

# Investigation of the Effectiveness of Some Complementary Medicine and Techniques Based on Religious Approach and Islamic Spirituality Therapy in Reducing Prenatal and Delivery Anxiety

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## Abstract

**Objective:** Maternal mental health is one of the most important indicators of pregnancy health. Anxiety and stress affect maternal and fetal outcomes. The present review was conducted to evaluate the effectiveness of certain complementary medicine methods in reducing pregnancy anxiety.

**Evidence Acquisition:** Data source in this review was related to articles searched in local scientific databases and international databases including PubMed, Scopus, and Google scholar. Search for articles was done by using keywords of pregnancy anxiety, complementary medicine, acupuncture and acupressure, aromatherapy, spiritual therapy, and psychotherapy without any time limitations. At the end of the search, out of 165 obtained articles, 70 were reviewed. Exclusion criteria were irrelevant research studies, inadequate data in the study, lack of access to the full text of articles, animal studies, editorial studies, and reports.

**Results:** Aromatherapy, acupressure, relaxation training skills, maternal, fetal, and neonatal attachment techniques, psychotherapy, and spiritual therapy have been employed in different studies to control pregnancy anxiety. These methods had significant and measurable effects on reducing and controlling maternal anxiety during pregnancy, and in some studies, they improved neonatal growth and development indices.

**Conclusion:** The efficiency of complementary medicine along with the use of therapeutic techniques in classical medicine can provide a new model for reducing the anxiety of pregnant women. It is recommended that health care planners use this integrated, easy-to-use, cost-effective approach so as to reduce the anxiety of pregnant mothers.

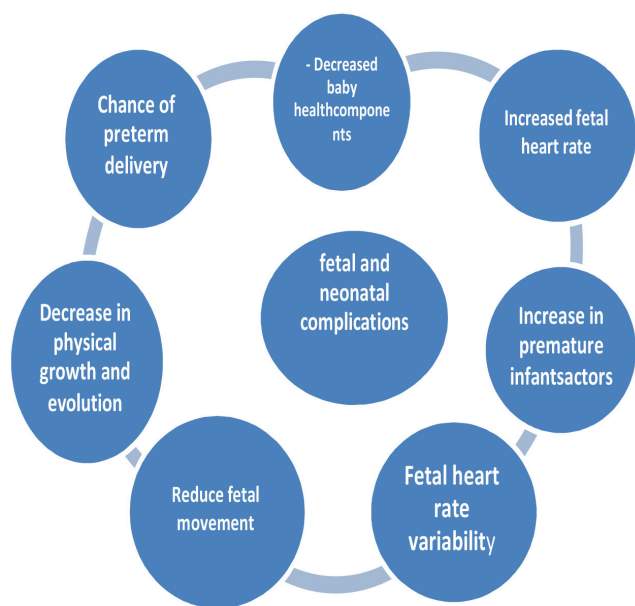
**Keywords:** Complementary, Anxiety, Acupressure, Spiritual, Islamic

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## 1. Context

Pregnancy, labor, and childbirth are accompanied with severe psychological, social, and emotional effects on mothers and their family; furthermore, severe labor pain can cause serious emotional distress, disrupting maternal mental health. Fear and anxiety of childbirth increase the patient's pain and discomfort in the delivery room. Moreover, maternal fears and concerns regarding pregnancy as well as the negative experience of childbirth can have adverse psychological effects on the mother and her family (1, 2). According to an estimate by the World Health Organization in 2008, in every developing country, one in 3-5 pregnant women have anxiety problems (3). Anxiety further manifests as a generalized, unpleasant, and ambiguous feeling of anxiousness, often accompanied by symptoms of autonomic nervous system stimulation (4). It is also associated with adverse pregnancy outcomes, preterm delivery, low birth weight, and fetal growth restriction (5).

