

Could meditation make part of psychiatric treatment?

Poderia a meditação fazer parte do tratamento psiquiátrico?

¿Podría la meditación formar parte del tratamiento psiquiátrico?

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Maria Tereza Gonçalves-Mendes

ORCID: <https://orcid.org/0000-0002-3037-7461>
Federal University of Alfenas, Brazil
E-mail: mtgves@gmail.com

Bruno Pinheiro Cambiaghi

ORCID: <https://orcid.org/0000-0001-6714-8550>
Federal University of Alfenas, Brazil
E-mail: brunopcambiaghi@gmail.com

Tales Alexandre Aversi-Ferreira

ORCID: <https://orcid.org/0000-0002-4417-7209>
Federal University of Alfenas, Brazil
E-mail: tales.ferreira@unifal-mg.edu.br

Abstract

This is an integrative review relating the effects of meditation in the brain and its possible use as preventive alternative medicine and an adjuvant in the psychiatric treatment. Studies have associated meditation and spirituality with increased life quality for being linked to emotional control and self-preservation behaviors, such as ethical practices, emotional regulation, attention improvement, stress and anxiety reduction and cognitive functions improvement in a general fashion, which is also evidenced by studies that analyzed morphological changes in correlated brain areas. This work proposes an integrative review in order to prove the hypothesis that meditation could be used as a practice in alternative and preventive medicine aiming to diminish the harmful effects of diseases and psychopathologies in general.

Keywords: Meditation; Spirituality; Life quality; Mental illness; Psychiatry.

Resumo

Este é um trabalho acerca dos efeitos da meditação no cérebro e seu possível uso como medicina alternativa preventiva e adjuvante no tratamento psiquiátrico. Estudos têm associado a meditação e a espiritualidade com o aumento da qualidade de vida por estarem associados a comportamentos de controle emocional e autopreservação, tais como práticas éticas, regulação emocional, melhora da atenção, diminuição de estresse e ansiedade e melhora de funções cognitivas de uma maneira geral, algo também evidenciado por estudos que analisam alterações morfológicas em áreas correlatas no cérebro. Este trabalho propõe uma revisão integrativa para provar a hipótese do uso da meditação como prática na medicina preventiva e alternativa a fim de atenuar os efeitos nocivos de doenças e de psicopatologias no geral.

Palavras-chave: Meditação; Espiritualidade; Qualidade de vida; Doenças mentais; Psiquiatria.

Resumen

Se trata de un trabajo acerca de los efectos de la meditación en el cerebro y su posible uso como medicina alternativa preventiva y adjuvante en el tratamiento psiquiátrico. Los estudios han asociado la práctica de meditación y la espiritualidad con una mayor calidad de vida, ya que están asociadas con conductas de control emocional y auto conservación, como prácticas éticas, regulación emocional, mejor atención, reducción del estrés y la ansiedad, y mejores funciones cognitivas en general, algo también evidenciado por estudios que analizan cambios morfológicos en áreas relacionadas en el cerebro. Este trabajo propone una revisión integradora para comprobar la hipótesis del uso de la meditación como práctica en la medicina preventiva y alternativa con el fin de mitigar los efectos nocivos de enfermedades y psicopatologías en general.

Palabras clave: Meditación; Espiritualidad; Calidad de vida; Enfermedad mental; Psiquiatría.

1. Introduction

The idea of spirituality can be associated directly with quality of life (Comstock & Partridge, 1972; Levin & Vanderpool, 1987; O'Regan & Hirshberg, 1993; Levin, 2003; Stroppa & Moreira-Almeida, 2008; Rocha & Fleck, 2011; Barricelli et al., 2012; Melo et al., 2015), putatively because of the behaviour generated by religiosity/spirituality in people, such as abstaining from drinking, other moral and ethical practices, emotional and physical well-being (Rocha & Fleck, 2004), offering a net of

social support, nutrition, financial help (Ellison & George, 1994) and an explanation about suffering, as well as motives generating faith and hope (Bowker, 1975) that can reduce the effects of diseases and harm from mental illness (Idler, 1987).

