# Educational Intervention to Enhance Postpartum Depression Literacy: A Regional Study among Pregnant Women in Eastern Iran

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**Background and Objective:** Improving mental health literacy is a major strategy for reducing the burden of mental health disorders. Mental health literacy of postpartum depression is defined as knowledge and beliefs about postpartum depression that help recognize, control, or prevent it. The present study aimed to explore the effect of an educational intervention on improving mental health literacy of postpartum depression in pregnant women in eastern Iran.

**Material and Methods:** The present quasi-experimental study was conducted on pregnant women in Sarayan city. The data collection instrument was a standard mental health literacy questionnaire on postpartum depression. Sixty pregnant women who met the inclusion criteria were selected from healthcare centers, and were randomly divided into an intervention and a control group. The educational intervention was held in six 45-minute educational sessions for the intervention group. The questionnaire was completed before the intervention and one month after childbirth by the intervention and control groups. The data were entered into SPSS18 and analyzed at a significance level of 0.05.

**Results:** Before the intervention, the two groups did not have a statistically significant difference in terms of the mean score of mental health literacy along different dimensions ($p>0.05$). However, the mean scores of all dimensions of mental health literacy (i.e., Ability to recognize postpartum depression, Knowledge of risk factors and causes, Knowledge and beliefs of self-care activities, Knowledge about professional help available, Beliefs about professional help available, Attitudes which facilitate recognition of postpartum depression and appropriate help-seeking and Knowledge of how to seek information related to postpartum depression) increased significantly in the intervention group one month after childbirth compared to the pretest ($p<0.05$).

**Conclusion:** Based on results of this study, educational interventions have the potential to improve mental health literacy of postpartum depression. Current evidence is limited by few studies directly measured postpartum depression literacy. More research is needed to properly assess the effect of health literacy interventions on mental health literacy of pregnant women.

**Keywords:** Depression, Education, Mental health literacy, Pregnancy, Postpartum

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## Introduction

One of the most common psychological disorders associated with pregnancy is postpartum depression (1-3). Overall, 30% of all mothers experience postpartum depression (4). The global rate of postpartum depression is reported to be 17.7%; the lowest reported in countries such as Singapore with a prevalence rate of 3%, and the highest prevalence rate reported in countries like Chile with 38% and South Africa with 37% (5). In Iran, the rate of postpartum depression has been reported to be between 13 and 22% (6). Postpartum depression not only has immediate adverse effects on the mother but can also lead to long-term complications such as chronic or recurrent depression (7). If left untreated, postpartum depression can progress to more severe stages and develop into postpartum psychosis. It can also seriously affect women's ability to perform maternal duties (8-9).

Postpartum depression is often not diagnosed. Even when diagnosed, most women do not accept professional help despite availability (10-11). The stigma associated with postpartum depression prevents women from seeking help (12). Indeed; the stigma of mental illness and mistreatment of people with mental illnesses cause patients to refrain from providing information about depressive symptoms (13-14). Providing women with knowledge and skills to recognize postpartum depression can minimize the adverse effects of this disorder (15).

Mental health literacy is a major strategy for reducing the burden of mental health disorders (16). Mental health literacy of postpartum depression is the knowledge and beliefs about postpartum depression that help recognize, control, or prevent it (17). Evidence shows that low levels of mental health literacy prevent mothers from recognizing symptoms of depression and inadequate health literacy may lead women to normalize depressive symptoms (15). Research shows that people with mental health literacy have better healthcare behaviors and more professional health-related information-seeking behavior (18). The lack of mental health literacy is a barrier to providing treatment to those who seriously need it (16).

As mentioned above, inadequate mental health literacy act as a barrier for access to health services for those who seriously require it, and it is a matter of concern in countries like Iran. Despite this fact, there is no comprehensive research conducted to explore the effect of an educational intervention on postpartum depression literacy in Iran. So the present study aimed to explore the effect of an educational intervention on mental health literacy of postpartum depression among pregnant women in Sarayan city.