Pregnancy anxiety led to reduced baby health (6), increased premature infants with features such as irregular feeding, bloating, severe abdominal pain, insomnia, prolonged crying (7), increased fetal heart rate due to decreased uterine-placental perfusion (8), affected duration and variability of the fetal heart rate, which increases the baseline fetal heart rate (9). There was also an abnormality in the fetal heart rate and a decrease in fetal movements that would lead to a delay in the fetal nervous system. (10); moreover, in some studies, maternal anxiety was associated with fewer fetal movements during active sleep (11) (Figure 1). Also, during pregnancy, maternal anxiety induces a variety of changes in the immune system, indicating the involvement of anxiety in the immune control factors (12). Ineffective and prolonged labor pains further entail the inappropriate functioning of the uterine muscles following the release of stress hormones (13). The risk of unplanned cesarean section during pregnancy (14), increased perinatal visits (14), postpartum depression, alcohol and smoking, and maternal inability to take



**Figure 1:** The figure shows maternal anxiety and some fetal and neonatal complications.

care of the baby (15) have also been reported (Figure 2). The purpose of this review was to investigate the effectiveness of acupuncture, aromatherapy, relaxation skills, attachment and psychotherapy, and spirituality therapy in reducing prenatal anxiety.

## 2. Evidence Acquisition

### *Survey Protocol*

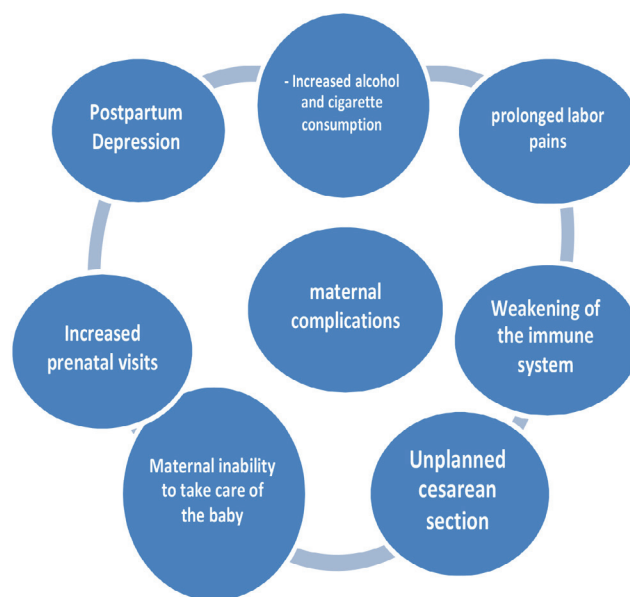
We conducted a review of articles published until 2019 without any time limitations; these articles were related to the effectiveness of acupuncture, aromatherapy, relaxation skills, attachment and psychotherapy and spirituality therapy in reducing prenatal anxiety.

### *Information Sources*

In this review, a literature search was conducted using related articles that were searched in local scientific databases of Civilica, MagIran, and university publications and international databases such as PubMed, Scopus, and Google scholar.

### *Eligibility Criteria*

The main searches were conducted with keywords of pregnancy anxiety, complementary medicine, acupuncture and acupressure, aromatherapy, spiritual therapy, and psychotherapy without time limitations. Besides, other selection criteria included judgment on



**Figure 2:** The figure indicates maternal anxiety and some maternal complications.

the novelty and importance of the studies and their relevance for a well-informed reduction in pregnancy anxiety. Other inclusion criteria were case-control studies, review articles, cohort and clinical trial articles published in Persian and English, no use of anxiety-reducing medications in the study, no psychological illnesses, and no stress-related diseases. If there were several reports from one study, the most complete one was considered. The STROBE checklist with 22 items was utilized to assess the quality of the observation articles. The main items of the checklist were title, summary, introduction, method, findings, and discussion. Of the 22 scores, at least 16 were considered for the inclusion of the paper in the analysis. Exclusion criteria were irrelevant research studies, inadequate data in the study, lack of access to the full text of articles, animal studies, editorial studies, and reports.

### *Study Selection and Data Collection Process*

Articles were evaluated in two stages. Initially, two researchers selected the titles and abstracts for the study to identify eligible articles. To review the articles, the first researcher read the articles individually and the data associated with each article was recorded in the table. The same reassessment was performed by a second researcher. In the second step, the full text of the criterion-based articles was selected; if the researcher disagreed (e.g. content link, resource credentials) during the joint meeting, the final table was completed. The articles were further categorized by the study type and clinical applications. Finally,

information about each article was extracted based on the present study.