Indeed, studies indicate that prayer increases happiness and health (Ellison and Taylor, 1996), and generates calm and satisfaction (Koenig, Kvale & Ferrel, 1988; Benor, 1992), alongside yoga and meditation (Funderburk, 1977).

The concepts of religiosity and spirituality present differences (Angerami-Camon, 2008; Murakami & Campos, 2012; Paiva, 2001) that are important to separate for the purpose of this work.

Spirituality is associated with a deep feeling in life, a search for a life purpose but not necessarily associated with beliefs. When religiosity is associated with beliefs and practices in a doctrine, this can be shared by a group where there is a kind of faith (Murakami & Campos, 2012).

In addition to these concepts, the practice of meditation is linked to spirituality mainly and the scope of life quality, and could be a good alternative method for preventive medicine, since meditation is related to a group of complex emotional and attentional practices (Kang et al., 2013), projecting a self-regulation of body and mind (Boccia, Piccardi & Guariglia, 2015), or even body control because meditators show high tolerance for pain (Grant & Rainville, 2009; Zeidan et al., 2012). Meditation could be used for the clinical treatment of pain (Zeidan et al., 2012), therefore relating the benefits of spirituality and meditation, which are close in terms of concepts and health improvement.

It seems that meditation really helps the amelioration of some behaviour according to many studies, for instance, improving memory, attention (Jha et al., 2010), abilities of perceptions (Maclean et al., 2010), better social behaviour (Condon et al., 2013) and emotional control (Hölzel et al., 2007); and several other researches have associated the brain's cortical alterations (Fox et al., 2014), of experienced meditators rather than novice ones (Kang et al., 2013), with neuroplasticity linked to neuron preservation and neurogenesis (Boccia, Piccardi & Guariglia, 2015), as well as regulating the glucocorticoids, inflammation and serotonin metabolism (Larouche, Hudson & Goulet, 2015), improving immunity (Davidson et al., 2003; Jacobs et al., 2011).

In general, meditation, independent of any kind of techniques, provides relaxation, the regulation of attention and thought control (Sperduti, Martinelli & Piolino, 2012), and decreases the emotional interference to face unpleasant situations (Boccia, Piccardi & Guariglia, 2015).

Accordingly, meditation could be associated with antidepressant medicine (Kuyken et al., 2008), because it can improve clinical disorders as an amelioration of anxiety (Goldin & Gross, 2010), depression (Barnhofer et al., 2009; Vøllestad et al., 2012), stress (Carlson et al., 2003) and attention deficit hyperactivity disorder (Krisanaprakornkit et al., 2010) reinforcing the hypothesis of the preventive medicine.

In this way, the practice of meditation could be used for the prevention of mental illness or disturbances such as stresses, dementias in general, depression, anxiety, for instance, or to avoid and/or to slow senile dementia, i.e., could be used an adjuvant in psychiatric treatment.

The objective of this review is to study the effects of meditation on the body and mind and to associate these data with the possibility of using meditation techniques as an alternative medicine method to improve health.

2. Methodology

For the purpose of this manuscript, a systematic review methodology was used, considering the indexers meditation, meditation and the brain, meditation and psychiatric disorders and spirituality and psychiatric disorders, totalling 5603 articles from PubMed, 4253 articles from Scopus and 178 results from Scielo for the same indexers. After the verification of the duplicates, there were 352 articles remaining, which were studied and 45 chosen according to their relation to the inclusion criteria. Books and papers about spirituality and about neurological processes were also incorporated. The exclusion criteria were

papers older than 2000 and papers outside the scope of this manuscript. A total of 57 papers were chosen for the purpose of this study.

3. Results and Discussion

To effect this work, 17 articles were studied about meditation and 13 about religiosity after a scrutinising a total of 10034 papers among the descriptors meditation, meditation and the brain, meditation and psychiatric disorders, spirituality and psychiatric disorders.

