heads <sup>(45)</sup>	2015	English	USA	Original Article
Oken et al. <sup>(46)</sup>	2018	English	USA	Original Article
Radford et al. <sup>(47)</sup>	2014	English	United Kingdom	Original Article
Shorey et al. <sup>(48)</sup>	2014	English	USA	Original Article
Spijkerman et al. <sup>(49)</sup>	2016	English	Netherlands	Meta-Analysis
Tabaka et al. <sup>(50)</sup>	2015	English	USA	Original Article

Figure 2 – General characteristics of the included studies (n=37). Santo Antônio de Jesus, Bahia, Brazil, December 2019

The best known intervention among the MBIs is the Mindfulness Based Stress Reduction (MBSR) program, which takes place in eight weekly sessions lasting two hours to practice full attention through meditation exercises, psychoeducation and group discussions, and a full day in a silent retreat between the sixth and seventh week<sup>(42)</sup>. University students<sup>(14,18,37,41)</sup> and health professionals<sup>(23,30)</sup> were the major targets for this intervention among the analyzed articles.

Also in this context, there is the Mindfulness Based Cognitive Therapy (MBCT), in which individuals who practice MBCT are taught to recognize and disengage from the rumination of thoughts, becoming aware of them and of their feelings so as not to overvalue them and thus prevent and reduce depressive thinking and possible relapses<sup>(43)</sup>.

When considering the relationship between the commitment to the mindfulness practices and their results, the effectiveness is discussed of treatments based on full attention when performed via Internet, another type of MBI. Despite the adaptations, the reduction in anxiety, depression and insomnia symptoms, and a moderate improvement in quality of life, adherence remains a limitation of the treatment<sup>(20)</sup>.

The relationship between the engagement of the practice of mindfulness and its results can be associated with less emotional suffering and with a more positive mental state among the users<sup>(39)</sup> of psychoactive substances (PAS) that integrate another type of intervention found in the articles: Mindfulness Based Relapse Prevention (MBRP).

The practice of mindfulness-based interventions provided significant reductions in anxiety symptoms, increased well-being and quality of life<sup>(41,45)</sup>. More attentive perception of internal and external experiences, improved attention, and greater awareness of daily activities were other abilities acquired<sup>(31,42)</sup>.

Regarding the practice of mindfulness-based interventions for people with depression, the information is conflicting because, despite not finding significant changes in the score<sup>(41)</sup> of this MD, there is evidence for remission<sup>(36)</sup> of the anxiety and depression symptoms. With regard to recurrent depression, the regular practice of mindfulness can reduce residual symptoms of depression<sup>(47)</sup>. Furthermore, even within depressive disorders, the MBIs can reduce the risk of suicidal ideation or its severity in individuals with severe depression<sup>(22)</sup>, including those with previous suicidal behavior<sup>(24)</sup>.

As far as psychological stress is concerned, the practice of mindfulness-based interventions has positively influenced the practitioners' well-being and quality of life, increasing acceptance, observational abilities and self-compassion, as well as reducing perceived

stress<sup>(16,31)</sup>. They also enabled greater awareness and control of stress, as well as the development of abilities to manage it<sup>(14)</sup>. In contrast, another study<sup>(18)</sup> found no statistically significant reduction in the stress levels, despite presenting increased acceptance and improved observational abilities. Therefore, full attention was only considered as a possible protective factor for stress<sup>(18,26)</sup>.

For people with psychotic symptoms, the practice of mindfulness-based interventions led to a reduction of anxiety and depression symptoms and relieved the negative symptoms of people with schizotypia, as it is a practice that develops consciousness centered on the present<sup>(15)</sup>. In contrast, no relationship was found between mindfulness and negative symptoms of schizophrenia, but the practice is associated with decreased inhibitory behaviors, increased adaptability of emotional regulation, and ease of coping with dysfunctional attitudes in people living with this disease<sup>(50)</sup>. In a ward for individuals with chronic psychosis and resistant to treatment, mindfulness practices were perceived as a relaxing, comfortable and accessible therapy, being considered acceptable in this environment<sup>(40)</sup>.

