

## The Effect of Listening to Holy Quran Recitation on Anxiety: A Systematic Review

### Abstract

**Background:** Among all mental health disorders in the general population, anxiety is the most frequent. Both pharmacological and non-pharmacological interventions are used to manage anxiety in various settings. There is a growing interest among researchers on religion therapy as a non-pharmacological intervention for anxiety management. Hence, due to the importance of Holy Quran in Muslims' lives, this systematic review was performed to assess the studies that evaluated the effect of Quran recitation on anxiety in various settings. **Materials and Methods:** This systematic review study was performed on articles published between January 1990 and September 2017. Several online databases including SID, Iranmedex, Magiran, IranDoc, PubMed, Scopus, and Google Scholar were searched with the keywords of "Quran," "anxiety," "clinical trial." The risk of bias across all included studies was assessed using the Cochrane Collaboration's risk of bias tool. **Results:** Of the 973 articles found in the initial search, 28 randomized controlled trials and quasi-experiments were selected for the systematic review. In most studies, State-Trait Anxiety Inventory was used to measure participants' anxiety. Findings of this review revealed a positive effect of listening to Holy Quran recitation in reducing anxiety in various settings. Only one study had reported that anxiety level in Holy Quran recitation group was less than that of the control group, but it was not statistically significant. **Conclusions:** Based on the available researches, Quran recitation can be used as a useful non-pharmacological treatment to reduce anxiety. However, methodologically strong randomized controlled trials are needed in this area.

**Keywords:** Anxiety, Holy Quran, Systematic review

### Introduction

Among all mental health disorders in the general population, anxiety is the most frequent.<sup>[1]</sup> According to results from population-based surveys, approximately one third of the population is affected by an anxiety disorder during their lifetime.<sup>[2]</sup> Anxiety can be defined as a subjective feeling of tension, apprehension, nervousness, and worry accompanied by physiological arousal.<sup>[3]</sup> It is important to manage anxiety because it is systematically associated with negative outcomes such as quality of life (QOL) impairment, functional impairment, and lower productivity.<sup>[4]</sup> The Global Burden of Disease study 2010 (GBD 2010) estimated that anxiety disorders contributed to 26.8 million disability adjusted life years.<sup>[5]</sup> There are several pharmacological and non-pharmacological interventions for managing anxiety in various settings. Although pharmacological

interventions such as selective serotonin reuptake inhibitors (SSRIs) have been traditionally used in the treatment of anxiety, some cannot use these drugs because of side-effects or interactions and others prefer not to use any medications.<sup>[3,6]</sup> Recently, a range of non-pharmacological methods, such as aromatherapy, massage therapy, relaxation techniques, and music therapy, have been implemented to reduce anxiety.<sup>[7]</sup> The use of music as a therapeutic approach has an old history. Inscriptions in ancient Egypt, Greece, China, India, and Rome described music as a healing agent with a relaxing effect that reduces anxiety and creates relaxation.<sup>[8]</sup> The anxiolytic effects of music interventions on patients undergoing invasive procedures, cancer patients, and those suffering from Alzheimer's disease are confirmed in various studies.<sup>[9-11]</sup> Although the use of music as a healing agent is not a new phenomenon, there has been scant research on religious music. The available studies

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indicate that religion and religious music may have a positive effect on mental health.<sup>[12]</sup> The Quran is the Holy book of Muslims; it covers all aspects of human life. Recitation of the Holy Quran is a form of mystical music that contributes to the release of endorphins by stimulating alpha brain waves.<sup>[13]</sup> Therefore, it enhances the stress threshold, removes negative emotions, and creates a sense of relaxation.<sup>[14]</sup> Hence, due to the importance of Holy Quran in Muslims' lives and the growing interest in non-pharmacological interventions by focusing on religion among researchers, this systematic review was performed to assess the studies that evaluated the effect of Quran recitation on anxiety in various settings.

