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Religious-based interventions for depression: A systematic review and meta-analysis of experimental studies

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Mental health, Depressive symptoms, Religion, Religiosity, Spirituality

Abstract:

Background: Depression is the most prevalent mental disorder. In the treatment of depressive symptoms, patients' religious practices and beliefs are often not considered. We carried out a systematic review and meta-analysis of RCTs to analyse the effect of religious interventions on depression.

Methods: A literature screening was performed on August 2021, using the Cochrane Collaboration, PubMed, Scopus, and Web of Science databases. Primary source articles published from 2015 to August 2021 in peer-reviewed journals were eligible for inclusion if data were presented on religious interventions' effects on depression.

Results: The literature search yielded 208 potentially relevant publications. Eight articles were identified and included in the review. One of the articles was excluded from the meta-analysis because it did not report the mean data for the baseline and follow-up assessment results. From the 7 out of 8 included studies, the results consistently indicated that religious-based interventions effectively reduced depressive symptoms among vulnerable persons with chronic medical illness, pregnant women, haemodialysis patients, elderly nursing home residents, people with major depressive disorders or dysthymia, and coronary artery bypass graft surgery patients.

Limitations: The definition of the religious-based intervention varied substantially among the trials. These differences can make interpretation and comparing implications on the treatment of depression difficult.

Conclusion: Compared to standard/other usual therapies for treating depression, religious-based interventions provide superior effects. This review and meta-analysis strongly suggest that patients' religious beliefs should be considered when diagnosing and treating depression.

1. Introduction

Depression is a mental disorder related to vulnerability indicators such as decreased energy, depressed mood, loss of interest, feelings of guilt, poor concentration, sleeping troubles, and disturbed appetite. In the last decades, depression has been the most prevalent mental disorder (Ferrari et al., 2013; WHO, 2017). Depression is associated with co morbidity (Vancampfort et al., 2016), increased health costs (Chisholm et al., 2016), poor adherence to medical treatment (Saz and Dewey, 2001), risk of suicide (Ferrari et al., 2013), and premature mortality (Walker et al., 2015). Depression affects the quality of life, relationships with others, education, and work opportunities (Ferrari et al., 2013). It is a problem that affects people of different ages, from both sexes, and different educational and socioeconomic backgrounds (WHO, 2017). Depression is the third-largest contributor to the global weight of the disease (GBD, 2018). The persistence of depressive symptoms is concerning given the relation with self-harm with loss of functional status in the workforce (GBD, 2018).

The most common treatment for depression includes pharmacotherapy and psychotherapy, such as cognitive behavioural therapy, interpersonal psychotherapy, and acceptance and commitment therapy (Karyotaki et al., 2016; Khan et al., 2012). Studies have shown that cognitive behavioural therapy is effective in treating depression compared with control conditions or other non-directive counselling (Santoft et al., 2019). However, given the large heterogeneity of patients, to address the health problem of depression, it is important to identify additional and other effective treatment options. In treating depressive symptoms, patients' spirituality, religious practices and beliefs are often not considered. Spirituality can be described as a way to find life's meaning and purpose by connecting with the sacred (Koenig et al., 2012). Religiosity is associated with beliefs, practices and rituals related to the transcendent (Koenig et al., 2012). Spirituality and religious practices are important because depressed and non-depressed people often use religious resources in moments of distress (Koenig et al., 2012). Because of that, it is suggested the integration of religious beliefs in psychosocial interventions on religious individuals with depressive symptoms (Bonelli et al., 2012; Koenig et al., 2012; Santero et al., 2019).

Religiosity is associated with mental health, including psychological well-being, life satisfaction, happiness, optimism and hope (Bonelli et al., 2012; Koenig et al., 2012; Moreira-Almeida et al., 2014). Furthermore, religious service attendance can be a protective factor against suicide (Kleiman and Liu, 2014). It is proposed that religiosity might help to prevent the onset of depression and improve treatment by its ability to neutralize life stress (Koenig et al., 2012). A recent review of prospective studies found that religiosity (Braam and Koenig, 2019) predicted a significant but modest decrease in depression over time.