There is evidence on mindfulness practices in the care of people with PAS-related disorders as a possibly effective practice in managing the consequences of this use<sup>(48)</sup> and the withdrawal symptoms<sup>(21)</sup>. The ability to maintain attention in the immediate experience and acceptance in relation to the experiences lived are the main beneficial points worked on in this practice, as they understand the process of associative learning, developing a critique on the fissure for the use of PAS<sup>(21)</sup>. From this, the conscious change related to the desire from non-judgment would provide concrete and effective changes in the abusive use of the substances.

The practice of mindfulness-based interventions was also observed in the treatment of the Burnout Syndrome<sup>(17,29,33,35)</sup> perceived among the target audiences studied by the articles on mindfulness and work environment included in this review: psychiatric resident physicians<sup>(17)</sup>; a mental health ward team for adolescents<sup>(23)</sup>; psychologists<sup>(29)</sup>; multidisciplinary health team<sup>(30)</sup>; nurses<sup>(30)</sup>; and social service professionals<sup>(35)</sup>.

Lower burnout levels were associated with the practice of mindfulness-based interventions<sup>(29,31,34,39)</sup>; and improved communication abilities, increased awareness of their actions, and increased awareness of emotional and cognitive patterns were reported after the practices<sup>(17,23,30-31)</sup>. Empathy was another ability developed from mindfulness practices that was highlighted<sup>(17,23)</sup>, being related to lower burnout levels, better relationships with co-workers and greater attention with the patients<sup>(17,23)</sup>. In addition, there was an increase in listening abilities<sup>(17)</sup>; greater ability to



focus at the consultation times<sup>(17,23)</sup>; and improved ability to communicate internal experiences through words<sup>(31)</sup>.

Since interpretations of everyday events are affected by the practice of full attention and the development of non-judgmental thinking, it was identified that mental flexibility and the ability to see distressing thoughts and emotions as transient events reduces the negative impact of stressful events<sup>(19)</sup>. On a physiological level, the perceived effects are related to decreased cortisol levels<sup>(26)</sup>, increased telomerase activity, and maintenance of blood pressure and heart rate at healthy levels<sup>(19)</sup>.

Other aspects perceived and expressed in relation to quality of life and well-being are autonomy<sup>(21,23,31)</sup>, the ability to calm down with mindfulness techniques alone<sup>(16,31)</sup> and self-care<sup>(18,31)</sup>. The relationship between the practice of mindfulness and feeling capable was linked to reports on how the practice promotes the stimulus to become active self-healers and agents for change<sup>(37)</sup>, as well as the improvement of psychological health through self-care<sup>(18)</sup>. Finally, in addition to the changes at a personal level, mindfulness can appear as a modulating tool for social interaction<sup>(37)</sup>.

## Discussion

For Mindfulness-Based Interventions (MBIs) to be considered as such, they must be based individually or separately on the observation of the body, sensations, mind and mental attitudes<sup>(51)</sup>, the foundations of full attention explained in Satipatthana Sutta<sup>(52)</sup>. The most widely used technique in the analyzed studies, Mindfulness Based Stress Reduction (MBSR), is applied as prevention<sup>(53)</sup> and mitigation<sup>(54)</sup> for the physical or emotional exhaustion in healthy individuals, and in those subjects facing stress episodes, respectively.

In relation to depressive conditions and relapses of depression, it is by encouraging participants to focus in detail on the environment around them and accept the sensitive experiences that arise, without judgment and without avoiding them, that the Mindfulness Based Cognitive Therapy (MBCT) refines awareness and the withdrawal of repetitive negative thinking<sup>(55)</sup>, one of the symptoms present in depressive conditions<sup>(56)</sup>.

In treating individuals affected by depression, however, feasibility and effectiveness should consider the difficulty of these individuals in adhering to sessions of mindfulness-based interventions<sup>(24)</sup>. Thus, for a better outcome of their effects, the choice of the appropriate time for their practice is important<sup>(14)</sup>, since greater benefits are perceived from greater engagement with the sessions<sup>(18)</sup>. This is because the longer the time devoted to meditation, the greater the chances of results in the ability to apply full attention to daily events and therefore better psychological benefits<sup>(42)</sup>.

