

## Impact of a Counseling Program on Depression, Anxiety, Stress, and Spiritual Intelligence in Pregnant Women

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### ABSTRACT

**Background & aim:** Recent studies showed that spirituality and spiritual intelligence in pregnant women are associated with mental reactions. The purpose of this study was to evaluate the effects of spiritual counseling on pregnant women's spiritual intelligence and common mental reactions during pregnancy.

**Methods:** In this quasi-experimental study, 80 multiparous and nulliparous pregnant women were randomly selected from among pregnant women referring to our clinic. The patients were screened and then randomly assigned to intervention (n=40) and control (n=40) groups. The intervention group was divided into four groups of ten and then received spiritual counseling during eight sessions. The control group only received the routine care. The data was collected by using a demographic form, Depression, Anxiety, Stress Scale-21 (DASS-21), and King spiritual intelligence scale. Both groups were followed immediately and two months after the intervention. To analyze the data, descriptive and analytical statistics were used in SPSS, version 16.

**Results:** Before the intervention, there was no significant difference in mean scores of depression, anxiety, stress, spiritual intelligence, and its components between the two groups ( $P>0.05$ ). However, immediately and two month after the intervention, the results showed a significant difference between the two groups in terms of mean scores of depression, anxiety, stress, spiritual intelligence, and its components ( $P<0.05$ ). There was a non-significant difference in the mean scores of depression, anxiety, and stress over time (before, immediately after, and two months after the intervention) in the intervention group ( $P>0.05$ ). The mean scores of spiritual intelligence and its components significantly increased over time (before, immediately, and two months after the intervention) in the intervention group ( $P<0.05$ ).

**Conclusion:** Spiritual counseling was effective in enhancing spiritual intelligence and controlling depression, anxiety, and stress in pregnant women.

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## Introduction

In recent decades, psychiatry and other related disciplines have been concerned about pregnant women's mental reactions such as anxiety and depression (1). Globally, some of the stressors that commonly affect mental

reactions of women during pregnancy are pregnancy complications, low material resources, unfavorable employment conditions, heavy family and household responsibilities, and strain in intimate relationship (2). Several

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studies found that elevated depression (3), anxiety (4), and stress (5) levels predicted an increased risk for preterm labor and low birth weight (2). Studies using animal models indicated that maternal distress negatively influences long-term learning and motor-behavioral development in offspring (6, 7).

Prevalence of depression during pregnancy can be as high as 16% or more in symptomatic women and 5% in those with major depression (8). Firm estimates regarding prenatal anxiety are not available, nor is there agreement on the appropriate screening tools, but previous studies suggested that a significant number of women experience prenatal anxiety during pregnancy (9). Evidence on high exposure to stress during pregnancy is abundantly available (2).

One of the mechanisms to cope with depression, anxiety, and stress during pregnancy is attention to the beliefs and values of women, including spirituality, worldview, ethics, and cultural values (1). Recent studies indicated that spiritual intelligence has a significant positive relationship with mental health (10) and pregnant women's resilience to stress (11). Spiritual intelligence is the potential of using abilities and spiritual resources to enhance adaptation to stressors (12). People use spirituality and religion to cope with stressful situations (13-15).

Some specialists believe that spirituality is an inner need of human beings and leads to experiencing transcendent meaning and purpose in life that can be found in the relationship with self, other people or creatures, and/or God. It can also be found in several sources such as art, music, nature, religion, and scriptures. Spirituality is an important factor associated with mental health status (16-18). Some studies indicated that counseling with spiritual approach could diminish anxiety and depression in students (19), dialysis patients (20), and women with breast cancer (21). In this type of counseling, clients were empowered to utilize spiritual resources to cope with stressful situations in life (20). Pregnancy is one of the most stressful events in life of women, which highlights the spiritual needs of pregnant women (22).

Based on previous studies on spiritual intelligence and mental health (19-21), this question is posed: "does counseling program affect depression, anxiety, stress, spiritual

intelligence, and its components in pregnant women?". Therefore, the present study was conducted to investigate the impact of counseling with a spiritual approach on spiritual intelligence, depression, anxiety, and stress in pregnant women.