Despite the recommendations for integrating religious-based approaches in reducing depressive symptoms, it is important to review the scientific evidence from experimentally controlled clinical

trials. Previously, more than six years ago, two systematic reviews and meta-analyses were carried out to analyse the research results on religiosity and mental health (Anderson et al., 2015; Gonçalves et al., 2015). The main results showed that religious and spiritual interventions showed additional benefits, including reducing clinical depressive symptoms (Gonçalves et al., 2015). However, the randomized clinical trials (RCTs) suffered from major methodological limitations that reduced these results' reliability, validity, and interpretability (Anderson et al., 2015; Gonçalves et al., 2015). As in the meantime, new studies were carried out, and, most importantly, possibly some of the recommendations to improve the methodological quality of the studies may have been met to improve the validity of more recent experiences, we carried out a new systematic review of RCTs aiming to analyse the effect of religious and spiritual interventions on reducing depressive symptoms.

2. Methods

This study is a systematic review and meta-analysis of RCTs involving religious and spiritual interventions on individuals showing depressive symptoms, following the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) 2020 checklist guidelines (Page et al., 2021). The protocol was registered on the International Prospective Register of Systematic Reviews database under the number CRD42021273136.

2.1. Literature search

A literature screening was performed on August 2nd 2021, using the Cochrane Collaboration, PubMed, Scopus, and Web of Science data bases. The search terms and strategy were: (Relig* OR spiritu* OR god OR prayer OR faith OR mosque OR church OR synagogue) AND (depress* OR “mental health” OR “psychological health” OR anxiety OR “psychological function”) AND (treatment OR experimental OR RCT OR “randomized control trial” OR “controlled clinical trial” OR quasi-experimental OR therapy OR hospital OR clinic*).

2.2. Eligibility criteria

Primary source articles published from 2015 to August 2021 in peer-reviewed journals were eligible for inclusion if data were presented on religious interventions' effects on depression. Specific eligibility criteria included the following: (1) experimental studies with baseline and follow up assessment, with an intervention group subjected to religious-based interventions (study design criterion); (2) studies were included if the outcomes included depressive symptoms (outcome measure criterion); (3) religious-based interventions, psychotherapy and depression treatment (relationship criterion); (4) adults aged ≥ 18 years (participants criterion); (5) it was included articles published in English, Portuguese, or Spanish (language criterion); (6) articles were excluded if they did not meet inclusion criteria or did not include findings related to the inclusion criteria (exclusion criteria).

2.3. Study quality and risk of bias

Study quality was assessed using checklist criteria from the Quality Assessment Tool for Quantitative Studies (National Collaborating Centre for Methods and Tools, 2008). The checklist was adapted to evaluate experimental studies. The checklist comprises 19 items, assessing 8 key methodological domains: selection bias, study design, confounders, blinding, data collection

methods, withdrawals and dropouts, intervention integrity, and analyses. Each section is classified as strong, moderate, and weak methodological quality. A global rating is determined based on the scores of each component. Two researchers rated the articles in each domain and overall quality. Discrepancies were resolved by consensus. Studies were not excluded based on methodological quality.

2.4. Data extraction

A data extraction form was developed based on the PRISMA statement (Page et al., 2021). Relevant data were extracted from each manuscript. Data extracted from each article included participant characteristics, sample size, country, intervention description, follow-up duration, depression assessment, and main results.

2.5. Data analysis

Review Manager version 5.4 software was used for data analysis. The included studies were from independent samples. Pooled depression score difference values between baseline and follow-up were computed. The depression score difference values between baseline and follow-up were pooled by the weight of the inverse of their variance, which gives greater weight to large sample sizes. The I² (%) test was used to assess the heterogeneity of the selected studies. Values of $\geq 50\%$ were considered substantial heterogeneity (Higgins et al., 2003). A p-value of 0.05 was considered statistically significant. Random-effects models to reflect the variations observed across studies were used to obtain the pooled effect size. Publication bias was assessed using funnel plots.