## Materials and Methods

This quasi-experimental study was conducted in Sarayan City (Eastern Iran) in 2023. The inclusion criteria were being in the third trimester of pregnancy, having no history of mental illness, no comorbidities, no history of miscarriage or stillbirth and being literate. The exclusion criteria were missing more than two training sessions, premature birth, and the occurrence of any stressful event (death of the loved ones, accident, etc.) during the intervention.

A simple sampling method was used in the present study. To this aim, two of the three districts covered in Sarayan city were selected through a simple randomization (Ayask and Sarayan). Then, from the two health centers located in these two districts, one was randomly assigned to the intervention group and the other to the control. Then, a list of pregnant mothers eligible for the study was made for each center and 30 participants were assigned to each group by simple random sampling. To estimate the sample size, the academic paper published by Forouzan Lahouni (19) and the following formula were used.

$$n = \frac{\left(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}\right)^2 (\delta_1^2 + \delta_2^2)}{(\mu_1 - \mu_2)^2}$$

With the mean scores of 5.76 and 9.79 in the intervention and control groups, respectively, and the standard deviations of 3.4 and 4.17 in the two groups, and considering a significance level of 0.05 and a test power of 95 percent, the sample size was 25 in each group, which was decided to be 30 due to the possibility of attrition in groups.

To measure mental health literacy, the Postpartum Depression Literacy Scale (PoDLiS) was used with 31 items and seven factors (13). These seven factors included the “Ability to recognize postpartum depression”, “Knowledge of risk factors and causes”, “Knowledge and beliefs of self-care activities”, “Knowledge about professional help available”, “Beliefs about

professional help available", "Attitudes which facilitate recognition of postpartum depression and appropriate help-seeking" and" Knowledge of how to seek information related to postpartum depression", rated on a 5-point Likert scale ranging from completely agree to completely disagree. Psychometric properties of this questionnaire were examined in a robust study among 692 perinatal women with the mean age of 27.63 years by exploratory and confirmatory factor analysis. Internal consistency of the questionnaire was also showed an acceptable reliability ( The Cronbach's alpha coefficient for the scale was .78 and it ranged from .70 to .83 for each factor) (13). At current study, the questionnaire was also administered to 20 eligible women, and the Cronbach's alpha for the questionnaire was estimated at 0.85. The demographic status of all participants was also assessed, including age, family income, occupation, education, intended or unintended pregnancy, and the frequency of childbirth.

The educational intervention consisted of six 45-minute sessions held by a team of a senior health education and health promotion expert, a mental health expert, and a midwife for the intervention group at the health center. The mothers participating in the intervention were divided into small groups of 10 for greater participation and ease of work. While the participants in the intervention group attended the training sessions, no training was provided for the control group. At the end of intervention, and due to ethical considerations, the educational content was also provided for the control group. The educational content was selected from the Self-Care in Depression Handbook (Ministry of Health). The structure of the educational sessions is shown in **Table 1.**

**Table 1. Educational content of all training sessions**

| Session | Educational content | Educational method |
|---|---|---|
| 1 | Stating the objectives of study, introducing the researcher and pregnant mothers to each other, increasing mothers' awareness about postpartum depression (symptoms, causes, and risk factors) | Lecture, Video Clip, Q&A |
| 2 | Attitudes affecting the recognition of postpartum depression and willingness to seek help | Group Discussion - Q&A |
| 3 | Exploring beliefs that facilitate help-seeking behavior in pregnant mothers | Group Discussion |
| 4 | Familiarizing mothers with the types of helpful information sources and health services available about postpartum depression and how to access this information | Lecture, Q&A |
| 5 | Familiarizing mothers with self-care activities related to preventing and controlling symptoms of postpartum depression | Lecture, Video Clip, Q&A |
| 6 | Summarizing the content and completing the post-test questionnaire at the end | Lecture, Q&A |

The questionnaire was completed by the intervention and control groups in the time intervals before the intervention and one month after childbirth.

The data were punched into SPSS18. To describe the interval variables, indices of central tendency and dispersion were used, and to describe non-interval variables, frequency tables were used. Then, the Kolmogorov-Smirnov test was used to test whether the variables had a normal distribution, the data were entered into SPSS18 and analyzed using chi square, T-test and pair t test at a significance level of 0.05.