### 3. Results

Based on the search strategy, 165 articles were found in the first stage; 84 articles were then excluded after full-text screening, four duplicate articles were excluded, and 7 articles without sufficient information. 70 articles met the criteria for inclusion in the present review. Based on the findings of these studies, various aspects influencing the reduction in pregnancy anxiety in the results were separately discussed (Figure 3) (16).

#### 1. Research Evidence Related to the Effect of Acupressure on Reducing Pregnancy Anxiety

Acupressure is considered as a non-invasive and therapeutic approach in which pressure is applied on certain points throughout the body. It eliminates pain, reduces muscle contractions, improves circulation and performance of vital activities, and reduces the symptoms of anxiety. In pregnant women, reduction in severe labor pain and relief of unpleasant memories significantly reduce the maternal demand for cesarean delivery (15).

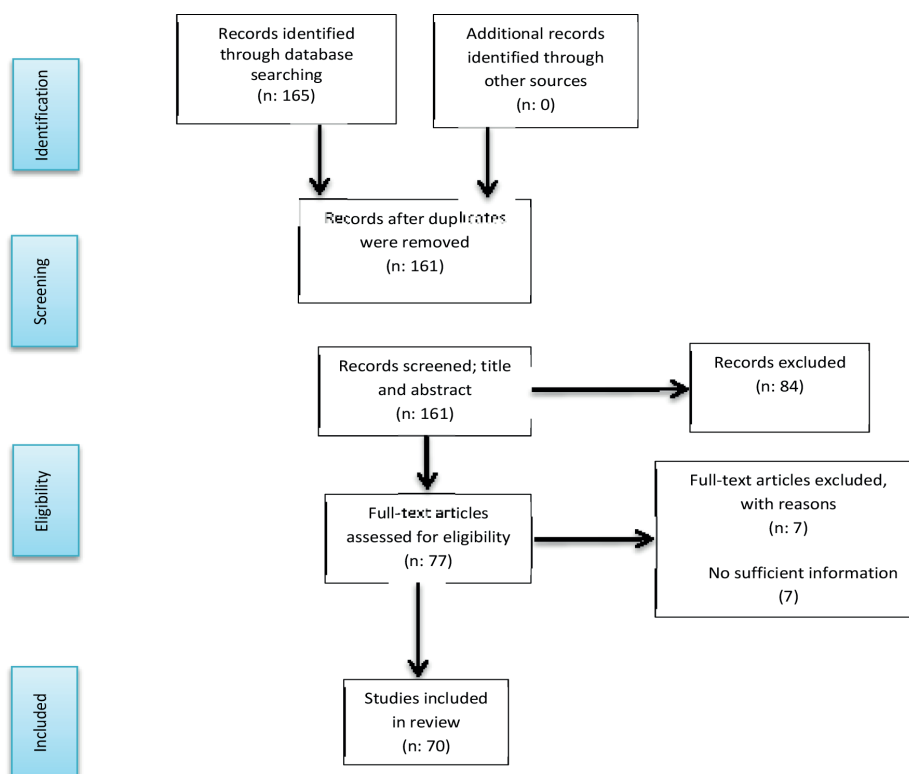
In addition to its psychological consequences, this

method has always been practical and effective in controlling and reducing heart palpitations, sweating, restlessness, and anxiety without any complications (16).

Acupressure at GB-21 and SP-6 acupoints was reported to effectively reduce anxiety levels and increase postpartum attachment (16). Similar findings reported complementary medicine interventions reduced anxiety and increased the maternal attachment to the infant (17-19). Acupressure at 32BL as an acupressure point affected the level of anxiety during labor pains, such that after 20 minutes, this method reduced the anxiety levels and labor duration (1). Relaxation by stimulating acupressure points increases good health feeling and relieves muscle fatigue. Some studies emphasized the effect of acupressure on labor pain relief (20, 21) (Table 1).

#### 2. Research Evidence Associated with the Effect of Aromatherapy on Reducing Pregnancy Anxiety

Today, a variety of complementary medications can be effective for anxiety. Along with the current treatments and the various diseases, relaxation, therapeutic touch, aromatherapy, yoga, and reflexology have been considered by patients to prevent and treat illnesses or to increase health and reduce pain and anxiety (2, 16, 22, 23).