3. Results

3.1. Literature search

The flowchart of the selected studies in the systematic review is shown in Fig. 1. The literature search yielded 208 potentially relevant publications. These identified publications were transferred to the reference manager software, Endnote 20. Of the 208 publications, 116 were duplicates and were excluded. After excluding duplicates, it was screened the titles and abstracts of 92 publications. A total of 5 articles were rejected at the title and abstract level. Consequently, 87 potentially relevant articles were obtained, of which five were identified as relevant. In addition to these five articles, another three were identified through the reference lists of the analysed articles. In total, eight articles were identified and included in the review. One of the articles was excluded from the meta-analysis because it did not report the mean data for the baseline and follow-up assessment results.

3.2. Study characteristics

The studies' methodological quality is presented in Table 1, and the studies' characteristics are summarized in Table 2. From the eight studies included in this review, three were classified as having strong methodological quality (Koenig et al., 2015; Sanaeinasab et al., 2020; Tulbure et al., 2018) and five as having moderate quality (Amjadian et al., 2020; Aslami et al., 2017; Babamohamadi et al., 2017; Elias et al., 2020; Pramesona and Taneepanichskul, 2018).

Studies were performed in 5 different countries (Indonesia, Iran, Malaysia, Romania, and United States), with different participant characteristics, such as regular adults (Koenig et al., 2015),

pregnant women (Aslami et al., 2017; Babamohamadi et al., 2017), haemodialysis patients (Sanaeinasab et al., 2020), elderly from a nursing home (Pramesona and Taneepanichskul, 2018), participants with a diagnosis of current major depressive disorder or dysthymia (Tulbure et al., 2018), patients with coronary artery bypass graft surgery (Amjadian et al., 2020), and older people living in a residential aged care facility (Amjadian et al., 2020; Elias et al., 2020). The population across the studies represented a total sample of 530 participants.

3.3. Interventions

The religious approach was in accordance with the religion professed by the participants. In two studies, religiously integrated cognitive behavioural therapy was performed, compared to the group subjected to standard cognitive behavioural therapy (Koenig et al., 2015; Tulbure et al., 2018). In three other studies, participants in the intervention group underwent mindfulness-based treatment on Islamic spiritual schemes (Aslami et al., 2017), sessions of listening to a Qur'anic recital (Babamohamadi et al., 2017; Pramesona and Taneepanichskul, 2018) and Qur'an teachings (Amjadian et al., 2020; Sanaeinasab et al., 2020). In one study, the intervention consisted of the spiritual reminiscence therapy program adapted to Buddhism, Christianity, and Hinduism (Elias et al., 2020). There were three groups of comparison in two studies: one control group, one group subjected to the standard cognitive behavioural therapy or breathing exercises, and one intervention group that used religiously integrated therapy (Amjadian et al., 2020; Tulbure et al., 2018). The duration of interventions ranged from 7 weeks to 3 months.

3.4. Principal findings

From the 7 out of 8 included studies, the results consistently indicated that religious-based interventions reduce depression (Table 2). The religious-based intervention was effective in reducing depression among vulnerable persons with the chronic medical illness (Koenig et al., 2015), pregnant women (Aslami et al., 2017; Sanaeinasab et al., 2020), haemodialysis patients (Sanaeinasab et al., 2020), elderly nursing home residents (Pramesona and Taneepanichskul, 2018), people with major depressive disorder or dysthymia (Tulbure et al., 2018), and coronary artery bypass graft surgery patients (Amjadian et al., 2020). In one study, non-significant results were found between the intervention and control group subjected to standard cognitive behavioural therapy (Elias et al., 2020). However, improving depression in spiritual reminiscence therapy programs might be beneficial to older people.

3.5. Outcomes and meta-analysis

Fig. 2 shows the forest plot of the pooled depression score difference values between baseline and follow up. The funnel plot is symmetrical, with no clear indication of publication bias (Supplement material). To investigate the heterogeneity of the studies, the I^2 (%) were obtained. Due to the high heterogeneity in the studies, the random-effects model was used in the analysis of findings ($\text{Tau}^2 = 3.08$, $\chi^2(6) = 117.60$, $p < 0.001$, $I^2 = 97\%$). Based on seven studies (Aslami et al., 2017; Babamohamadi et al., 2017; Elias et al., 2020; Koenig et al., 2015; Pramesona and Taneepanichskul, 2018; Sanaeinasab et al., 2020; Tulbure et al., 2018), religious-based interventions were effective in reducing depression. The pooled depression score difference values between baseline and follow-up from the random-effects model were 2.53 (95% CI: 1.19, 3.87), favourable to religious-based intervention.