## Materials and Methods

In this systematic review, national and international databases including SID, Iranmedex, Magiran, IranDoc, Scopus, and PubMed were searched in September 2017. Key words and MeSH terms such as "Quran," "anxiety," "clinical trial," and Boolean operators "AND" and "OR" were used for searching in English databases. Persian terms equivalent to these English terms were used for searching in national electronic databases. To ensure that no relevant articles were missed, we also searched Google Scholar using both Persian and English search terms. All documents that were published between January 1990 and September 2017 were retrieved. Randomized controlled trials and quasi-experiments met the inclusion criteria if they assessed the effect of Quran recitation on anxiety. The studies conducted on healthy participants, patients with chronic diseases, or patients undergoing an invasive procedure were included. There was no age or gender restriction. If we could not retrieve the full text format of an article, we included its abstract only when it had sufficient information. Studies that were not published as full papers, such as conference abstracts were excluded. Two steps were taken to determine the eligibility of papers according to the inclusion criteria. First, the title and abstract of the identified papers were independently screened by two reviewers. Second, full texts were obtained for all potentially relevant articles. Disagreements were resolved by discussion between reviewers. The following information/data were extracted from studies that met the inclusion criteria: author(s) and year of publication, setting, sample size, participants, study methodology, outcome measures, and key findings.

The risk of bias in each included study was assessed using the Cochrane Collaboration's risk of bias tool.<sup>[15]</sup> The criteria consist of selection bias, performance bias, detection bias, attrition bias, and reporting bias. Each item was classified as "low risk of bias," "high risk of bias," or "unclear risk of bias." Any discrepancy between the two reviewers were resolved by a discussion.

## Ethical considerations

The study was approved by the Ethics Committee of Shahrood University of Medical Sciences with the ethical code IR.SHMU.REC.1396.150.

## Results

A total of 973 articles were retrieved on initial search query. After excluding 233 duplicates and 707 irrelevant articles, 33 studies remained for full-text evaluation. Of these, 5 were excluded because one of them did not assess the anxiety level and the others were abstract from conference. Finally, 28 studies (26 articles, 2 master's theses) were considered for systematic review. The flowchart used for retrieving the included articles is shown in Figure 1.

## Study characteristics

All the included studies were published between 1997 and 2017, and the total number of participants was 2,108, with a range of 24–180 per study. The study designs were a two-arm parallel group ( $n = 21$ ),<sup>[16,18-23,27-32,34,35,37-42]</sup> a three-arm parallel group ( $n = 6$ ),<sup>[17,24-26,33,43]</sup> and a single-arm group ( $n = 1$ ).<sup>[36]</sup> Fifteen studies assessed the effect of Quran recitation on anxiety in participants before an invasive procedure such as cesarean section,<sup>[16,24,28]</sup> induction of general anesthesia,<sup>[29,33]</sup> open heart surgery,<sup>[22,35]</sup> general surgery,<sup>[17,19]</sup> cardiac catheterization,<sup>[34,39]</sup> endoscopy,<sup>[26]</sup> lithotripsy,<sup>[21]</sup> hemodialysis,<sup>[42]</sup> and any invasive procedure.<sup>[32]</sup> In addition, five studies on student test anxiety,<sup>[27,30,31,36,37]</sup> two on athletes' anxiety,<sup>[20,41]</sup> two on the anxiety of patients hospitalized in intensive care units,<sup>[18,23]</sup> one on women's anxiety during pregnancy,<sup>[43]</sup> one on women's anxiety during first stage of labor,<sup>[38]</sup> one