Accordingly, just the papers pertinent to the objective were considered and they are indicated in Tables 1 and 2. Most of the papers presented experimental designs (12+7) into a various type of meditation and 7 used diagnostic images for meditation papers.

Table 1. Data from papers about meditation used in this article indicating the type of meditation, design and main find.

Study author (Year)	Sample size	Type of meditation	Design	Imaging	Study finding
Jha (2010)	Two military groups during high stress, one receiving MT (n=31) and one for control (n=17)	Mindfulness	experimental	no use	Those who spent little time engaging in MT exercises (low practice group) saw significant degradation in their Ospan scores over time, civilians and military cohort. In contrast, the high practice group demonstrated modest improvements over time. Also, with continuous practice, greater practice time corresponded to greater WMC at the second test.
MacLean (2010)	n=60 (retrait group n=30, waiting list group n=30)	Shamatha	experimental	no use	Improvements in visual perception and vigilance; the results suggest that the training increased the resources for sustaining voluntary attention.
Condon (2013)	n=39, 29 female, 10 male; comparison with waiting-list control group	two groups, mindfulness and compassion meditation	experimental	no use	meditation enhanced compassionate responding in participants of both groups of meditators in comparison with the waiting-list control group
Hölzel (2007)	n=30, 15 meditators (mean age: 33.8 years; standard deviation (S.D.): 4.6 years) and 15 non-meditators (mean age: 33.4 years; S.D.: 5.6 years). 12 male and 3 female in each group	Vipassana	experimental	MRI T2*-weighted gradient echo-planar imaging sequence (EPI) with 30 axial slices covering the whole brain	significant brain activation in the rostral ACC and significantly more activation in the dorsal MPFC in meditators than non-meditators, suggesting more activity in processing emotional conflict and in the cognitive aspects of emotional processing; also self-report indicated more attention regulation in meditators, who experienced less boredom, sustain more continuous attention during the tasks and felt more able to complete them
Larouche (2015)	not applicable	Mindfulness-based interventions	review	no use	17 articles about the effect of MBI on cortisol, where the most common result was decreased cortisol level; 4 studies on the effects of MBI on cortisol's anti-inflammatory properties, that showed lower inflammation and down-regulation of NF-kB; 7 studies on the effects of MBI on pro and anti-inflammatory cytokines, where the main

					result was a decrease in pro-inflammatory cytokines and a shift to a more healthy state in terms of cytokines production; 3 articles about the effects of MBI on serotonin, where two showed increased levels and one showed decreased levels; 5 articles about effects of MBI on telomere function and length, where the main result was higher telomerase activity; 12 articles on the effects of MBI on oxidation and antioxidants, that showed lower oxidants levels in most articles, and some studies also presented higher antioxidants levels.
Kang (2013)	n= 92, 46 meditation practitioners (16 male and 30 female) and 46 control subjects (17 male and 29 female)	Brain Wave Vibration	experimental	MRI with Diffusion Tensor Imaging (DTI) and Cortical Thickness Analysis	meditators had thicker cortex in the frontal–temporal region as bilateral ventromedial PFC, superior frontal cortex and middle and inferior temporal cortices than controls. Meditators compared with controls had thinner cortex in parietal–occipital region, including bilateral postcentral and inferior parietal cortices and left PCC. Additionally, the left superior frontal cortical thickness adjacent to the primary motor cortex in meditators showed a positive trend correlation with the duration of meditation practice. DTI results showed higher fractional anisotropy(FA) values in the anterior part of the brain in meditators, mainly in the MPFC; and reduced FA values in some of MPFC, PCC and the occipital cortex in meditators compared with controls.
Goldin (2010)	n = 16 adult patients diagnosed with primary generalized SAD according to DSM-IV (9 female, 7 male)	Mindfulness-Based stress reduction, including breath-focusing attention and distraction focusing attention (as control strategy)	experimental	fMRI	MBSR participants showed improvement in anxiety and depression symptoms and self-esteem. During the breath-focused attention task they also showed decreased negative emotion experience, reduced amygdala activity, and increased activity in brain regions implicated in attentional deployment. This reduction in negative emotion was not perceived using distraction-focused attention.
Barnhofer (2009)	n=28, 14 received MBCT in addition to usual treatment and 14 received usual treatment only, for control	Mindfulness-based cognitive therapy	experimental	no use	Greater changes in depressive symptoms in the MBCT group comparing to control; for changes in diagnostic status, of those who had met criteria for MDD, 70% of the MBCT group did not meet criteria for post-assessment Major Depression episode, in contrast with 18% of the control group; for suicidal tendencies, there were no significant changes between the two groups
Carlson (2003)	n=59, 49 patients with breast cancer and 10 with prostate cancer	Mindfulness-based Stress reduction	experimental	use of laboratory exams	Improvements in quality of life, stress and sleep quality. No significant changes in the number of lymphocytes; increased T cell production of IL-4 and decreased IFN-gama; production of IL-10 by NK cells also decreased.