4. Discussion

The present systematic review and meta-analysis were performed to understand the effect of using religious-based interventions for treating depression. The results demonstrated that interventions based on spirituality and religious practices, with populations from different countries and religious beliefs, is beneficial to treat depression compared to standard therapies. The meta-analysis showed an improvement in depression levels after a religious-based intervention. The present study confirmed the previously observed results from two systematic reviews and meta-analyses that were carried out to analyse the research results on religiosity and depression (Anderson et al., 2015; Gonçalves et al., 2015). Altogether, these results are in line with a body of evidence that suggests an association between religiosity and positive mental health outcomes (Koenig et al., 2012; Weber and Pargament, 2014), in particular with depression (Santero et al., 2019).

Religion takes an important role in many people's lives. Therefore, this fact can be used as a possible part of treating depression (Anderson et al., 2015; Gonçalves et al., 2015). However, none of the studies included in the review explores the qualitative part to help understand how religiosity influences depression. This would be interesting to understand to what extent religion acts on the person and, in turn, can help to treat depression. However, some pathways might explain the reduced vulnerability to depression through religiousness (Smith et al., 2003).

Religion is an important part of many people's lives and impacts its quality (Idler et al., 2009). Those facing a physical or mental health problem believe that disease is a stage to be fulfilled. A transcendent power brings meaning to sickness and mitigates suffering (Koenig et al., 2012). There is always hope and trust for treatment success by transcendent intervention for religious people and their families. Because of that, religion is understood to influence subjective wellbeing, mental health (Bonelli and Koenig, 2013; Koenig et al., 2012), and depression in particular (Aslami et al., 2017; Koenig et al., 2015; Pramesona and Taneepanichskul, 2018; Tulbure et al., 2018).

The meaning of life is also a pathway that can explain the relationship between religion, spirituality and depression. It is known that depressive episodes can occur as a consequence of a stressful event. Those who are aware of the meaning of their life have more ability to cope with difficulties (Schaefer et al., 2013) and deal more successfully with adversities (Triplett et al., 2012), which can lower the depressive symptomatology. Since the meaning of life and religiousness are correlated (Park and Yoo, 2016), it can play a moderating or mediating role in the relationship between depression and religiosity (Campos et al., 2020). Furthermore, religiosity is associated with the eudaimonic perspective, and it can be related to fewer depressive episodes. Therefore, it seems that awareness of the meaning of life is linked to religiosity, which can work as a protective factor against depression (Campos et al., 2020). This means that the effect of religiosity on depression may be indirect. Some of the reviewed studies show that the therapy used was mindfulness-based treatment on Islamic spiritual schemes (Aslami et al., 2017) or religious-based intervention using Islamic and Qur'an teachings (Amjadian et al., 2020; Sanaeinasab et al., 2020), which can contribute to the development of a perspective of the meaning they intend to give to their lives and, consequently, reduce the depressive symptoms.

Religion and religious communities give a sense of belonging and provide an opportunity for social support, which can protect against mental problems and depression (Smith et al., 2003). A religious group shares the same vision of the world, which could provide a sense of coherence (Antonovsky, 1979). The sense of coherence contributes to improving mental health (Behnke et al., 2019; Krampe

et al., 2020). Interestingly, more religious activities are linked with depression risk reduction (Santero et al., 2019). In some interventions, the fact that some therapies activities were in a group (Pramesona and Taneepa nichskul, 2018; Sanaeinasab et al., 2020) could enhance the effect of religious-based activities on depression. Being in a group enriched the participants' identification with the same purpose, developing a sense of coherence and mitigating depressive symptomatology.

