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# Investigating the depression, anxiety, and stress-related factors in near-miss mothers

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**Abstract:**

**BACKGROUND:** Life-threatening complications during pregnancy and childbirth could have an impact on the physical and mental health of mothers. The present research aimed to investigate the factors related to depression, anxiety, and stress among mothers who have survived maternal near-miss situations.

**MATERIALS AND METHODS:** This is a descriptive-analytical study, and the data have been collected cross-sectionally. Near-miss mothers who had given birth within the past year were selected through the census method (having at least one criterion of the clinical, laboratory, and management standard of the World Health Organization). The Depression, Anxiety, and Stress Scale (DASS-21) and a demographic questionnaire on personal, family, fertility, and care information were filled out by these mothers.

**RESULTS:** One hundred fifty-four near-miss mothers were investigated. The findings indicated that lack of social support, domestic violence, and marital dissatisfaction leads to a significant increase in the mean score of depression among near-miss mothers. In addition, according to the findings, an unemployed spouse, low level of education, lack of social support, recent unintended pregnancy, high blood pressure, and bleeding during pregnancy result in a significant increase in the mean score of stress among near-miss mothers. The findings also showed that domestic violence, a history of infertility, heart disease, and bleeding complications significantly increase anxiety in near-miss mothers.

**CONCLUSION:** Considering the high levels of depression, anxiety, and stress in near-miss mothers, it is of utmost importance to pursue and check up on their mental health, as they are one of the most vulnerable groups in society. It is crucial to provide them support long after discharge to reintegrate these mothers into normal living as per the present study's findings.

**Keywords:**

Anxiety, depression, mother, near-miss, stress

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## Introduction

Mothers are at the core of the social, economic, and cultural growth of a society, and keeping them healthy both physically and mentally increases the well-being of their children, families, and society as a whole.[1] Pregnancy may negatively influence the woman and her family due to various factors, which is classified as a high-risk pregnancy.[2] The rate of maternal mortality due to pregnancy complications and childbirth is among the most critical indicators of a country's economic, cultural, and healthcare development.[3] Annually, for every woman who passes away, at least another 20 near-miss women suffer from debilitating injuries, infections, and disabilities from pregnancy and childbirth for years.[4] The World Health Organization defines *near-miss mothers* as women who nearly died and suffered from severe complications during pregnancy, childbirth, and within



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42 days of pregnancy termination.[5] The study by Naderi *et al*. indicated a maternal near-miss ratio of 25.2 per 1000 live birth in Iran.[1] This organization has recommended 25 criteria for the diagnosis of maternal morbidity or cases of near-death, which are identified based on organ dysfunction (cardiovascular, respiratory, renal, coagulation, hepatic, neurological, and uterine).[6] It is ambiguous why severe maternal morbidity and life-threatening complications are escalating; however, changes in the overall healthcare of women of reproductive age may contribute to the mentioned condition; to name a few, advanced maternal age, pre-pregnancy obesity, chronic diseases prior to pregnancy, and cesarean section.[7] Conversely, advancements in medical care, especially for women with chronic diseases, have also increased high-risk pregnancies in recent years.[8]

Pregnancy and life-threatening complications both together could cause physical and psychological distress, leading to post-traumatic stress disorder (PTSD); as a result, it makes women prone to postpartum psychiatric disorders, which may have long-lasting detrimental effects.[9] In a study conducted by Abdollahpour *et al.*, it was found that many near-miss mothers mostly asked for the support and attention of healthcare providers during and after hospitalization. Most mothers responded to the adverse events with emotional and psychological reactions such as anxiety, grief, and anger. According to the mentioned study, the consequences of these events encompassed loss of life, miscarriage, and self-image, as well as diminished quality of life and marital dissatisfaction.[10] Improving the health of near-miss mothers appears to be a crucial priority, given the high incidence of high-risk pregnancies and childbirths, as well as our government's current fertility promotion policies. As a result, the present study aimed to explore the factors related to depression, anxiety, and stress in near-miss mothers.

## Materials and Methods

### Study design and setting

This was a descriptive-analytical study, and the data were collected cross-sectionally. The study population consisted of near-miss mothers who had given birth one year before the present study. The near-miss mothers were selected through the census method over one year from hospitals affiliated with the Isfahan University of Medical Sciences. The data was collected using the DASS-21 (depression, anxiety, and stress) and a demographic questionnaire (personal, family, and fertility).