KrisanaprakOrnkit (2010)	not applicable	Mantra meditation and Yoga	review	no use	Four studies in total, all randomized controlled trials; Two studies about mantra meditation and two studies about yoga. Only one study presented appropriate data for analysis - there was no significant difference between meditation group and drug group on teacher rating, also no difference between meditation group and standard therapy group on teacher rating nor distraction test. Limitations on the studies caused high risk of bias.
Bostock (2019)	n=238 employees	Mindfulness	experimental	no use	The intervention group showed improvement in well-being, distress, job strain, and perceptions of workplace social support compared to the control group. The intervention group also had a significant decrease in self-measured workday systolic blood pressure from pre to post intervention, and were found sustained positive effects for well-being and job strain at the 16-week follow-up assessment.
Kwak (2019)	n=37, 23 receiving mindfulness meditation training and 14 going through a relaxation program not related to meditation activities	Buddhist mindfulness	experimental	fMRI	Behavioral differences in the meditation group after taking the training, specifically concerning the executive control network. Imaging results show differences in VOIs of brain regions associated with conflict detection and solution (DLPFC and ACC). Functional imaging also shows differences in the alerting network (STG and left insula) in those who took the meditation program in comparison to those who did not. No significant behavioral difference was observed in alerting and orienting networks. However, the functional imaging shows significant differences in orienting network interactions in the meditation group in contrast to the relaxation group.
Ionson (2019)	n=83, 40 receiving Sahaj Samadhi Meditation (SSM) and 43 in control group receiving treatment as usual (TAU) for depression	Sahaj Samadhi Meditation	experimental	no use	There was no significant difference in heart-rate variability (HRV) between the two groups. Nevertheless, there was significant difference in the Hamilton Rating Scale for Depression (HRSD) between the two groups
Gothé (2019)	not applicable	Yoga-based meditation	review	fMRI and MRI	Studies show that there are differences in gray matter (GM) volume, density and cortical thickness between long-term Yoga practitioners and control groups. These studies also investigated regions such as hippocampus, which showed greater volume in comparison to the non-practitioner group, as well as many other brain regions that had significant differences between the two groups. Other studies sought to investigate short-term effects of Yoga practice in the brain, with consistent findings of GM volume changes in certain brain regions, such as