Knowing the effect that religion has on people's health (Koenig et al., 2012) and take into consideration the results from the present and previous reviews and meta-analysis, with experimental studies with a higher level of evidence (Anderson et al., 2015; Gonçalves et al., 2015), it seems clear that religiosity plays an important role on treating depression. In this sense, it is recommended that in the psychological or psychiatric approach to the treatment of depression, patients' religiosity should be taken into account (Bonelli and Koenig, 2013; Campos et al., 2020; Koenig et al., 2012).

This review and meta-analysis have some limitations that should be acknowledged. First, the definition of the religious-based intervention varied substantially among the trials. It includes sessions by telephone, Skype or instant messaging, mindfulness-based treatment on Islamic spiritual schemes, listening to a Qur'anic recital, Islamic and Qur'an teachings, and spiritual reminiscence therapy adapted to Buddhism, Christianity and Hinduism. These differences can make interpretation and comparing implications on the treatment of depression difficult. All authors have a similar education and profess the same faith. Despite the rigour used in the research protocol and analysing the results, explicit collaboration between investigators from a range of faith and back grounds is recommended (Anderson et al., 2015). From a methodological point of view, we highlight that limiting the languages might have excluded other articles. Even though the assessment included four databases, it is possible that some articles indexed in other databases have not been included, as well as articles published in proceedings of congresses or books.

5. Conclusion

Religious-based interventions provide superior effects than standard/other usual therapies for treating depression. This review and meta-analysis strongly suggest that patients' faith and religious beliefs should be considered when diagnosing and treating depression.

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jad.2022.04.126>.

Contributors

AM and AS contributed to the design. MP developed the search strategy and performed the electronic literature searches. AM, MGM and AI performed the statistical analysis. AI and MGM helped with data interpretation. AM prepared the first draft of the manuscript. MGM, AI and AS contributed to the manuscript revision. All authors have read and approved the content of the manuscript.

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Conflict of interest

None of the authors has conflicts of interest.

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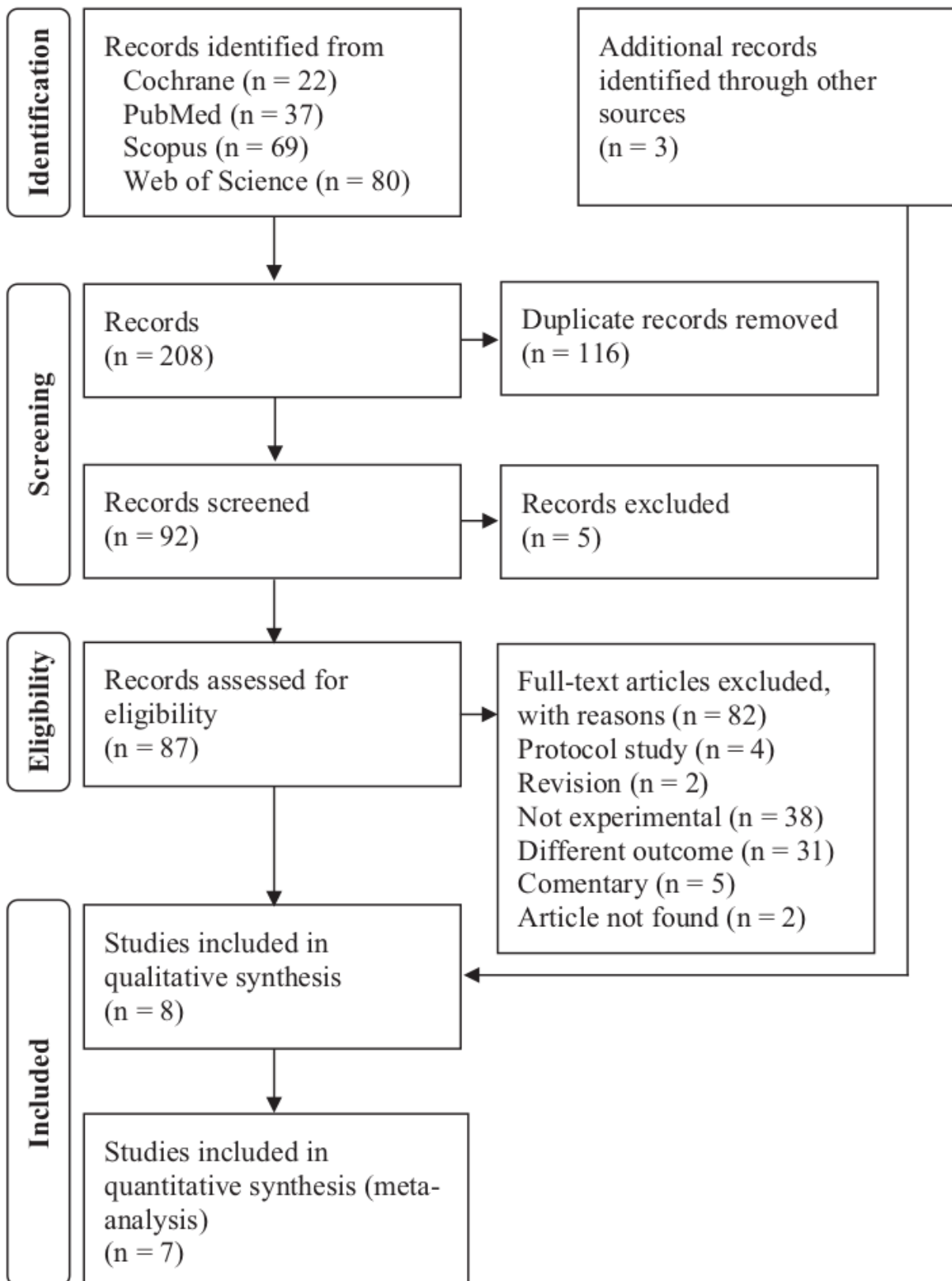