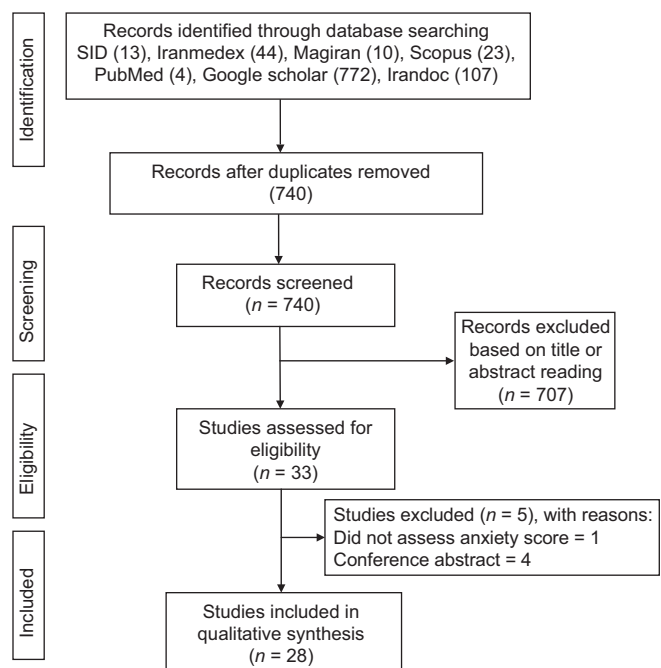


Figure 1: PRISMA flow diagram

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on nursing students' anxiety before entering the clinical practice,<sup>[25]</sup> and one study on prisoners' anxiety were conducted.<sup>[40]</sup>

### Outcome measure

The State-Trait Anxiety Inventory (STAI) in 22 studies,<sup>[16-19,21-27,29,31-36,38,39,42,43]</sup> the Test Anxiety Scale (TAS) in two studies,<sup>[30,37]</sup> the Beck Anxiety Inventory (BAI) in two studies,<sup>[20,40]</sup> the Competitive State Anxiety Inventory (CSAI) in one study,<sup>[41]</sup> and the Zung Self-Rating Anxiety Scale (SAS) in one study<sup>[28]</sup> were used to assess the level of anxiety in participants [Table 1].

### Anxiety before exams in students

A study performed by Ghorbani *et al.* demonstrated that listening to the Quran recitation significantly reduced the anxiety level in the intervention group compared with the control group.<sup>[37]</sup> The research of Qasemtabar *et al.* confirmed the results of study by Ghorbani *et al.*<sup>[30]</sup> A study by Heidari and Shahbazi showed that anxiety level in nursing and emergency medicine students was significantly lower during exams with Quran recitation than the exams without it.<sup>[27]</sup> A study by Masoumy *et al.* on the medical students' test anxiety revealed that Quran recitation was significantly more effective than music sound.<sup>[31]</sup> Moreover, Ramazani *et al.*, in a quasi-experimental study, stated that Quran recitation was effective in reducing pre-test anxiety level of medical sciences students.<sup>[36]</sup>

### Anxiety in medical sciences students before entering the clinical practice

Findings of the study performed by Pour Dehkordi *et al.* indicated that both relaxation muscle therapy and listening to Holy Quran recitation along with reciting God's name were effective on reducing anxiety level of nursing students before entering the clinical practice.<sup>[25]</sup>

### Anxiety in athletes

Mottaqhi, *et al.* in their study stated that Quran recitation significantly reduced anxiety level of female university athletes.<sup>[41]</sup> Another study by Aghamohamadi *et al.* showed that female university athletes who listened to Quran recitation had lower anxiety level than the control group but this difference was not statistically significant.<sup>[20]</sup>

### Anxiety in prisoners

Akbari *et al.* assessed the effect of Quran recitation on prisoners' anxiety. They found that intervention group had significantly lower anxiety level than the control group.<sup>[37]</sup>

### Anxiety during pregnancy

Study by Jabbari *et al.* on 168 pregnant women showed significant reduction in anxiety level of both intervention groups, one that listened to Quran recitation with translation and another that listened to Quran recitation without translation, when compared with the control group.<sup>[43]</sup>

### Anxiety in first stage of labor

Sahmeddini *et al.* reported in their study that listening to the recitation of the Holy Quran during the active phase of labor had a positive effect in reducing anxiety.<sup>[38]</sup>

### Anxiety in patients hospitalized in the intensive care units

Study conducted by Khatooni showed that listening to the recitation of the Holy Quran had a positive effect in reducing anxiety level of patients hospitalized in the cardiac care units.<sup>[23]</sup> A study performed by Najafi *et al.* showed that listening to Holy Quran recitation along with lavender aromatherapy was effective in reducing anxiety level of patients suffering from myocardial infarction.<sup>[18]</sup>