## Results

The demographic findings showed that the 30-40-year age group had the highest frequency in the study. The majority of participants in the intervention and control groups had an income of less than 100 million Rials[1] on a monthly basis. More than 90 percent of pregnant women in the two groups had an intended pregnancy. The findings related to demographic variables are summarized in **Table 2.**

**Table 2. Demographic information of the intervention and control groups**

| | | Intervention | | Control | | Chi-square test |
|---|---|---|---|---|---|---|
| | | f. | % | f. | % | |
| **Age** | < 32 yrs. | 17 | 56.6 | 18 | 60 | P=0.79 |
| | 33≤ | 13 | 43.3 | 12 | 40 | X2= 0.69 |
| **Occupation** | Unemployed (housewife) | 29 | 96.7 | 29 | 96.7 | P=0.1 |
| | employed | 1 | 3.3 | 1 | 3.3 | X2=0.001 |
| **Education** | ≤ diploma | 16 | 42.4 | 20 | 66.7 | P=0.54 |
| | University | 14 | 46.7 | 10 | 33.3 | X2=1.19 |
| **Income** | < 10 million | 21 | 70 | 21 | 70 | P= 1 |
| | > 10 million | 9 | 30 | 9 | 30 | X2=0.01 |
| **Pregnancy type** | Intended | 30 | 100 | 27 | 90 | P=0.23 |
| | Unintended | 0 | 0 | 3 | 10 | X2= 3.15 |
| **Frequency of childbirth** | 1 | 14 | 50 | 13 | 43.3 | P=0.38 |
| | 2 | 10 | 35.7 | 13 | 43.3 | |
| | 3≤ | 14 | 14.2 | 4 | 13.3 | |

As shown in **Table 3,** before the intervention, there was no significant difference between the two groups in the mean scores of all dimensions of mental health literacy (p>0.05). However, the mean scores of all dimensions of mental health literacy increased significantly in the intervention group one month after childbirth compared to the pretest (p<0.05) (Table 3)

[1] 1 dollar is almost equal to 830000 rials

According to **Tables 4**, the comparison of the mean deviation of all the areas studied between the two groups before the intervention did not show a significant difference, but after the intervention, the comparison of the mean deviation between the two groups in all areas except the ability to recognize postpartum depression, Attitudes which facilitate recognition of postpartum depression and appropriate help-seeking and Knowledge of how to seek information related to postpartum depression became significant.

## Discussion

Although pregnancy is considered a natural function for women, it is also considered an anxiety-provoking experience with numerous physical and psychological consequences (20). Prenatal education plays an important role in promoting physical and mental health of individuals, and this education is one of the most important factors in preventing mortality and reducing postpartum complications, depression, anxiety, and related problems (21).

The results of the present study showed an increase in the mean score of ability to recognize symptoms of postpartum depression, which is consistent with the findings of Boist et al., who showed that women in the perinatal period benefit from positive outcomes of education, including increased awareness of the symptoms of postpartum depression, better ability to judge their emotional state, reduced unnecessary visits, and increased satisfaction with services (20). In Swami's study, lack of awareness of the symptoms of postpartum depression was identified as an important factor in the occurrence of postpartum depression, and the solution to reducing the problems of postpartum depression can be considered the use of educational interventions aimed at improving mental health literacy in pregnant women (22). Due to the positive effect of educational interventions on increasing mothers' awareness of the symptoms of postpartum depression, it seems necessary to implement educational interventions in comprehensive health service centers to empower mothers to recognize the symptoms of postpartum depression.

**Table 3. Comparison of mean scores of mental health literacy domains before the intervention and one month after delivery in the intervention and control groups**