Fig. 1. Flowchart of the selected studies following PRISMA guidelines.

Table 1

Methodological quality assessment of the included studies, according to the Quality Assessment Tool for Quantitative Studies.

	Koenig et al., 2015	Aslami et al., 2017	Babamohamadi et al., 2017	Pramesona and Taneepanichskul, 2018	Tulbure et al., 2018	Amjadian et al., 2020	Elias et al., 2020	Sanaeinasab et al., 2020
Selection bias	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
Study design	Strong	Strong	Strong	Weak	Strong	Weak	Strong	Strong
Confounders	Strong	Moderate	Strong	Strong	Strong	Moderate	Strong	Strong
Blinding	Strong	Strong	Weak		Moderate	Moderate	Weak	Strong
Data collection	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
Withdrawals	Strong	Moderate	Strong	Strong	Strong	Strong	Strong	Strong
Integrity	Strong	Moderate	Strong	Strong	Strong	Strong	Strong	Strong
Analysis	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
Final	Strong	Moderate	Moderate	Moderate	Strong	Moderate	Moderate	Strong

Table 2
Summary of the studies included.

Author	Participant characteristics, sample size, country	Intervention	Follow-up	Depression assessment	Main results
Koenig et al., 2015	132 individuals were recruited from two sites in California (41 men, 91 women). RCBT group = 65 (age 52.5 ± 13.7), SCBT = 67 (50.7 ± 13.3). United States	Participants were randomized to RCBT or SCBT groups. They received ten 50-minute sessions administered over 12 weeks. Participants received sessions remotely. Most sessions were delivered by telephone and some sessions by Skype or instant messaging. A Christian version of the RCBT manual was adapted to Buddhists, Hindus, Muslims, and Jews.	12 weeks	BDI	CCBT and RCBT are equivalent treatments of major depression in persons with chronic medical illness. However, religiosity interacted with the treatment group, suggesting that RCBT was more efficacious in the more religious participants.
Aslami et al., 2017	30 pregnant women in the 16th to 32nd week of pregnancy. Mindfulness-based on Islamic spiritual schemes group = 15 (age 29.4 ± 3.8), CBT = 15 (27 ± 3.2). Iran	Randomly 15 participants with major depression and 15 with high anxiety were assigned to the intervention group under mindfulness-based treatment on Islamic spiritual schemes. 15 participants with major depression and 15 with high scores in anxiety were considered in the control group. The control group was subjected to 12 sessions program of mindfulness based on Islamic spiritual schemes.	3-month	BAI BDI	Both therapy methods effectively reduced the anxiety and depression of pregnant women. However, the effect of mindfulness-based on spiritual-Islamic schemes was more effective.
Babamohamadi et al., 2017	54 haemodialysis patients. Intervention group = 27 (age 50.2 ± 12.9), control group = 27 (age 56.4 ± 8.9). Iran	Patients were randomly assigned to either an intervention or a control group. The Holy Qur'an recitation was implemented among the patients in the intervention group. Participants in the intervention group listened to the Qur'an recitation using an MP3 player with headphones. The control group received no intervention.	4-weeks	BDI	Listening to the Qur'an being recited for 20 min three times/week significantly reduced depressive symptoms in haemodialysis patients, independent of age.