**Figure 3:** The figure shows flow chart of the inclusion of studies in the review.

**Table 1:** Characteristics and main results of the studies included in the research review

Type of complementary medicine	Design	Sample Size	Data Collection Technique	Main Outcomes	Authors, Year
Acupressure	Randomized controlled clinical trial	150 primiparous women	Spielberger anxiety questionnaire	Acupressure at both acupoints reduced anxiety level and increased maternal-fetal attachment.	Moradi and colleagues.(2013) (16)
		150 pregnant women		Acupressure at the BL32 point reduced the mother's anxiety	Akbarzadeh and colleagues. (2015) (1)
Aromatherapy	Randomized controlled clinical trial	128 nulliparous women	Spielberger anxiety questionnaire	Aromatherapy with peppermint essence is recommended for the reduction in anxiety level during labor due to its inexpensiveness, ease, and non-invasiveness.	Giti Ozgoli and colleagues. (2013) (26)
Relaxation techniques	Randomized controlled clinical trial	84 primigravida pregnant woman	Spielberger anxiety questionnaire	Relaxation techniques reduce anxiety in pregnant women	Monire Toosi and colleagues .(2014) (36)
		80 primiparous women who had used IVF to get pregnant		Relaxation techniques were effective in reducing anxiety in the women who had used IVF to get pregnant.	Monire Toosi and colleagues. (2014) (37)
		126 pregnant women		Relaxation techniques were effective in the reduction of anxiety in women.	Bahare Rafiee and colleagues. (2013) (38)
Psychotherapy and spiritual therapy	Cross-sectional and descriptive-analytic study	200 pregnant women	The Paloutzian and Ellison Spiritual Health Scale, Pollard Forgiveness Scale in Family and Spielberger's questionnaire	<b>Spiritual Health</b> will reduce anxiety in primiparas.	<b>Hanieh Dehestani</b> and colleagues . (2019) (45)
	Randomized clinical trial	84 woman	Spielberger anxiety and a religious knowledge and attitude trait questionnaire	<b>The improvement in the mothers' knowledge and attitude in religious subjects will reduce anxiety in primiparas.</b>	Tahereh Mokhtaryan and colleagues. (2016) (46)
Acupressure	Randomized controlled clinical trial	150 primiparous women	Spielberger anxiety questionnaire	Acupressure at both acupoints reduced anxiety level and increased maternal-fetal attachment.	Moradi and colleagues .(2013) (16)
		150 pregnant women		Acupressure at the BL32 point reduced the mother's anxiety	Akbarzadeh and colleagues. (2015) (1)
Aromatherapy	Randomized controlled clinical trial	128 nulliparous women	spielberger anxiety questionnaire	Aromatherapy with peppermint essence is recommended for the reduction of anxiety level during labor owing to its inexpensiveness, ease, and non-invasiveness.	Giti Ozgoli and colleagues. (2013) (26)
Relaxation techniques	Randomized controlled clinical trial	84 primigravida pregnant woman	spielberger anxiety questionnaire	Relaxation techniques reduces anxiety in pregnant women	Monire Toosi and colleagues .(2014) (36)
		80 primiparous women who had used IVF to get pregnant		Relaxation techniques was effective in reduction of anxiety in the women who had used IVF to get pregnant.	Monire Toosi and colleagues .(2014) (37)
		126 pregnant women		Relaxation techniques was effective in reduction of anxiety in the women	Bahare Rafiee and colleagues .(2013) (38)
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	Randomized clinical trial	84 woman	spielberger anxiety and a religious knowledge and attitude trait questionnaire	The improvement in the mothers' knowledge and attitude in religious subjects will reduce anxiety in primiparas.	Tahereh Mokhtaryan and colleagues. (2016) (46)

As an alternative treatment, aromatherapy makes use of volatile herbal oils and has been widely used for the improvement of physical and mental health. Aromatherapy uses compact extracts of aromatic plants with therapeutic properties. Highly compacted essential oils are extracted from different plants. They are similar to herbal remedies with different chemical components, different fragrances, and an odor that can positively influence the mood. *Lavandula angustifolia* mill, (24) citrus *Aurantium duh*, (24, 25) peppermint aroma (26), *Valeriana officinalis* (27) *Matricaria chamomilla* L. (28), and *Rosa damascene* (29) are among the fragrant oils currently considered to reduce the anxiety of patients.