| Variable | | Before the intervention | | one month of childbirth | | Within-group P-value |
|---|---|---|---|---|---|---|
| | | x̄±SD | Median (interquartile range) | x̄±SD | Median (interquartile range) | |
| Ability to recognize postpartum depression | Intervention group | 22.20±3.73 | 22.0(3.0) | 22.80±2.51 | 28.0(3.5) | <0.001*** |
| | Control group | 21.05±5.75 | 22.5(6.5) | 24.46±4.18 | 27.0(7.25) | <0.001*** |
| | Between-group P | 0.98** | | <0.001* | | |
| Knowledge of risk factors and causes | Intervention group | 18.28±3.54 | 19(4) | 26.03±11.62 | 24(4) | <0.00*** |
| | Control group | 16.50±4.91 | 18(8) | 17.73±4.25 | 19(7.5) | <0.001*** |
| | Between-group P | 0.29** | | 0.001* | | |
| Knowledge and beliefs of self-care activities | Intervention group | 20.42±3.91 | 21.5(4) *** | 23.46±1.92 | 24(2.25) | <0.001 |
| | Control group | 19.80±3.98 | 21(5.25) | 19.70±3.96 | 20.5(5.25) | <0.001 |
| | Between-group P | 0.45 | | <0.001 | | |
| Knowledge about professional help available | Intervention group | 5.22±2.29 | 8(3) | 7.0±2.33 | 10(0.25) | <0.001*** |
| | Control group | 5.63±2.51 | 8(3.5) | 5.23±2.60 | 8(3) | 0.32*** |
| | Between-group P | 0.28* | | <0.001** | | |
| Beliefs about professional help available | Intervention group | 25.22±2.3 | 6(2) | 6.11±2.61 | 7(5) | <0.001*** |
| | Control group | 5.37±2.5 | 5(3.5) | 5.23±2.60 | 5(4.25) | 0.21*** |
| | Between-group P | 0.82* | | <0.001** | | |
| Attitudes which facilitate recognition of postpartum depression | Intervention group | 22.80±5.35 | 24(8) | 26.85±3.16 | 27(4) | <0.001*** |
| | Control group | 24.23±3.65 | 24.5(5.5) | 27.50±1.75 | 27(3) | <0.001*** |
| | Between-group P | 0.23 * | | 0.180 * | | |
| Knowledge of how to seek information related to postpartum depression | Intervention group | 18.43±10.81 | 17.5(6) | 22.72±3.39 | 24(4) | 0.63*** |
| | Control group | 17.24±4.36 | 17(4.5) | 19.80±2.75 | 19.5(4) | <0.001*** |
| | Between-group P | 0.82 ** | | <0.001** | | |
| Total health literacy | Intervention group | 117.36±17.04 | 116(21) | 142.43±16.32 | 143(13) | <0.001*** |
| | Control group | 114.38±15.29 | 113(26) | 122.51±12.64 | 123(17) | <0.001*** |
| | Between-group P | 0.61 * | | <0.001* | | |

*: independent t test, **: Mann–Whitney test, ***:paired t test or Wilcoxon

**Table4. Comparison of mean scores of mental health literacy domains between two groups**

| Variable | | $\bar{x}$±SD | P-value |
|---|---|---|---|
| Ability to recognize postpartum depression | Intervention group | 5.8±3.6 | 0.79 |
| | Control group | 3.9±3.1 | |
| Knowledge of risk factors and causes | Intervention group | 8.0±12.2 | <0.001 |
| | Control group | 1.2±1.4 | |
| Knowledge and beliefs of self-care activities | Intervention group | 3.03±4.33 | <0.001 |
| | Control group | 0.10±0.54 | |
| Knowledge about professional help available | Intervention group | 1.33±1.97 | <0.001 |
| | Control group | .06±0.37 | |
| Beliefs about professional help available | Intervention group | 1.77±3.43 | <0.001 |
| | Control group | 0.13±0.57 | |
| Attitudes which facilitate recognition of postpartum depression | Intervention group | 3.82±5.39 | 0.60 |
| | Control group | 3.26±2.22 | |
| Knowledge of how to seek information related to postpartum depression | Intervention group | 4.34±12.06 | 0.45 |
| | Control group | 2.62±1.87 | |
| Total health literacy | Intervention group | 24.62±23.01 | <0.001 |
| | Control group | 10.45±5.63 | |

The present findings proved the effectiveness of the educational intervention in improving mothers' knowledge and self-care beliefs, which is consistent with the findings reported by Astantekin and Erkal (21) and Jaras et al. (23). The results of Astantekin and Erkal's study titled as "The Effects and Related Factors of Health Literacy Status and Self-Efficacy of Pregnant Women" showed that individuals with higher levels of health literacy and self-efficacy take their routine care (before and during pregnancy) more regularly (21). In the other study by Jaras et al., which aimed to compare the effectiveness of self-care education using the two methods of feedback training and focused group discussion on women's health literacy, education for pregnant women showed to increase health literacy and, consequently improved their self-care behaviors (23). The results of Karbalai et al.'s study also showed that self-care education for pregnant women increased health literacy and the adoption of self-care behaviors in women (24).