### Anxiety before invasive procedures

In the study by Nikbakht Nasrabadi *et al.*, it was found that listening to Holy Quran recitation had a positive effect on lowering the level of anxiety among patients hospitalized for invasive procedures.<sup>[32]</sup> Tajvidi *et al.* found that Holy Quran recitation was effective in reducing patients' anxiety before open heart surgery;<sup>[22]</sup> this had been confirmed by the research of Ildarabadi *et al.*<sup>[35]</sup> A study by Heidari and Shahbazi showed that listening to Quran was more effective in reducing anxiety before endoscopy procedure than listening to instrumental music.<sup>[26]</sup> Babaii *et al.* in their study found that Holy Quran recitation decreased patients' anxiety before cardiac catheterization.<sup>[39]</sup> Mirsane *et al.* demonstrated that listening to Quran recitation and its translation could reduce patients' anxiety before general surgery.<sup>[19]</sup> Atari *et al.* demonstrated that listening to Holy Quran recitation decreased the anxiety score of patients before anesthesia induction.<sup>[29]</sup> Another study by Shafiei *et al.* on patients' anxiety before induction of general anesthesia indicated that Holy Quran recitation with translation was significantly more effective than the same without translation.<sup>[33]</sup> Results of Majidi's study showed the positive effect of listening to Holy Quran in reducing anxiety level of patients hospitalized for angiography.<sup>[34]</sup> In another study, Babamohamadi *et al.* found that listening to Holy Quran recitation had a positive effect in reducing anxiety of patients undergoing hemodialysis.<sup>[42]</sup> Mirbagher Ajorpaz *et al.* found that both Quran recitation and instrumental music significantly reduced anxiety level of patients before abdominal surgery.<sup>[17]</sup> A study by Sharafi indicated that Holy Quran recitation compared with the Arabic music had a positive effect in lowering patient's anxiety before lithotripsy.<sup>[21]</sup> Sharifi *et al.* reported in their study that both Quran recitation and instrumental music reduced anxiety score of women before cesarean section. However, the recitation of Holy Quran was significantly more effective.<sup>[24]</sup> Allameh *et al.* indicated the positive effect of Quran recitation in reducing anxiety score of women undergoing cesarean section,<sup>[28]</sup> this had been confirmed by the research of Mirbagher Ajorpaz and Ranjbar.<sup>[16]</sup>

Table 1: Characteristics of included studies

First author-publication year	Type of study	Participants	Interventions and comparisons	Assessment	Outcomes
Heidari and Shahbazi. 2015 <sup>[27]</sup>	Quasi-experimental study	86 nursing and emergency medicine students, mean age 21.9 (3.5) years, 52.3% male	Group 1 listened to the recitation of the Holy Quran for 5 min before the midterm exams Group 2 listened to the recitation of the Holy Quran for 5 min before the end of term exams	Anxiety in both groups was assessed by STAI*	Level of anxiety in nursing and emergency medicine students was significantly lower during exams with Quran recitation compared with exams without it ( $p<0.05$ )
Qasemtabar et al. 2013 <sup>[30]</sup>	Clinical trial study	50 high school students who had before exam anxiety, mean age 17 (1) years, 50% male	Group 1 listened to the recitation of the Holy Quran for 5 min Group 2 received no intervention	Anxiety in both groups was assessed by TAS**, before the distribution of the test paper and at the end of the intervention	Level of anxiety was significantly lower in the intervention group compared to the control group ( $p=0.001$ ).
Masoumy et al. 2013 <sup>[31]</sup>	Quasi-experimental study	60 pre-medical students, mean age 19.5 (1.6) years, 70% female	Group 1 listened to Holy Quran recitation, before the exam for 15 min with a speaker Group 2 listened to the instrumental music via the same way	Anxiety in both groups was assessed by STAI before and after intervention	There was a significant reduction in level of anxiety for both experimental groups ( $p<0.05$ ). However Quran sound was more effective ( $p<0.05$ ).
Ramazani et al. 2014 <sup>[36]</sup>	Quasi-experimental study	150 medical sciences' students, 21.2 (2.2) years, 63.3% female	All participants listened to the recitation of the Holy Quran for 10 min before the exam	Anxiety was assessed by STAI before and after intervention	There was a significant difference in the mean score of anxiety before and after the intervention ( $p<0.05$ ).
Ghorbani et al. 2011 <sup>[37]</sup>	Quasi-experimental study	62 secondary school students, aged between 13 and 15 years	Group 1 listened to the recitation of the Holy Quran for 20 min before the exam Group 2 sat for 20 min in their place	Anxiety in both groups was assessed by TAS, pre-exam and at the end of the intervention	Level of anxiety was significantly lower in the intervention group compared to the control group ( $p<0.05$ )
Aghamohamadi et al. 2014 <sup>[20]</sup>	Clinical trial study	24 young female university athletes, mean age 21.8 (2.1) years	Group 1 heard the recitation of the Holy Quran Group 2 received no intervention	Anxiety in both groups was assessed by BAI*** before and after Bruce treadmill test	The experimental group had lower anxiety level than the control group but it was not statistically significant ( $p>0.05$ ).
Mottaghi et al. 2011 <sup>[41]</sup>	Quasi-experimental study	80 female university athletes, mean age 21.3 (2.2) years	Group 1 listened to the recitation of the Holy Quran for 15 min, 1 h before competition Group 2 received no intervention	Anxiety in both groups was assessed by CSAI**** 1 day and 15 min before the competition	There was a significant difference in mean anxiety score between the two groups ( $p=0.02$ ).
Pour Dehkordi et al. 2009 <sup>[25]</sup>	Clinical trial study	60 nursing students, 85% female	Group 1 performed progressive muscle relaxation 3 times a day for 2 week Group 2 listened to Holy Quran recitation and recited God's name every day for 2 weeks, each time for 10 min Group 3 received no intervention	Anxiety in all groups was assessed by STAI 2 weeks before and in day of entering to the training	Level of anxiety was significantly lower in the intervention groups compared to the control group ( $p<0.05$ )