Pramesona and Taneepanichskul, 2018	60 elderly from a nursing home. Intervention group = 30, treatment as usual = 30. Indonesia	Participants from the intervention group were enrolled in a combination of 36 sessions of listening to a Qur'anic recital plus 3 sessions of attending a sermon by a religious leader. Qur'anic recitation sessions were scheduled 3 times/week, lasting between 20 and 25 min per session, using earphones. Monthly sermons focus on depression and quality of life from an Islamic perspective were delivered by a preacher for 50–60 min sessions. Participants were gathered at the same place during the intervention. Participants from the control group participated in daily activities such as watching television, counselling, playing or listening to music. The intervention group was subjected to a program of mindfulness-based on Islamic spiritual schemes.	3-month	GDS	A positive effect of relieving depressive symptoms among elderly nursing home residents was observed by Qur'anic recital listening combined with a preacher approach.
Amjadian et al., 2020	60 coronary artery bypass graft surgery patients (41 men, 19 women) aged 32–67 years. Islamic intervention group = 20 (age 55.8 ± 7.2), breathing intervention group = 20 (age 56 ± 9.5), control Group = 20 (age 59.6 ± 7.2). Iran	60 coronary artery bypass graft surgery patients were chosen and randomly assigned to religious, breathing techniques and control groups. The experimental groups received 8 weeks of treatments; a 2-h session with home works each week. The control group received normal hospital interventions. The spiritual intervention group was provided with a religious-based intervention using Islamic and Qur'an teachings followed by doing home works and exercises at home—in 2-h sessions.	8 weeks	DASS-21	There were significant differences in depression scores among the three groups in the post-tests. Depression was reduced more in the religious group.
Elias et al., 2020	34 older people living in a residential aged care facility (16 men, 18 women). RCBT group = 19 (age 67 ± 4.7), SCBT = 16 (age 69 ± 6.6). Malaysia	The participants in the intervention group received the spiritual reminiscence therapy program, conducted once a week in a 60 to 90-minute session. The participants in the control group received attention control activities that involved active social interaction. Still, the core component of spiritual reminiscence activity was not included. The spiritual reminiscence therapy program was adapted to Buddhism, Christianity and Hinduism.	7 weeks	GDS	Non-significant results were found between the intervention group and the control group. However, improving anxiety and depression in spiritual reminiscence therapy programs might be beneficial to older people.
Sanaeinasab et al., 2020	81 pregnant women (age 26.4 ± 2.9). Intervention group = 40, control group = 41. Iran	The intervention consisted of four 90-minute group educational sessions over 8 weeks, with educational materials such as information on how to engage in a virtual social network, pamphlets detailing the spiritual intervention and expected activities. Groups consisted of 6–10 participants.	3-month	DASS	A spiritually-integrated cognitive-behavioural educational group intervention decreased depression in a group of nulliparous, healthy young pregnant women.

Abbreviation: BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; CBT, cognitive behavioural therapy; DAS, Scale of Death Anxiety; DASS-21, Depression, Anxiety and Stress Scale; GAS, Geriatric Anxiety Scale; GDS, Geriatric Depression Scale; M-GDS-14, Geriatric Depression Scale; QIDS-SR, Quick Inventory of Depressive Symptomatology-Self-Report; RCBT, religiously integrated cognitive behavioural therapy; SCBT, standard cognitive behavioural therapy; STAI, State-trait Anxiety Inventory.

Fig. 2. Meta-analysis of depression treatment studies comparing Religious based intervention with standard therapies.