The present study proved the positive effect of educational intervention on beliefs about postpartum depression, which is consistent with the findings of Recto (25). Recto's study of individuals' beliefs about postpartum depression showed that by educating pregnant women, their negative beliefs about postpartum depression can change. Such negative beliefs can be adapting to postpartum depression without considering any problem-solving attempt, not believing in existing treatment centers, and keeping depression a secret by individuals. Beliefs

about postpartum depression can change too, and women should use available health services to reduce the severity of problems occurring to them and their families (25).

The results of the present study proved the effectiveness of educational intervention in improving mothers' attitudes towards postpartum depression. In their study, Einar et al. showed that although postpartum depression is a common disorder, misconceptions in society affect mothers' help-seeking behaviors (26). In another study, Li et al. found a statistically significant difference in the level of attitudes towards mental illnesses among men and women, and mental health literacy was found as the strongest factor in improving these attitudes. According to Li et al., increasing social skills through education and communication with people who have shared experiences can positively affect other people, and social support should be considered not only at the individual level, but also at the societal level (11). In fact, it is possible to correct misconceptions about postpartum depression by implementing educational interventions and establishing effective communication, and by changing the attitude of pregnant women, it is also possible to reduce negative attitudes in society.

The results of the present study proved the effectiveness of educational intervention in familiarizing mothers with various information sources that facilitate the treatment of postpartum depression, which is consistent with the results reported by Solhi (20). In Solhi's study, participants stated that doctors, health staff, and educational classes are important sources of information. Therefore, during pregnancy, it is essential to provide information about self-care and health literacy by service providers, and given the inadequacy of routine education during pregnancy, the need for more education with an emphasis on mental health literacy is expected (20). The results of the study by Jafari et al. showed that instead of receiving their information from specialists and health systems, individuals obtain this information from people around them, family, television, books, and the Internet. Due to the social stigma associated with mental illnesses, individuals refrain from seeking help and pursuing treatment (27). An important barrier to seeking help for mental illnesses is low health literacy and failure to recognize the symptoms of mental illness. Although most people are eager to use services, they refrain from pursuing them because they do not know where to get this information. People should be able to correctly identify mental illnesses and diagnose them in early stages (27). According to the findings reprted by Mirsalimi et al., there

are still many pregnant mothers with insufficient information about postpartum depression, which requires more attention to education about postpartum depression and identify the facilitators of help-seeking behavior in individuals (9).

The present study showed that education was able to improve the overall mental health literacy score of mothers in postpartum depression. The results of the present study are consistent with the studies by Cheng (28) and Lopez (29). The former was conducted with the aim of re-education and for the health of the mother and child. A total number of 258 pregnant women with low health literacy were divided into an intervention group (128) and a control (130). The intervention group received the training in addition to routine prenatal care. The findings showed that the educational intervention aimed at improving health literacy led to the adoption of health behaviors and improved maternal and newborn health (28). The other study by Lopez showed that early educational interventions in educational systems led to the improvement of mental health literacy, prevention of mental illnesses, and reduction of the social stigma of postpartum depression (29).

***Study Limitations and Strengths:*** The first limitation relates to the generalizability of the findings. Sample of this study was composed solely of pregnant women of small city in the Southern Khorasan province. Therefore, the results of this study should be applied with caution since they were based on a regional sample. Second, the possibility of participant over- or under-reporting should be considered. This study is also limited by its relatively short follow-up period. Therefore, a longer follow-up period would be desirable.

## Conclusion

Based on results of this study, educational interventions have the potential to improve mental health literacy of postpartum depression. Current evidence is limited by few studies directly measured postpartum depression literacy. More research is needed to properly assess the effect of health literacy interventions on mental health literacy of pregnant women.

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