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Table 1: Contd...

First author-publication year	Type of study	Participants	Interventions and comparisons	Assessment	Outcomes
Akbari <i>et al.</i> 2011 <sup>[40]</sup>	Quasi-experimental study	30 male prisoners, aged between 18 and 56 years	Group 1 listened to the recitation of the Holy Quran in 15×45 min sessions Group 2 received no intervention	Anxiety in both groups was assessed by BAI before and after intervention	There was a significant difference in mean anxiety score between the two groups ( $p=0.001$ )
Jabbari <i>et al.</i> 2017 <sup>[43]</sup>	Clinical trial study	168 pregnant women referred to health centers, aged between 15 and 45 years	Group 1 listened to the Holy Quran recitation with translation for 20 min in health center, each time for 20 min, they also listened to CDs once a day on days non-referring to the center Group 2 listened to the Holy Quran recitation without translation via the same way Group 3 received no intervention	Anxiety was assessed by STAI before intervention and 4-8 weeks after intervention	In both intervention groups, 4 and 8 weeks after intervention, there was a significant decrease in the scores of STAI, in comparison with the baseline scores ( $p=0.001$ ); however, in the control group no significant decrease was observed ( $p>0.05$ ).
Sahmeddini <i>et al.</i> 2014 <sup>[38]</sup>	Clinical trial study	60 pregnant women who had vaginal delivery, aged between 18 and 35 years	Group 1 listened to the Quran recitation for 45 min using headphone during the active phase of labor In group 2 no audio was played through the headphone	Anxiety in both groups was measured by STAI before and after intervention	There was a significant difference in mean anxiety score between the two groups ( $p<0.001$ )
Khatooni. 1997 <sup>[23]</sup>	Quasi-experimental study	60 patients hospitalized in cardiac care units	Group 1 listened to the recitation of the Holy Quran for 20 min Group 2 received no intervention	Anxiety in two groups was assessed by STAI before and after intervention	In intervention group there was a significant decrease in anxiety score, in comparison with the baseline score ( $p<0.001$ ).
Najafi <i>et al.</i> 2014 <sup>[18]</sup>	Experimental study	70 patients with myocardial infarction, mean age 61 (12) years, 65.1% male	Group 1 received lavender aroma and Quran recitation four times each day for 2 days Group 2 received no intervention	Anxiety in both groups was measured by STAI at the beginning and at the end of each intervention cycle	Level of anxiety at the end of each intervention cycle was significantly lower in the experimental group compared with the control group ( $p<0.05$ )
Nikbakht Nasrabadi <i>et al.</i> 1998 <sup>[32]</sup>	Quasi-experimental study	80 patients waiting for an invasive procedure	Group 1 listened to the recitation of the Holy Quran for 20 min Group 2 received no intervention	Anxiety in two groups was assessed by STAI before and after intervention	In intervention groups there was a significant reduction in the score of anxiety, in comparison to the baseline score ( $p<0.01$ )