The relationship between engagement and results is also important in Mindfulness Based Relapse Prevention (MBRP), an approach aimed at users of psychoactive substances (PAS) that integrates the principles of MBSR and MBCT<sup>(57)</sup>. This MBI works on raising awareness of early warning signs of relapse, recognition of triggers and internal reactions associated with the use of PAS, the development of effective coping abilities and encouraging behavioral choices focused on acceptance and tolerance<sup>(57)</sup>. The cultivation of full attention can be associated with less emotional suffering and with a more positive mental state among users<sup>(39)</sup> of PAS. Thus, the aim is to reduce the impetus in order to alleviate the discomfort associated with the use, promoting the prevention of relapse and stimulating interpersonal relationships that reinforce this protection network<sup>(58)</sup>.

In the context of mindfulness-based interventions applied to MDs, stress management, anxiety reduction and focus development can be achieved through MBIs<sup>(59)</sup>. Nevertheless, caution is recommended when indicating the practice of mindfulness for individuals with anxiety disorders, as the poorly applied technique may, for example, generate more anxiety in an already anxious person, hindering therapy<sup>(59)</sup>. Encouraging the individual not to create expectations regarding the results of each meditation contributes to a better practice and greater motivation of the subject<sup>(60)</sup>.

Besides the reduction of residual symptoms of depression<sup>(47)</sup>, it was also perceived that the greater the risk of relapse, the greater the effectiveness of the MBCT practice<sup>(61)</sup>. This practice can be as effective as the use of antidepressant drugs, in a period of two years<sup>(61)</sup>, because its practices help to reduce symptoms, increase quality of life and the level of attention<sup>(43)</sup>, since it allows understanding the moment of relapse of the disease by stimulating the autonomy to get out of it with the help of the MBCT techniques<sup>(62)</sup>. Moreover, the practice has been considered effective in reducing suicide ideation<sup>(63-64)</sup>.

The effectiveness of mindfulness-based interventions was classified as moderate for the reduction of negative symptoms, affective symptoms and improved quality of life for psychotic patients<sup>(65)</sup>. These practices can be considered as a safe and effective strategy for reducing levels of depression, improving the ability to observe emotions and act with awareness for people with early psychosis<sup>(66)</sup>, who felt more calm, found it a pleasant experience and reported an improvement in the perception of living with a MD<sup>(67)</sup>. In general, it is interesting to note that mindfulness-based interventions may come to help reducing the suffering associated with psychotic symptoms, as it helps in the perception of emotions and openness to internal experiences<sup>(68)</sup>.

Regarding the mental disorders related to the use of PAS, MBIs can assist in cognitive control in situations of emotional vulnerability, helping the individual to deal with these moments and interrupt automatic behaviors. The greater ability to describe emotional experiences; the implicit emotional adaptation and self-regulating emotional response provided by the practice of mindfulness-based interventions are responsible for the reduction of deficits and of the negative emotional states in these patients<sup>(69)</sup>.

In general, the mindfulness approach is considered advantageous over other approaches because it has a moderate impact on anxiety and depressive symptoms; and high for perceived desire levels, negative affectivity and post-traumatic symptoms<sup>(70)</sup>.

Regarding the MBIs and the work environment, it should be considered that the increasingly precarious work environment, surrounded by a framework of increasing competition and insecurity for the workers<sup>(71)</sup>, impacts on their health and influences their well-being and productivity, resulting in physical and mental illness and, cyclically, in greater precariousness of the work environment<sup>(72)</sup>. In this context, MBIs become a tool for improving the quality of life and well-being of the workers<sup>(73)</sup>.