### Study participants and sampling

Here are the inclusion criteria for the present study: Mothers who had experienced chronic complications during pregnancy, childbirth, and within 42 days of pregnancy termination and those who had at least one criterion of the clinical, laboratory, and management standard of the World Health Organization.[11] Clinical criteria consisted of acute cyanosis, gasping, respiratory rate over 40 per minute or <6 per minute, shock, oliguria unresponsive to diuretics or fluid therapy, coagulation disorders, a weak pulse of more than 12 hours (Glasgow Coma Score, <10), absence of pulse, stroke, continuous and uncontrollable seizure and complete paralysis, and pre-eclampsia with jaundice. Laboratory criteria were as follows: Oxygen saturation level below 90% for 60 minutes sharp or more than that, PH <1.7, PaO2/FiO2 <200 mmHg, lactate >5 mmol/L, creatinine >3.5 mg/dL, platelet count <50,000 μL, bilirubin above 6 mg/dL, loss of consciousness and presence of glucose and ketones in the urine. Lastly, management criteria were as follows: Constant use of vasopressor medications, intubation, and ventilation for 60 minutes and more than 60 minutes unrelated to anesthesia, hysterectomy due to bleeding and/or infection, dialysis due to acute kidney failure, blood transfusion equal or more than five units of red blood cells (RBT), and cardiopulmonary resuscitation (CPR). Mothers who were willing to participate in this research were required to meet specific criteria; they were not pregnant and had no history of known psychiatric disorders before their recent pregnancy, according to the SIB system. Additionally, they had not faced unexpected stressors such as the death of an immediate family member during pregnancy.

### Data collection tool and technique

The data collection involved a thorough review of medical records and the completion of the questionnaires by near-miss mothers. The data collection tools comprised a demographic questionnaire that included personal, fertility, and maternal care-related inquiries, in addition to depression, anxiety, and stress scale (DASS-21).

DASS-21 was developed by Lovibond in 1995 and includes 21 items; it evaluates stress, anxiety, and depression using seven different questions for each of the three subscales. The items are scored on a Likert scale ranging from 0 (never) to (always). The severity of depression, anxiety, and stress is categorized as normal, mild, moderate, severe, and extremely severe. The reliability and validity of the DASS-21 have been confirmed by several studies.[12,13]

After granting approval from the Research Committee of Isfahan University of Medical Sciences, the researcher was given a letter of introduction by Isfahan University of Medical Sciences. The researcher visited the Treatment and Health Deputy of the province and hospitals, presenting the letter of introduction. Following that,

based on the recorded information in the hospital, the files of near-miss mothers who had given birth over the last year were presented to the researcher; thereafter, only those who met the inclusion criteria were selected for the present research, and then all the files were thoroughly inspected. Eventually, the researcher contacted the qualifying mothers via phone call and briefly explained the study, inviting them to participate. The questionnaires were completed either in person at the healthcare centers while following all COVID-19 protocols or over the phone.

### Ethical consideration

Ethical approval was granted from the Research Committee of Isfahan University of Medical Sciences with the ethics code of IR.MUI.RESEARCH.REC.1399.671. All the participants were assured that their anonymity and confidentiality would be preserved, and they were empowered to withdraw from the research at any time. Following their agreement to participate in the study, an informed consent form was also completed. Furthermore, all near-miss mothers were referred to a psychologist to be examined.

## Result

The study was conducted on 160 near-miss mothers. However, six of them were excluded from the study: Two of them were unwilling to fill out the questionnaires, one due to the unwillingness of the husband, and three did not respond. Eventually, all the information gathered from the 154 participants was analyzed.

According to the results, near-miss mothers had a mean score of age 32.31 with a standard deviation of 5.51 years. In comparison, their husbands had a mean age and standard deviation of 36.34 and 5.92, respectively. Most mothers and their husbands had low education levels; most mothers and their husbands were housewives and self-employed, respectively. The majority of the mothers had no previous history of miscarriage, and their recent pregnancy was indeed desired. Tables 1-3 present the relationship between depression, anxiety, and stress with demographic characteristics, fertility characteristics, and maternal care conditions among near-miss mothers.