## Materials and Methods

### *Participants and study design*

This quasi-experimental study was carried out in Fatemeh Teaching Hospital, Hamedan, Iran, during March 2015-July 2015. The study was performed according to the Declaration of Helsinki and Good Clinical Practice Guidelines. Ethical clearance was obtained from Ethics Committee of Hamedan University of Medical Sciences (Hamedan, Iran). Informed consent was obtained from the mothers after the nature and purpose of the study were explained to them and were fully understood before the intervention. Women could quit participation in the study at any time.

This study was conducted in two phases; in phase I of the study, all the healthy pregnant women who enrolled in physiological childbirth preparation classes in Fatemeh Hospital were selected through convenience sampling and were screened for depression, anxiety, and stress using Depression, Anxiety, Stress Scale-21 (DASS-21) and interviews, based on the criteria of DSM-21 (23).

The included participants were multiparous and nulliparous pregnant women with singleton pregnancies, gestation age between 20 to 24 weeks, who had no history of gestational complications (physical and mental), medication use during pregnancy, and psychiatric drug use. The exclusion criteria comprised of pregnant women who were unable to attend the program due to complications related to pregnancy and unwillingness to continue participation in the study. Pregnant women with depression score between 10 and 20 (mild depression score= 10 to 13 and moderate depression score= 14 to 20), anxiety score between 8 and 14 (mild anxiety= 8 to 9 and moderate anxiety= 10 -14), and stress score between 15 and 25 (mild stress= 15 to 18, moderate stress 19 to 25) were selected (n=182). Pregnant women who had depression, anxiety, and stress scores within the range of severe and very severe were referred to a psychiatrist for evaluation.

Sample size formula (phase I):

$$n = 3 + \left[ \frac{4(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})}{[L_n(\frac{1+r_0}{1-r_0})(\frac{1-r_1}{1+r_1})]^2} \right] = 182$$

$r_0 = .5 \quad r_1 = .659 \quad Z_{1-\frac{\alpha}{2}} = 1/96 \quad Z_{1-\beta} = 1/28$

Then, in phase II of the study, 80 pregnant women were randomly selected from among pregnant women who were screened. Then, they were randomly assigned to intervention (n=40) and control (n=40) groups. The sample size was calculated as 33 cases in each group using mean comparison formula with confidence interval of 95% ( $\alpha=0.05$ ) and test power of 90% ( $\beta=0.1$ ). Due to the risk of sample loss, we increased their number to 40 samples per group.

Sample size formula (phase II):

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2 (\sigma_1^2 + \sigma_2^2)}{d^2} \cong 33$$

$\sigma_1 = 14.57 \quad \sigma_2 = 12.18 \quad d = 12$

The experimental group (n=40) was divided into four groups of ten and received eight sessions of group counseling with spiritual approach, each lasted for 60 minutes, while the control group (n=40) only received the routine prenatal training. At the end of the study, two subjects from the control group and two subjects from the intervention groups were excluded due to preterm delivery. The content of the counseling sessions was based on Richard Bowell's educational book entitled: "The seven steps of spiritual intelligence" (24) with emphasis on Islamic teachings. This program was approved by six experts at seminaries and universities. The content of the program sessions is summarized in Table 1.

DASS-21 is a self-administered questionnaire with well-established psychometric properties in clinical and community samples and is shown to differentiate between the three states of depression, anxiety, and stress (25-27). This questionnaire is consisted of 21 items and three subscales. Each subscale had seven items evaluating depression, anxiety, and stress. The

**Table 1.** The content of the training sessions in the intervention group

| Sessions | Contents   |
|----------|--|
| 1        | The participants became familiar with each other and the structure of the sessions. In the continuation of the same session, the concept of spiritual intelligence and its components, as well as depression, anxiety, and stress during pregnancy and their symptoms were explained. In addition, the participant learned muscle relaxation and correct breathing, as well as the way of entering the spiritual moods in expanded state of consciousness. |
| 2        | First, the participants practiced muscle relaxation and deep breathing. Then, we explained the benefits of spiritual intelligence and its components in improving daily interactions and managing emotions when dealing with changes and stressors during pregnancy and encouraged problem-oriented coping mechanism.  |
| 3        | First, the participants practiced muscle relaxation and deep breathing. Then, we explained intrapersonal communication and discussed questions like: Who am I and what is my role in this world. Moreover, we discussed the way of entering the spiritual moods of critical existential thinking.  |
| 4        | We explained the effect of behaviors, moods, thoughts, and mental state of parents on fetal health. Then, mental imagination, as well as the way of entering spiritual moods in transcendental awareness was trained and practiced.  |
| 5        | First, the participants practiced muscle relaxation and deep breathing. Then, types of effective coping mechanism, adding a sense of holiness to daily activities, as well as the way of entering spiritual moods in personal meaning production were trained.   |
| 6        | First, the participants practiced muscle relaxation and deep breathing. Thereafter, training on behaviors such as forgiveness of self and others, gratitude, abundance, as well as the way of managing depression, anxiety, and stress were provided.  |
| 7        | First, the participants practiced muscle relaxation and deep breathing. Training was provided on how to use spiritual resources such as Holy Quran, praying, or other spiritual sources, as well as the way of managing depression, anxiety, and stress. Furthermore, we educated the subjects on assertiveness, positive interpersonal relationships, self-determination, and humor.  |
| 8        | We practiced personal management and mastery on environment, summarized the topics of past sessions, thanked the participants, and eventually, the participants filled out the two questionnaires.   |