					hippocampus and dorsal anterior cingulate cortex. The fMRI findings reveal that Yoga practitioners show different task related brain activation in comparison to non-practitioners in different brain areas such as the ones mentioned above.
Kober (2019)	n=17, participants going through both "react" and "accept" cycles of stimuli and response. When participants were told to "react" to a certain painful or not stimuli, they were instructed to react naturally	Mindfulness acceptance	experimental	fMRI and MRI	Participants self reported feeling less negative affect when exposed to both negative images and a painful stimuli when instructed to perform a mindful acceptance as they were prior instructed to do, whereas participants reported a higher negative affect when instructed to react naturally. fMRI shows a decreased activation on the right amygdala in response to negative visual and physical stimuli when participants were instructed to accept the feeling. Furthermore, brain scans show a widespread decreased activation of regions associated with pain processing in mindfulness acceptance in comparison to natural reaction.
González-Válero (2019)	not applicable	Mindfulness, yoga and tai chi	review	no use	26 articles were selected concerning treatment of anxiety, 20 concerning stress treatment and 25 concerning interventions for depression. Short-term interventions showed almost no effect on reducing mental disorders, whereas long-term interventions (>9 weeks) resulted in greater positive (mild to moderate) effects on stress, anxiety and depression.
Lutz (2008)	not applicable	Focused attention and open monitoring	review	fMRI and MRI	This review conceptualizes focused attention meditation as the practice of intentionally dissociating from distractors and sustaining attention to a particular object, whereas open monitoring meditation entails the ability of a non explicit focus on objects while monitoring sensations, perceptuous and endogenous stimuli. The review also provides explanations on neural correlates of cognitive functions implied in each meditation type, and subsequent brain structure changes in expert practitioners.
Zeidan (2012)	Not applicable	Mindfulness meditation	Review	fMRI and MRI	The work assesses the different factors that influence the perception of pain, such as attention, emotional distress, predictive cues, beliefs and mood. Other studies reveal that meditation practices modify these factors, with neuroimaging correlates as supportive evidence. Studies reveal, indeed, that meditation is positively correlated to a reduction in the experience of pain. The article then reviews neural imaging studies to provide the neural correlates of meditation and pain reduction.
Vøllestad (2012)	Not applicable	Mindfulness and acceptance-based	Review	No use	This review investigates the role of MABIs in the mitigation of anxiety and depressive symptoms. Studies analyzing pre and post intervention assessment of symptoms reveal that MABIs yield significant symptomatic

		interventions (MABI)			melioration in participants when compared to control.
Sperduti (2012)	Not applicable	Mindfulness meditation	Review	fMRI and MRI	The study considers that regardless of meditation type, all practices commonly involve some neural structures related to relaxation, detachment from one's thoughts and emotional regulation. They conclude that the most involved brain areas are the MPFC, left entorhinal cortex and left caudate body. Other areas are also more activated in meditators. All of them are indeed involved in emotional regulation, relaxation and thought control.
Menezes (2015)	n=33, 19 control and 14 subjects to short Mindfulness intervention. The instruments used were the Positive Affect and Negative Affect Scale, State and Trait Anxiety Inventory, and the Concentrated Attention Test	Mindfulness	experimental	no use	Results reveal that no significant difference was observed between the two groups in pre-intervention tests. Nevertheless, post-intervention testing reveals statistically significant decrease in symptoms of anxiety and depression, and better focused attention, as evaluated in scores.
Kuyken (2008)	n=123, 62 control patients receiving anti depressant medication (ADM) and 61 patients receiving ADM + Mindfulness Based Cognitive Therapy (MBCT	MBCT	experimental	no use	Study reveals that MBCT poses as a positive intervention relative to preventing depression relapses and residual depressive symptoms. Over a 15-month follow-up, relapses occurred only in 47% of MBCT patients when compared to 60% in the control group. MBCT was effective in improving quality of life and diminishing residual depressive symptoms
Jacobs (2011)	n=60, 30 participants undertaking a meditation retreat of 3 months and 30 control participants in a waitlist. Scores were used to assess emotional control and feelings of purpose in life. Blood samples were collected to analyze telomerase activity in peripheral cells.	Mindfulness	experimental	no use	Results reveal a significantly greater telomerase activity in retreat participants than control. Increased score in Perceived Control and decreased in Neuroticism in the retreat group. Mediation analyses pose the neural mechanisms assessed in Perceived Control and decreased Neuroticism as responsible for increased telomerase activity, which is related to immune cell longevity.

Source: Authors.