Burns and colleagues studied the use of herbal essential oils during childbirth, their results showed that lavender essential oil was able to reduce labor anxiety and had no adverse effects on the fetus during delivery (30). Hur and co-workers conducted a study on the effect of herbal oil delivery on anxiety during labor. Their results; however, showed that essential oils did not reduce labor anxiety (31).

*Melissa officinal* (lemon balm) is another medicinal plant used to reduce anxiety (32). It is a plant of mint that improves cognitive and mood function in humans and has sedative, antispasmodic, and antifungal properties (33, 34) (Table 1).

### 3. Research Evidence on the Effects of Relaxation Techniques on Reducing Pregnancy Anxiety

Relaxation is one of the effective methods of complementary medicine (35) which affects the autonomic nerves. These techniques can further positively enhance the feelings of pregnant mothers regarding their unborn child and help them to adopt given birth. In addition, increased maternal adjustment with pregnancy and childbirth was significantly associated with the general health of the pregnant woman (35). Sympathetic system activity and cortisol levels were reduced as a result of relaxation (36). Other studies have shown that relaxation skills strengthen the acceptance of maternal role in pregnancy and reduce anxiety during pregnancy and postpartum sadness (37-39).

Saisto and colleagues showed that fetal response to maternal relaxation was a reduced heart rate and an increased heart rate variability. Women reported higher movements of their fetuses after relaxation training (11, 40). Yuan and co-workers investigated the positive impact of concentration trainings on the relationship

between mother and fetus as well as maternal mental health during pregnancy (41). Davies and co-workers investigated the consequences of maternal anxiety following birth. Their results, on the other hand, showed that the situational anxiety level did not change during pregnancy (42) (Table 1).

### 4. Research Evidence Related to the Effects of Psychotherapy and Spiritual Therapy Techniques on the Prevention of Pregnancy Anxiety

Although religious and spiritual variables have been relatively overlooked in the studies of mental health; over the recent years, a number of authors have emphasized the importance of religion and spirituality in mental health, discussing the positive effects of spirituality and religious behavior on the incidence of anxiety as well as psychopathology and anxiety disorder (43-45). Mokhtaryan and colleagues argued that studies belonging to the 50s show the effect of religious interventions on psychological well-being, such as the therapeutic effects of prayer on controlling psychological disorders. Numerous studies have not only shown the positive relationship between religion and psychological health, but also represent the effect of religion on physical health (46). Mann and co-workers, for the first time, examined the relationship between psychological disorders in pregnancy and religion in three separate studies. They concluded that there was an inverse relationship between religious beliefs, spiritual traits, and participation in religious activities and reduction in anxiety symptoms during pregnancy, depression during pregnancy, and postpartum depression (47). Because religion, and religious practices as a powerful factor, can have a profound effect on one's attitude, cognition, and behavior. As a mediator, religion influences the thought process and evaluation of one's daily life events. Religion and religious teachings such as prayer, a form of relaxation, make one feel good (48). The findings of a review study showed the positive effect of listening to the Holy Quran's recitation on anxiety reduction in different settings. Only one study reported that the level of anxiety in the Holy Quran recitation group was lower than the control group; however, the difference was not statistically significant (49). Believing in God empowers individuals, helps them endure the hardships of life, and protects them from the worries and anxieties of life. In a study conducted in Iran, religious instruction in nulliparous women referred to perinatal clinics increased religious beliefs and strengthened the religious spirituality of pregnant women. They became more resistant to increased anxiety (46) and their postpartum sadness was reduced

(50). Religious training has been reported to be effective even in increasing relaxation, improving maternal nutrition and breastfeeding, and enhancing certain aspects of neonatal physical growth and development. Given the religious structure of our society, the present review study could direct health planners and policymakers towards emphasizing religious beliefs and mental health in health planning (51) (Table 1).