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First author-publication year	Type of study	Participants	Interventions and comparisons	Assessment	Outcomes
Heidari and Shahbazi. 2013 <sup>[26]</sup>	Clinical trial study	60 patients who referred to a private digestive clinic, mean age 40 (1.5) years, 68.3% male	Group 1 listened to the recitation of the Holy Quran for 20 min Group 2 listened to the instrumental music for 20 min Group 3 received no intervention	Anxiety in all groups was assessed by STAI before and after intervention	Anxiety level decreased in patients in both groups of Quran ( $p=0.001$ ) and music ( $p=0.03$ ) compared to the control group. Also anxiety level was significantly lower in Quran group compared to the music group
Tajvidi <i>et al.</i> 2001 <sup>[22]</sup>	Quasi-experimental study	80 patients waiting for open heart surgery	Group 1 listened to the recitation of the Holy Quran in one day before surgery for 15 × 2 min Group 2 received no intervention	Anxiety in two groups was assessed by STAI before and after intervention	There was a significant difference in mean anxiety score between the two groups ( $p<0.05$ )
Ildarabadi <i>et al.</i> 2004 <sup>[35]</sup>	Quasi-experimental study	61 patients waiting for open heart surgery	Group 1 listened to the recitation of the Holy Quran in one day before surgery for 15 × 2 min Group 2 received no intervention	Anxiety in two groups was assessed by STAI before and after intervention	Level of anxiety was significantly lower in the intervention group compared to the control group ( $p<0.001$ ).
Majidi. 2004 <sup>[34]</sup>	Clinical trial study	108 patients waiting for coronary artery angiography	Group 1 listened to the recitation of the Holy Quran for 20 min Group 2 received no intervention	Anxiety in both groups was assessed by STAI 1 day and 90 min before angiography	Anxiety level was significantly lower in the intervention group compared to the control group ( $p<0.001$ )
Babaii <i>et al.</i> 2015 <sup>[39]</sup>	Clinical trial study	60 patients experienced moderate to high level of anxiety before cardiac catheterization, aged more than 18 years	Group 1 listened to the recitation of the Holy Quran for 18 min Group 2 only rested in bed for 18 min	Anxiety in both groups was assessed by STAI before and after intervention	Intervention group had a significantly lower level of anxiety than the control group ( $p<0.001$ )
Atari <i>et al.</i> 2000 <sup>[29]</sup>	Experimental study	60 patients before induction of general anesthesia	Group 1 listened to the Quran recitation for 20 min using headphone, before surgery In group 2 no audio was played through the headphone	Anxiety in both groups was measured by STAI before and after intervention	Intervention group had a significantly lower anxiety score than the control group ( $p=0.002$ )
Shafei <i>et al.</i> 2011 <sup>[33]</sup>	Experimental study	180 patients before induction of general anesthesia	Group 1 listened to the recitation of the Holy Quran without translation Group 2 listened to the recitation of the Holy Quran with translation Group 3 received no intervention	In three groups anxiety was measured by STAI before and after intervention	Anxiety score was significantly lower in group 2 compared to the control group ( $p=0.019$ ). However, there was no significant difference between anxiety score of group 1 and control group ( $p>0.05$ )

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Table 1: Contd...