Table 2. Data from the papers about spirituality.

Study author (Year)	Sample size	design	imaging	study finding
Barricelli (2012)	n=60, 11 male and 49 female, age between 61 and 85 years old	experimental	no use	No statistically difference in all the areas of the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) among women about intrinsic and extrinsic religiosity. In the field "General health", men with intrinsic religion presented a positive difference.
Byrd (1988)	n=393, 192 to an intercessory pray group and 201 to a control group	experimental	no use	The intercessory prayer group presented lower severity outcomes after entry. Ventilatory assistance, antibiotics and diuretics were less frequently required in IP group than in patients in control group. 85% in the prayer group were considered to have a good hospital course after entry vs 73% in the control group; 1% of the prayer group showed intermediate hospital course in contrast to 5% of the controls, and a bad hospital course was observed in 14% of the prayer group vs 22% of the controls.
Comstock (1972)	not applicable	review	no use	To provide basic information about church attendance the study used a nonofficial census made in Washington County. The findings showed that the risk of dying from arteriosclerotic heart disease was higher to infrequent church attenders than to frequent ones, and the death rates for emphysema, cirrhosis and suicide did not differ between these two groups. For Catholic males, heavy drinking and cirrhosis had the same death rates regardless of frequency of church attendance.
Ellison (1994)	n=2956 from a southeastern community	experimental	no use	Frequent church attenders report more types of social support, more social networks, more frequent social interaction and more positive perceptions of their relationships quality than those who do not go to church.
Ellison (1996)	not applicable	review	no use	The study used data from the National Survey of Black Americans to analyze religious coping among African Americans. Approximately 80% reported using prayer as a coping resource to confront serious personal problems, such as praying or asking someone to pray for. In addition to that, people that are dealing with a health problem are more likely to use religion as a coping mechanism than people with other kinds of problems; women are more likely to turn to prayer, and the use of religion coping is unrelated to access to social network, such as family and friends.
Farris (2011)	not applicable	review	no use	The study analyzed religion and religious practice in the light of psychology and based on studies that considered religion as part of human behavior. Among the conclusions: religion is generally beneficial to mental health and there are some types of religion that can harm health. Religion has the potential to have a positive or negative effect on health, but it is not an expression of mental illness. The study also discusses Allport's studies, about intrinsic and extrinsic religion, personality

				construction and mature or immature religious feeling.
Fleck (2003)	n=142, divided in 15 groups including healthcare professionals, patients with acute and chronic disease, terminal patients, religious people comprising different kinds of beliefs. Participants were submitted to the WHOQOL tool. The study also describes the different stages of the WHOQOL tool's development	experimental	no use	Study found that individuals in each group had a similar opinion concerning the different subjects approached by researchers in the WHOQOL tool, revealing that the focal group technique was accurate to detect participants' opinions and demonstrate the hypotheses that were raised, allowing to modify and/or broaden pre established concepts. Furthermore, the study reveals the importance of spirituality in patients' lives, from their point of view.
Idler (1987)	n=2756, 1319 elderly men and 1637 elderly women, interviewed face-to-face and composing the database for the study. The study analyses religious engagement and two measures of health status, functional disability and psychological distress, both analysis controlling for chronic diseases (self reported by patients)	experimental	no use	Study found that for both men and women there is an inverse association of public religiousness (attendance to religious service and number of other congregation members known to the respondent) and disability. When participants received explanations on the four hypotheses brought up in the study, the inverse association had a slight reduction in the model controlling for chronic disabilities. This is probably due to the fact that the disability itself hampers the ability to attend to religious services and engage in such services.
Koenig (1988)	n=836 older adults divided in five groups: patients of a university-affiliated geriatric outpatient clinic, participants in a state-sponsored seniors' lunch program, older members of a group of conservative protestant churches, participants in a Jewish seniors' lunch program, and a group of retired Dominican and Franciscan nuns	experimental	no use	Women were highly more likely than men to score high in religiosity measures. Inverse correlation between age and religiosity, and a significant inverse correlation between age and morale. Social support was positively correlated with morale, subjective coping, and organized religious activities (ORA). Financial status and subjective health measures were strongly correlated with coping and morale and were associated with ORA.
Levin (1987)	not applicable	review	no use	Studies have been approaching religious factors and health over the last two centuries. In contrast, there are still plenty of academic claims suggesting a scarcity of studies concerning religious factors and health. Some studies suggest a lower risk of certain illnesses such as hypertension and some cancers in those with religious involvement. Studies' results point to a better health and life quality in people with religious involvement.
Levin, Vanderpool (1987)	not applicable	review	no use	Studies reveal an association between religious attendance and health, despite being a weak and methodologically contestable association that in fact reveals the need for more research. The authors' believe that more studies will shed light upon the raised question and that the answer found will be an association between religious attendance and health.
Medeiros (2010)	n=90, participants evaluated by the WHOQOL-BREF and RAAQ tools, Guild Multidimensional Scale and a socio-demographic and clinical questionnaire.	experimental	no use	Study found that 87,8% of participants had used antiretroviral therapies and 60% had not been infected by opportunistic pathogens. A good quality of life was verified among patients and women reported a higher degree of satisfaction on the physical domain than men. There was a positive association between the