#### 4. Discussion

Most pregnant mothers are afraid of giving birth, childbearing, abnormal childbearing, and not being a good mother. This fear is exaggerated if there is not enough support by the family or medical team members, leading to depression or anxiety (52). Anxiety has many negative impacts on the fetus, the most important of which is on the fetal forebrain, which is highly sensitive to pregnancy anxiety. The offspring of women who have anxiety during pregnancy will have a lower level of academic education (53) and increased behavioral-emotional problems in adulthood (54). The effect of anxiety on the whole maternal physiological system and the maternal sympathetic system is activated in response to anxiety followed by metabolic and neurohormonal effects on the entire body (55, 56). Acupressure releases neurotransmitters such as serotonin which can, in turn, affect one's sense of relaxation (57, 58). In other studies, it has been reported that during acupressure, certain peptides are released with analgesic and sedative properties, particularly those that reduce the activity of the sympathoadrenal system activated during anxiety (59). Aromatic aromas further exert pharmacological and physiological effects through the sense of smell. They cross the blood-brain barrier, stimulate the brain, increase the cerebral blood flow through their effects on ion channels, enzymes and receptors, and have anxiolytic and antidepressant effects, because of the pleasant feeling and mental relaxation caused by the smell of aroma. On the other hand, the release of neurotransmitter transducers such as enkephalin and endorphin has been reported to decrease cortisol, adrenaline, and noradrenaline. (29).

The action mechanism of lemon balm is similar to serotonin-specific inhibitory drugs (60). In addition to its effects on serotonergic systems via neurotransmitters, GABA (gamma-aminobutyric acid, GABAergic system), lemon balm may also reduce the psychological symptoms. It is essential for the balance between the states of stimulation and neural inhibition for a normal brain function. There is a high correlation between GABA levels in the brain and anxiety such as

benzodiazepines (Like alprazolam, diazepam, which of course these drugs are not used during pregnancy) that have been present for the past several decades. These drugs cause sedative and anti-anxiety effects by binding to GABAergic receptors and altering the activity of other norepinephrine and serotonin neurotransmitters (61-63). Lemon balm leaves affect gamma-butyric acid receptors. The components of lemon balm are rosemary acid, triterpenoids, ursolic acid, and oleanolic acid, which increase the transmission of GABAergic neurotransmitters. This increase results in a decrease in anxiety and insomnia (64). Although it is less commonly used in pregnancy and childbirth, studies have shown the positive effect of lemon juice on improving psychological and anxiety symptoms in premenstrual syndrome (65, 66), reducing postpartum blues (67), decreasing menopausal anxiety (68), and reducing mild to moderate anxiety and sleep disturbance in postmenopausal women (64). Another review study showed that *M. officinalis* was a potential source for the treatment of a wide range of diseases, especially anxiety and depression; however, valid trials are required to prove these effects in a clinical setting (69). Performing effective body and mind interventions such as yoga and relaxation can increase maternal and fetal attachment. Mothers who are more concerned about their own and their baby's health and well-being are more likely and tendency to perform relaxation exercises. Relaxation reduces anxiety and depressive symptoms, thereby giving the mother the opportunity to take further action to establish a relationship with the fetus and pregnancy (38). The effect of anxiety on the fetal heart appears to be the hormonal mechanism that ultimately reduces uterine-placental perfusion and increases fetal heart rate. For this reason, when mothers listened to their favorite music, the fetal heart rate decreased (70). In many studies, the religious lifestyle could also bring a lot of personal, familial and social peace. In various scientific articles, prayers and religious ceremonies, mosques and churches and religious shrines were identified as factors contributing to the provision of appropriate psychological health in religious communities. One of the strengths of this study was that it addressed a variety of different approaches to reducing anxiety in pregnancy and non-pregnancy periods. There were no specific limitations in this review. Only studies related to the effects of drugs on anxiety reduction were not investigated.

#### 5. Conclusion

Various therapies such as aromatherapy, acupressure, relaxation training techniques, and spiritual therapy

interventions were shown to be somewhat effective in reducing anxiety during pregnancy and non-pregnancy periods and in improving physical and physiological growth indices of the infant. It is suggested that further studies be considered on the other effects of complementary medicine and other methods that could not be discussed here due to the study limitations.

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