First author-publication year	Type of study	Participants	Interventions and comparisons	Assessment	Outcomes
Mirsane <i>et al.</i> 2016 <sup>[19]</sup>	Clinical trial study	60 patients waiting for general surgery, aged between 18 and 50 years, 61.6% female	Group 1 listened to the recitation of the Holy Quran in one day before surgery for 30 min Group 2 only rested in bed for 30 min	Anxiety in both groups was assessed by STAI before and after intervention	Anxiety level of experimental group significantly decreased following the intervention ( $p=0.03$ ). However mean anxiety score in the control group did not change significantly ( $p=0.05$ )
Mirbagher Ajorpaz <i>et al.</i> 2011 <sup>[17]</sup>	Clinical trial study	90 patients who were scheduled to undergo abdominal surgery, aged more than 15 years, 55.5% female	Group 1 listened to the recitation of the Holy Quran Group 2 listened to the instrumental music Both interventions were applied for 20 min, before surgery Group 3 received no intervention	Anxiety was measured by STAI before and after intervention in three groups	Level of anxiety was significantly lower in the intervention groups compared with the control group ( $p=0.001$ )
Sharafi <i>et al.</i> 2000 <sup>[21]</sup>	Experimental study	60 patients waiting for lithotripsy	Group 1 listened to the recitation of the Holy Quran for 20 min through the headphone Group 2 listened to Arabic music via the same way	Anxiety in two groups was assessed by STAI before and after intervention	Level of anxiety was significantly lower in the Quran recitation group compared with the music group ( $p<0.001$ )
Mirbagher Ajorpaz and Ranjbar. 2010 <sup>[16]</sup>	Quasi-experimental study	80 women undergoing cesarean section, aged between 25 and 35 years	Group 1 listened to the recitation of the Holy Quran for 20 min Group 2 received no intervention	Anxiety in both groups was assessed by STAI before and after intervention	Anxiety in the experimental group was significantly lower than anxiety in the control group ( $p=0.002$ )
Sharifi. 2012 <sup>[24]</sup>	Experimental study	45 women waiting for cesarean section, mean age 28.9 (4.7) years	Group 1 listened to the recitation of the Holy Quran for 20 min, 2 h before cesarean Group 2 listened to the instrumental music via the same way Group 3 received no intervention	Anxiety in all groups was assessed by STAI before and after intervention	Both experimental groups had significantly lower anxiety level than the control group ( $p<0.001$ ) Also anxiety score of the Quran group was significantly lower than that of the music group ( $p=0.003$ )
Allameh <i>et al.</i> 2013 <sup>[28]</sup>	Clinical trial study	64 women waiting for cesarean section, mean age 28.2 (4.8) years	Group 1 listened to the Quran using headphone during the cesarean section Group 2 received no intervention	Anxiety in both groups was assessed by SAS***** before, during and 1 h after intervention	Anxiety score was significantly higher in control group during ( $p=0.001$ ) and 1 h ( $p=0.001$ ) after the surgery
Babamohamadi <i>et al.</i> 2015 <sup>[42]</sup>	Clinical trial study	60 patients undergoing hemodialysis, aged between 18 and 65 years, 57% male	Group 1 listened to the recitation of the Holy Quran three times a week for 1 month, each time for 20 min Group 2 received no intervention	Anxiety in both groups was assessed by STAI at baseline before the start of a dialysis treatment and then 1 month later	There was a significant decrease in the level of anxiety for the participants in intervention group as compared to the control group ( $p<0.001$ )

\*STAI: State-Trait Anxiety Inventory; \*\*TAS: Test Anxiety Scale; \*\*\*BAI, Beck Anxiety Inventory; \*\*\*\*CSAI: Competitive State Anxiety Inventory; \*\*\*\*\*SAS; Zung Self-Rating Anxiety Scale

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### Risk of bias in included studies

Eight trials described randomization procedures, using random number table,<sup>[25,37]</sup> block randomization,<sup>[18,38,43]</sup> throwing coins,<sup>[17,42]</sup> or computer generation of random numbers.<sup>[28]</sup> The other trials did not describe the sequence randomization process. Only three trials were considered at low risk of bias for allocation concealment.<sup>[18,38,43]</sup> The other trials were rated “unclear,” as they did not have clear descriptions of their method of allocation concealment. All included studies failed to provide information about the blinding of participants, personnel and outcome assessors. All studies were judged to have a low risk of bias for incomplete outcome data; all studies had no participant losses, or the missing data were balanced in numbers across intervention groups. As far as we could see, all studies included were free of selective outcome reporting and other potential sources of bias. See Figure 2; “Risk of bias” graph and Figure 3 “Risk of bias” summary of included studies.