				religiousness/spirituality/personal beliefs (RSPB) domain and psychological, social and environmental domains of the WHOQOL-BREF tool. Women demonstrated higher levels of religious attitude than men. An inverse correlation was found between guilt related to time and physical domain. In symptomatic patients, the same inverse correlation was found and also included subjective and objective guilt. The study reveals that religiousness plays an important role in the perception of quality of life in those who carry diseases. Furthermore, the presence of guilt alongside the clinical progression was evident.
Melo (2015)	not applicable	review	no use	The study reveals a relative increase in publications over time concerning religiousness and quality of life. The selected studies were separated into 7 categories: religiousness and spirituality in patients with chronic diseases; importance of religiousness for elder people; religiousness and spirituality for cancer patients; religiousness and spirituality in HIV patients; relationship between spirituality and death; religiousness in university students; relationship between religiousness and depression. In conclusion, the study found that in fact there is an association between religiousness and spirituality and quality of life and coping with adverse situations.
Murakami (2012)	not applicable	review	no use	For this study, after exclusion criteria, 13 studies were selected for the review, separated into 6 categories: religion as a better life quality contributor dimension, religion as a social support network, religion as an attributer of meaning to suffering, relationship between religious engagement and prevalence of mental illnesses, religion as a source of mental distress, integration of religiosity in patient care. The conclusion is that indeed religion contributes to the treatment of patients with mental illness, by providing social and emotional support and teaching a lifestyle coherent with a better quality of life and health.
Stroppa (2008)	Not applicable	review	No use	This review engages in finding the answer to whether religiousness and spirituality could be associated with an improved life quality. The authors define spirituality and religiousness and provide a brief history on the relation between science and religiousness. They conclude the paper by answering positively the question posed.
Rocha (2011)	n=241, being 122 outpatients and inpatients with some chronic disease. Study uses WHOQOL-100, BDI, WHOQOL-SRPBi.	observational	no use	This study aims to investigate the correlation between chronic disease and importance attributed to spirituality, religiousness and personal beliefs (SRPB). Results demonstrate worse WHOQOL score of diseased patients when compared to healthy ones, except in the SRPB domain. Patients scored higher in the WHOQOL-SRPBi than healthy controls. Results also reveal a positive correlation between quality of life, even in chronic disease patients, with adjusted factors, in those who score higher in SRPB domains.