questionnaire is rated using a 4-point Likert scale (ranging from 0 which means "did not apply to me at all" to 3 "applied to me very much or most of the time"). For each subscale, the score can range from 0 to 21. The greater the score, the more severe depression, anxiety, and stress.

Given that DASS-21 is not a categorical measure of clinical diagnoses, we used cut-off scores (after multiplying the obtained score by 2 to provide comparability with DASS-42 full version), which were developed to determine mild/moderate/severe/extremely severe scores for each subscale. In our study, the questionnaire was distributed among two groups in pre- and post-test stages (immediately after completion of the training course and two months later) to assess the psychological changes of the subjects. DASS-21 questionnaire was designed in 1995 by Lovibond. Lovibond and Lovibond (1995) investigated the reliability coefficient of this questionnaire on non-clinical samples and reported the internal consistency of the depression, anxiety, and stress subscales as 0.91, 0.84, and 0.90, respectively (28). In our study, the reliability coefficients (Cronbach's alpha) obtained for depression, anxiety, and stress subscales of DASS-21 were 0.857, 0.725, and 0.778, respectively.

We used King's Spiritual Intelligence Inventory (SISRI-24) to evaluate spiritual intelligence in the two study groups. The questionnaire was designed in 2008 by David King (29). This questionnaire is comprised of 24 items within four subscales of critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion.

Responding to each item is based on a 5-point Likert scale ranging from 0 (completely incorrect) to 4 (completely correct). The greater the score, the higher spiritual intelligence. In our study, this questionnaire was distributed among the two groups in the pre- and post-test stages (at completion of the training course and two months later) to assess the spiritual intelligence changes of the subjects. Sadat Raghieb et al. established the reliability of this scale in Iranian population (n=240) by using Cronbach's alpha coefficient to be 0.88 (30). The reliability coefficients (Cronbach's alpha) of SISRI-24 in our study were obtained for critical existential thinking,

transcendental awareness, conscious state expansion, and personal meaning production to be 0.81, 0.72, 0.78, and 0.78, respectively.

The demographic form contained information such as age, educational level, employment status of pregnant woman and her husband, marital satisfaction, intended pregnancy, satisfaction with fetal gender, history of miscarriage and stillbirth, and family support.

Before starting the spiritual intelligence promotion program, both groups filled the questionnaires. Immediately after completion of the training course (in 24-26 weeks of gestation) and two months later (in 32-36 weeks of gestation), both groups completed DASS-21 and SISRI-24 (post-test).

To analyze the data, Chi-square test, Kolmogorov-Smirnov test, repeated measures analysis of variance (ANOVA) were performed to compare the differences in depression, anxiety, stress, and spiritual intelligence scores between the two study groups, using SPSS version 16. P-value less than 0.05 was considered statistically significant.

## Results

Table 2 shows the descriptive statistics related to demographic data of the study groups. Kolmogorov-Smirnov test showed that the distribution of data for each variable is normal ( $P>0.05$ ). Mean ages of the interventional and control groups were  $26.94\pm 4.34$  years and  $25.89\pm 5.18$  years, respectively. Independent t-test showed no significant difference between the two groups in terms of age ( $P=0.31$ ).

Independent t-test reflected no significant difference in mean scores of depression ( $P=0.53$ ), anxiety ( $P=0.12$ ), stress ( $P=0.17$ ), spiritual intelligence ( $P=0.38$ ), and its components including critical existential thinking ( $P=0.14$ ), personal meaning production ( $P=0.42$ ), transcendental awareness ( $P=0.22$ ), and conscious state expansion ( $P=0.89$ ) between the two groups before the intervention (Table 3).