### Discussion

This study aimed to systematically review studies that assessed the effect of listening to Holy Quran recitation on anxiety in various settings. Religion is an important socio-emotional resource and listening to religious music is an important part of religious life.<sup>[12]</sup> One of the most wonderful aspects of miraculous Quran is the sounds of reading Holy Quran’s verses. Findings of our review revealed a positive effect of listening to Holy Quran recitation in reducing anxiety score in various settings. Only in one study that was conducted on female university athletes, anxiety level in experimental group was less than that of the control group but it was not statistically significant.<sup>[20]</sup> Relatively little research has addressed the relationships between listening to religious music and physiological processes. A study by Bradshaw *et al.* showed that listening to religious music among elderly people was associated with a decrease in death anxiety, and positively influenced in life satisfaction, self-esteem, and a sense of control over their lives.<sup>[12]</sup> During the past two decades, various studies have been carried out on therapeutic effect of Holy Quran recitation in Iran. Mahjoob *et al.* in their study found that Quran listening without its musical tone had a positive effect on the mental health of personnel in a medical sciences university.<sup>[44]</sup> The research by Shirvani *et al.* showed that listening to Holy Quran recitation

stabilized vital signs and increased arterial oxygen pressure of unconscious patients in ICUs.<sup>[45]</sup> Keshavars *et al.* in their study aimed to assess the effect of Holy Quran recitation on physiological responses of premature infant found that pulse rate and respiratory rate significantly reduced in the intervention group compared to the control group.<sup>[46]</sup> Ansari Jaberi *et al.* found that listening to Holy Quran recitation had a positive effect in reducing depression.<sup>[47]</sup> Based on the results of this systematic review and other studies we can help people to decrease their anxiety by getting help from Holy Quran. Therefore, healthcare teams should consider Holy Quran recitation as an intervention, as this is an example of the holistic paradigm in health and the effects of such an intervention should be considered in a multidisciplinary and patient-centered approach. This highlights the need for education and training based on an ethical background that is very important when dealing with religiosity or spirituality.

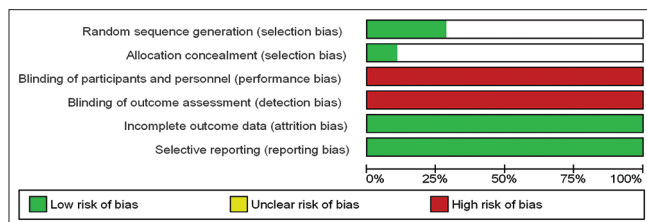


Figure 2: Risk of bias' graph of included studies

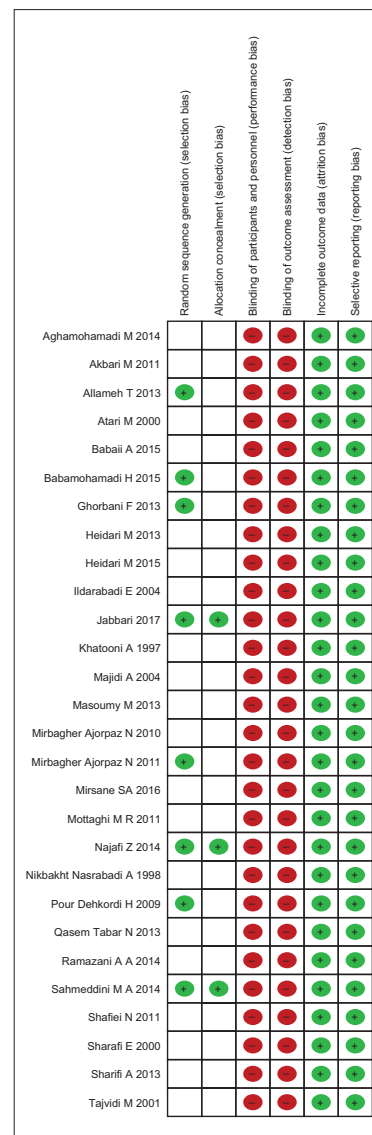


Figure 3: Risk of bias' summary of included studies



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This study has some limitations. We could not find any evidence assessing the effect of Holy Quran recitation on anxiety in other Islamic countries. Hence, this systematic review focused on studies that conducted in Iran. The low methodological quality and the high heterogeneity of the included studies mean that our findings must be interpreted with caution.

### Conclusion

The current evidence indicates that listening to Holy Quran recitation is a useful non-pharmacological treatment for reducing anxiety. However, due to the limited number of studies in this area, further research is needed to obtain more accurate evidence.

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### Conflicts of interest

Nothing to declare.

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