In the case of the Burnout Syndrome, which is related to chronic exposure to stressful factors in the work environment and consists of the dimensions of emotional exhaustion (EE), depersonalization (DE) and low professional achievement (LPA) <sup>(74)</sup> in order to affect the health of the worker dealing with the direct care of the subjects<sup>(75-76)</sup>, the MBIs and self-compassion are suggested as effective practices in their prevention<sup>(29,34-35)</sup>, as they work with the reduction of perceived stress and tension<sup>(77)</sup>. In addition to the improvement in the social abilities related to communication and interpersonal relationships<sup>(78)</sup>, essential to care and assistance<sup>(79-80)</sup> and, in addition, they are workspace requirements<sup>(81)</sup>.

In relation to productivity, MBIs help to increase dedication to work, decrease job turnover and distraction, increase performance within this space, and help in emotional regulation<sup>(73)</sup>.

The benefits of mindfulness, finally, are about the positive effects of this practice in physiological, psychoemotional, social, physical and/or environmental spheres. Basal cortisol levels decreased linearly and significantly after the MBIs<sup>(82-83)</sup>, and the ability to maintain telomerase activity was increased through the meditation practice, which leads to the individuals experiencing less stress, anxiety and depression<sup>(84)</sup>.

From the methodology of full attention to behaviors and body sensations, connections between body sensory stimuli and mental processes can be amplified and strengthened<sup>(85)</sup>. Through meditation focused on

one's own heartbeat, for example, MBI results indicate improved activity in the insular, somatomotor and cingulate cortices<sup>(86)</sup>. Such changes in cortical levels from the practice of mindfulness are possibly responsible for the improvement of the brain functions linked to attention, memory, executive function, processing speed and general cognition<sup>(19,87)</sup>.

In studies conducted with older adults, these positive effects in cognitive domains configure a factor of better emotional health<sup>(19,26)</sup>, since greater awareness of their actions interferes with mental and physical health<sup>(88)</sup>. Thus, the practice of mindfulness is indicated as positively related to vitality, satisfaction and quality of the relationship with oneself and of interpersonal relationships<sup>(89)</sup>.

Finally, the use of MBI practices as modulators for social interaction is possible, because this practice helps to develop a consciousness focused on the present, where the physical presence of other people can be enough to provoke greater social attention and enable the development of empathy and simple social decision-making<sup>(90-91)</sup>. In addition, it is worth highlighting the importance of the social network strengthened in cases of MBIs focused on substance users, since social reinsertion involves behaviors of internal and external acceptance and tolerance that configure a new lifestyle, preventing relapse in the face of daily situations faced by the subjects<sup>(58)</sup>.

## Final Considerations

Mindfulness-based intervention practices have been therapeutically employed in adults and older adults affected by mental disorders as purpose-specific programs. Mindfulness Based Stress Reduction (MBSR), Mindfulness Based Cognitive Therapy (MBCT), and Mindfulness Based Relapse Prevention (MBRP) have been the most widely used programs in the analyzed articles. The results of the MBIs were dependent on the variations in the purposes of each technique and in the dimensions of the practices, requiring attention to the population in which the technique will be used, the context and the objectives to be achieved. The use of mindfulness practices via Internet must be emphasized because, although some studies present benefits on these, there are limitations regarding adherence to the therapeutic process, besides obstacles regarding therapeutic orientation and social interaction, which are not very effective via Internet.

The MBIs showed promising effects and results in the adult and older adult population, such as its association with the reduction of anxiety and depression symptoms, apart from being effective in the prevention of relapses and in the control of emotions; the reduction of the suicidal ideation risk in patients with severe



depression; and the reduction of anxiety and depression symptoms in individuals with psychotic conditions. For the latter, the improvement in negative symptoms and affections was not unanimous in the studies, but even so, the practice brought benefits to the patients, especially in dealing with emotions. Moreover, in work environments, lower burnout levels were associated with the practice of MBIs, and can be considered effective in preventing the syndrome and developing abilities that result in improvements in the work environment, productivity and well-being of the individual.

Finally, caution must be used in the application of any MBI and attention must be paid to the specificities of each population. It is important to observe how the subjects interpret the practice of mindfulness in their life, availability, motivation, and engagement, as well as the creation of expectations and the anxiety developed about the practices and their results.

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## Author's Contribution

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