In order to eliminate the effect of pre-test, we used repeated measures ANOVA. Repeated measures ANOVA revealed a significant difference in the mean scores of depression ( $P<0.001$ ), anxiety ( $P<0.001$ ), stress ( $P<0.001$ ), spiritual intelligence ( $P<0.001$ ), and its components including critical existential thinking ( $P=0.007$ ),

**Table 2.** Comparing demographic quantitative variables in the two groups

| Variables                          | Intervention            |         | Control |         | Chi-square | P-value               |      |
|------------------------------------|-------------------------|---------|---------|---------|------------|-----------------------|------|
|                                    | Number                  | Percent | Number  | Percent |            |                       |      |
| Education                          | High school and diploma | 19      | 47.5(%) | 20      | 50(%)      | $\chi^2=0.92$<br>df=3 | 0.82 |
|                                    | College education       | 21      | 52.5(%) | 20      | 50(%)      |                       |      |
| Employment status of spouse        | With a specific job     | 32      | 80(%)   | 31      | 77.5(%)    | $\chi^2=1.14$<br>df=2 | 0.56 |
|                                    | Without job             | 8       | 20(%)   | 9       | 22.5(%)    |                       |      |
| Family support                     | Yes                     | 35      | 87.5(%) | 32      | 80(%)      | $\chi^2=0.82$<br>df=2 | 0.36 |
|                                    | No                      | 5       | 12.5(%) | 8       | 20(%)      |                       |      |
| Intended pregnancy                 | Yes                     | 31      | 77.5(%) | 34      | 85(%)      | $\chi^2=0.73$<br>df=2 | 0.39 |
|                                    | No                      | 9       | 22.5(%) | 6       | 15(%)      |                       |      |
| Family income                      | <5000000 Rial           | 14      | 35(%)   | 15      | 37.5(%)    | $\chi^2=0.74$<br>df=3 | 0.68 |
|                                    | 5000000-10000000 Rial   | 17      | 42.5(%) | 19      | 47.5(%)    |                       |      |
|                                    | >10000000 Rial          | 9       | 22.5(%) | 6       | 15(%)      |                       |      |
| Satisfaction with baby's gender    | Yes                     | 29      | 72.5(%) | 30      | 75(%)      | $\chi^2=0.28$<br>df=2 | 0.69 |
|                                    | No                      | 11      | 27.5(%) | 10      | 25(%)      |                       |      |
| History of abortion and stillbirth | Yes                     | 11      | 27.5(%) | 14      | 35(%)      | $\chi^2=0.52$<br>df=2 | 0.46 |
|                                    | No                      | 29      | 72.5(%) | 26      | 65(%)      |                       |      |

personal meaning production ( $P=0.001$ ), transcendental awareness ( $P=0.008$ ), and conscious state expansion ( $P=0.002$ ) between the two groups immediately after and two months after the intervention, indicating that the intervention was effective (Table 3).

In the intervention group, there was a non-significant change in the mean scores of depression, anxiety, and stress over time (before, as well as immediately and two months after the intervention;  $P>0.05$ ). However, in the control group, there was a statistically significant increase in the mean scores of depression, anxiety, and stress over time ( $P<0.05$ ; before, immediately after, and two months after the intervention; Table 3). This reveals the impact of the intervention on controlling depression, anxiety, and stress. The difference between the groups regarding mean scores of depression, anxiety, and stress immediately and two months after the intervention remained significant. This indicates the persistent impact of the intervention on controlling depression, anxiety, and stress ( $P<0.05$ ; Table 3).

In the intervention group, the mean scores of spiritual intelligence and its components significantly increased over time (before, immediately after, and two months after the intervention;  $P<0.05$ ), whereas, in the control group there was a non-significant change in the mean scores of spiritual intelligence and its

components over time ( $P>0.05$ ; Table 3). This indicates that the intervention was effective in promoting spiritual intelligence and its components in the intervention group.

The difference between the groups remained significant regarding mean scores of spiritual intelligence and its components immediately after and two months after the intervention ( $P<0.05$ ; Table 3). This reflects the persistent impact of the intervention on promoting spiritual intelligence and its components in the intervention group.