Levin (2003)	not applicable	book	no use	This book aims to investigate the correlation between quality of life and religious beliefs from different traditions. Authors make use of different studies to reveal that there is a positive correlation between life quality and religiousness.
O'regan (1993)	not applicable	book	no use	This book is a bibliography that contains parts of the major articles about spontaneous remission of different types of cancer, and its relation with the mind-body relationship.
Angerami-Camon (2008)	not applicable	book	no use	This book shows thoughts about religions, psychological theories and Science.
Paiva (2001)	not applicable	book	no use	This book asks questions if the religion is a psychological human need using theoretical-philosophic digressions.

Source: Authors.

Studies show changes in brain activity in meditation practitioners, with thicker areas such as the prefrontal medial cortex, orbitofrontal cortex and the frontal superior cortex, and thinner posterior areas (Kang, 2013; Hölzel, 2007; Gothe, 2019).

Meditation practices can bring about changes in the human behavioural reaction to pain perception: experienced meditators show greater tolerances to pain (Zeidan, 2012), as well as a possible tolerance to negative physical and visual stimuli (Kober, 2019), which is also related to changes in brain activity, with less activation of the amygdala (Goldin, 2010), the centre of response to negative stimuli of the brain.

Considering these altered brain regions and behaviour, related to the processing of emotions, decision making and cognition (Hölzel, 2007; Gothe, 2019) which generates, for human physiology, putatively, changes to a less inflammatory state in the body, via modulation of cytokine production (Larouche, 2015), the practice of meditation should be an ally to the treatment of diseases in which pathophysiology involves the brain areas (Ives-Deliperi, 2013; Menezes, 2015; Boccia, 2015).

In this way, meditation proved beneficial in decreasing depressive symptoms and episodes of major depression (Barnhofer, 2009; Goldin, 2010), stress reduction (Carlson, 2003) and also presented a positive relation with decreased anxiety, negative thoughts and improved self-esteem (Goldin, 2010; González-Válero, 2019).

Some subjective effects related to meditation are emotional regulation and disengagement from distractors and repetitive thoughts (Kang, 2013; Boccia, 2015). These effects, taken alone, are themselves related to improvements in symptoms related to psychiatric disorders such as anxiety and depression, conditions that are often associated with difficulties in emotional control and in disengagement from negative thoughts (Dalgalarondo, 2018; Lutz, 2008; Menezes, 2015).

This became more important for cases of depression refractory to medicines, mainly in considering that studies evaluating the effects of mindfulness-based cognitive therapies (MBCT) reveal that patients who underwent such treatment had fewer relapses or recurrent episodes of depression, with an efficacy comparable to that of medications (Ives-Deliperi, 2013; Chen, 2015). The results of these studies are consistent with fMRI studies revealing that MBCT affects grey matter and the connectivity in several different areas of the pre-frontal cortex, which is the main area affected in mental disorders (Chen, 2015).

In addition, there are positive effects on quality of life and sleep in cancer patients (Carlson, 2003), and it may have positive effects on patients with ADHD and even Alzheimer's (Brewer, 2011).

Although it is still a new area in neuroscience and needs further studies to state more conclusively, the evidence so far suggests a positive correlation of meditation practice with an improvement of the symptoms in diseases such as depression and anxiety mainly, along with an overall positive effect in cognition (Lutz, 2008; Maclean, 2010) and working memory capacity (Jha AP, 2010).

In this sense, meditation practices are a source of advantages as part of the treatment of anxiety and depression and for other diseases that present these morbidities, at least as an adjuvant therapy.

Mental morbidities are increasing in the world from specific and stochastic factors and, despite the pharmacological evolution in the direction to ameliorate patient conditions, some adverse effects have added to the refractory conditions to medicines. Alternative therapies are used across the world by many classes of population, in some cases without effects or with scarce ones.

4. Conclusion

The alternative therapy has demonstrated proven effects, so it must be indicated for patients with medicine problems and for patients in general, and that is the case for meditation practices.

Accordingly, this work shows that meditation practices could be an adjuvant for psychiatric/psychological therapy and should be indicated by the Aesculapius for patients.

Indeed, more studies about meditation with medical objectives could be performed to obtain more data to use this therapy as a psychiatry/psychology adjuvant.

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