Time effect was significant for all the variables ( $P<0.05$ ; Table 3). This indicates that the changing trend of the outcomes is not the same in the two groups. In other words, the results were not parallel over time in the two groups and they intersected.

## Discussion

The aim of this study was to investigate the effectiveness of group counseling with spiritual approach on promotion of spiritual intelligence and its components and to reduce depression, anxiety, and stress in pregnant women. Our findings showed that group counseling with spiritual approach was effective in controlling depression and enhancing spiritual intelligence in the interventional group, in comparison to the control group. This finding is consistent with results of Schulenberg (31), Langle (18),



**Table 3.** Comparison of mean scores of depression, anxiety, stress, spiritual intelligence, and its components over time (before, as well as immediately and two months after the intervention)

| Variables                     |                    | Before the intervention (mean±SD) | Immediately after the intervention (mean±SD) | Two months later in the intervention (mean±SD) | Inter group effect | Repeated measures           | ANOVA          |
|-------------------------------|--------------------|-----------------------------------|--|--|--------------------|-----------------------------|----------------|
| Depression                    | Intervention group | 13.25±4.93                        | 18.15±3.2                                    | 13.95±2.32                                     | P=0.09<br>F=14.84  | Time effect<br>Group effect | 0.002<br>0.001 |
|                               | Control group      | 15.17±3.81                        | 13.94±3.06                                   | 18.38±3.10                                     | P=0.001<br>F=14.84 |                             |                |
|                               | Independent t-test | P=0.53                            | P=0.001                                      | P=0.001  |                    |                             |                |
| Anxiety                       | Intervention group | 13.43±3.98                        | 18.41±3.73                                   | 14.2±2.72                                      | P=0.06<br>F=28.16  | Time effect<br>Group effect | 0.001<br>0.001 |
|                               | Control group      | 14.17± 4.03                       | 14.17±2.92                                   | 18.69±3.55                                     | P=0.001<br>F=28.16 |                             |                |
|                               | Independent t-test | P=0.12                            | P=0.001                                      | P=0.001  |                    |                             |                |
| Stress                        | Intervention group | 16.35±4.75                        | 19.89±3.46                                   | 17±2.25  | P=0.07<br>F=10.69  | Time effect<br>Group effect | 0.04<br>0.001  |
|                               | Control group      | 17.89±4.11                        | 16.98±2.22                                   | 20.15±3.3                                      | P=0.001<br>F=10.69 |                             |                |
|                               | Independent t-test | P=0.17                            | P=0.001                                      | P=0.001  |                    |                             |                |
| Spiritual intelligence        | Intervention group | 77.6±15.7                         | 73.7±13.9                                    | 89.6±19  | P=0.03<br>F=3.41   | Time effect<br>Group effect | 0.009<br>0.03  |
|                               | Control group      | 74.52±13.5                        | 87.6±21.2                                    | 74±12.5  | P=0.54<br>F=3.41   |                             |                |
|                               | Independent t-test | P=0.38                            | P=0.001                                      | P=0.001  |                    |                             |                |
| Critical existential thinking | Intervention group | 24.56±5.54                        | 22.71±4.53                                   | 25.82±5.2                                      | P=0.006<br>F=0.4   | Time effect<br>Group effect | 0.02<br>0.006  |
|                               | Control group      | 23.02±4.51                        | 25.74±4.53                                   | 23.03±4.33                                     | P=0.62<br>F=0.4    |                             |                |
|                               | Independent t-test | P=0.14                            | P=0.01                                       | P=0.004  |                    |                             |                |
| Personal meaning production   | Intervention group | 17.7±3.72                         | 15.41±3.1                                    | 18.71±3.2                                      | P=0.007<br>F=0.23  | Time effect<br>Group effect | 0.04<br>0.007  |
|                               | Control group      | 16.05±3.2                         | 18.84±5.25                                   | 16.55±2.9                                      | P=0.34<br>F=0.23   |                             |                |
|                               | Independent t-test | P=0.42                            | P=0.001                                      | P=0.001  |                    |                             |                |
| Transcendental awareness      | Intervention group | 22.24±4.48                        | 14.38±3.59                                   | 6.2±27.8                                       | P=0.008<br>F=13.4  | Time effect<br>Group effect | 0.001<br>0.001 |
|                               | Control group      | 21.2±3.62                         | 17.42±4.55                                   | 21.27±4.16                                     | P=0.45<br>F=13.4   |                             |                |
|                               | Independent t-test | P=0.22                            | P=0.002                                      | P=0.001  |                    |                             |                |
| Conscious state expansion     | Intervention group | 14.49±4.2                         | 21.22±4.52                                   | 19.68±4  | P=0.02<br>F=7.53   | Time effect<br>Group effect | 0.01<br>0.02   |
|                               | Control group      | 14.33±3.13                        | 25.64±6.27                                   | 14.34±2.84                                     | P=0.55<br>F=7.53   |                             |                |
|                               | Independent t-test | P=0.89                            | P=0.001                                      | P=0.001  |                    |                             |                |

and Somov (32).

Depression is one of the most common mental health problems during pregnancy. Pregnant women experience physiological, psychological, and social changes, adapting to which makes them more prone to depression (33). Group counseling with spiritual approach leads to an increase in the ability of pregnant women to cope with depression via increasing the individual ability to master the environment (34) and create meaning in life (35). People with higher spiritual intelligence are able to understand the deep meaning of daily events and

do not confine meaning of life to physical life (35); consequently, they are less prone to depression.

We found that group counseling with spiritual approach was effective in controlling anxiety and stress and expansion of spiritual intelligence in the interventional group, in comparison to the control group. This finding is consistent with those obtained by Glen (36), D'Zurilla (37), Hackney (38), Yagoubi et al. (39), and Aghajani (40). According to Bowell, group counseling with spiritual approach leads to understanding the real identity and own great values and avoiding

self-harm and self-destruction. People with higher spiritual intelligence are able to accept themselves with all their strengths and weaknesses; thus, they will experience fewer psychological problems (24).

In this study, group counseling with spiritual approach was effective in promoting spiritual intelligence and its component such as critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion in the interventional group in comparison with the control group. The positive effect of group counseling with spiritual approach on expansion of spiritual intelligence components was in line with the findings of Zohar (41), Emmons (42), King (29), and Sisk (43). The reason behind the consistency between our findings and those of these researchers is twofold.

Firstly, each of the techniques used in group counseling with spiritual approach was proved effective in improving mental health problems, such as the impact of muscle relaxation on anxiety of patients undergoing cardiac catheterization (44), the impact of prayer as a coping mechanism against anxiety (45), the effectiveness of listening to the Holy Quran on reducing anxiety of woman before cesarean section (46), and the effect of production of meaning in life on reducing depression and anxiety (47). Secondly, this program was designed in accordance with the beliefs of the Muslim population, if spiritual counseling approach be compatible with the culture and beliefs of the people, it may be effective in improving their psychological problems (20).

Nonetheless, some studies did not demonstrate the significant relationship of depression, anxiety, and stress with religion and spirituality. It was reported that spirituality-based interventions had little impact on patients (48). Moreover, no significant relationship between spiritual intervention and stress, anxiety, and depression in women with breast cancer was found (49). These differences may be due to discrepancy in study populations in terms of physical conditions, underlying diseases, high treatment costs, deficient nutrition, and lack of emotional support. In addition, this discrepancy may be due to non-homogeneity of the subjects in studies in terms of cultural, religious, and

spiritual experiences. Therefore, further studies with larger sample sizes are recommended.

This study solely focused on Iranian pregnant women living in Hamedan and the sample size was small, which limits the generalizability of the outcomes. One of the main applications of this study is to provide new insight for pregnant women into the concept of spiritual intelligence as a new guideline in daily life. Our finding could be useful for all the beneficiaries who are involved with mental health of pregnant women either directly or indirectly, including governmental or non-governmental organizations, prenatal care service providers, as well as spouse and family of pregnant women.

## Conclusion

Our results showed that pregnant women could improve their ability to cope with negative emotions of pregnancy, such as depression, anxiety, and stress through enhancing their spiritual intelligence. Therefore, to reduce psychological problems during pregnancy, it is recommended to implement counseling programs with a spiritual approach.

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## Authors' contributions

Batul Khodakarami, Faegheh Golalizadeh Bibalan, Farzaneh Soltani, and Hussein Mohagheghi, contributed to the study design, participated in data collection, and drafted the manuscript. Alireza Soltanian participated in study design and performed the statistical analysis. Batul Khodakarami, Faegheh Golalizadeh Bibalan, Farzaneh Soltani, and Hussein Mohagheghi conceived the idea of the study, and participated in its design and making the necessary arrangements. All the authors read and approved the final version.

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## Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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