## Discussion

In the present study, the depression, anxiety, and stress of 154 near-miss mothers were examined using the DASS-21. The findings indicated a meaningful relationship between the mean score of depression of near-miss mothers and social support, and mothers who had no social support experienced higher levels of depression. A study conducted by Silva (2017) on the severe morbidity of maternal trauma and its relationship with social support showed that severe maternal morbidity occurred most often in individuals with low education levels, living in suburban areas, unemployed, alcohol users, and of higher age. In addition to that, many of these mothers were dissatisfied with long-term hospitalization, losing personal life, lack of independence, and difficulties in performing maternal tasks. According to the findings of this study, severe morbidity makes mothers emotionally and mentally vulnerable, which can lead to PTSD. Lack of enough social support could adversely affect mothers, both physically and mentally. It is evident that social support and family support are of great importance in maintaining mental health and coping with stressful situations.[14]

Additionally, the findings suggested that there is a significant relationship between the mean score of anxiety in near-miss mothers with their levels of education and social support; therefore, significantly higher anxiety was observed in mothers with low levels of education and lack of social support. Cardwell *et al*. (2013) identified these factors as determinants of stress during pregnancy: Socioeconomic status, employment status, level of education, access to prenatal care, drug abuse, ethnicity, cultural background, and quality of relationships with spouse and parents.[15] Omidvar *et al*. investigated the relationship between depression and some demographic variables. A significant association was found between depression and the individual's education, employment status, satisfaction of spousal, family, and social support, the education level of the spouse, concerns regarding the cost of childbirth, the occurrence of a stressful event or trauma during or prior to pregnancy, and finally martial conflicts.[16] According to the findings of the present study, there is a significant association between social support and mothers' depression which is in line with the findings of the previous studies. Therefore, there is a need for longer-term support for mothers in order to prevent depression. Other studies also indicated that social support decreases depression, which again aligns with the current study's results.

Moreover, the research findings indicated a history of infertility, desired pregnancy, satisfaction with marital life, and the current pregnancy complication is linked to the mental health of near-miss mothers. Correspondingly, depression was higher in mothers who had experienced domestic violence and those unsatisfied with their marital life. In addition, the stress level was higher in mothers who had an unintended pregnancy recently. On the other hand, the current pregnancy complication was also associated with maternal stress; as mothers with the complication of postpartum hemorrhage experienced more stress. Additionally, the findings showed a meaningful relationship between the mean score of anxiety in near-miss mothers and domestic violence, the history of infertility, and the present complication;

**Table 1: Correlation of depression, anxiety, and stress with demographic characteristics among near-miss mothers**

| | Depression | | Anxiety | | Stress | |
|---|---|---|---|---|---|---|
| | Mean±SD | Test result | Mean±SD | Test result | Mean±SD | Test result |
| Mother's age | 12.55±9.74 | *r*=-0.06, *P*=0.468 | 11.19±8.22 | *r*=-0.098, *P*=0.236 | 19.50±9.68 | *r*=-0.033, *P*=0.699 |
| Husband's age | 12.55±9.74 | *r*=-0.09, *P*=0.277 | 11.19±8.22 | *r*=0.132, *P*=0.108 | 19.50±9.68 | *r*=-0.068, *P*=0.422 |
| Number of mother's siblings | 12.55±9.74 | *r*=0.044, *P*=0.600 | 11.19±8.22 | *r*=0.003, *P*=0.967 | 19.50±9.68 | *r*=0.049, *P*=0.561 |
| Mother's birth rating | 12.55±9.74 | *r*=0.065, *P*=0.434 | 11.19±8.22 | *r*=0.042, *P*=0.614 | 19.50±9.68 | *r*=0.086, *P*=0.310 |
| Mother's education level | | | | | | |
| Illiterate | 16.25±9.64 | *F*=0.746, *P*=0.526 | 18.22±5.60 | *F*=2.773, *P*=0.044 | 21.25±6.58 | *F*=1.329, *P*=0.267 |
| Primary school | 14.06±9.62 | | 11.26±6.91 | | 22.33±8.83 | |
| High school | 12.02±9.48 | | 11.30±9.09 | | 18.96±10.33 | |
| University degree | 11.84±10.42 | | 9.65±7.30 | | 17.94±9.58 | |
| Husband's education level | | | | | | |
| Illiterate | 18.33±12.48 | *F*=0.806, *P*=0.492 | 18.57±5.12 | *F*=2.195, *P*=0.091 | 21.66±8.33 | *F*=0.698, *P*=0.555 |
| Primary school | 12.06±7.56 | | 9.86±5.80 | | 21.00±8.20 | |
| High school | 12.13±9.70 | | 11.23±9.03 | | 18.40±9.78 | |
| University degree | 13.11±10.97 | | 11.05±7.99 | | 20.22±10.95 | |
| Mother's job | | | | | | |
| Housewives | 12.81±9.81 | *F*=1.405, *P*=0.238 | 11.32±8.28 | *F*=0.149, *P*=0.700 | 19.71±9.78 | *F*=1.001, *P*=0.319 |
| Employed | 8.00±7.37 | | 10.00±6.19 | | 15.66±7.08 | |
| Husband's job | | | | | | |
| Employed | 9.46±9.98 | *F*=1.93, *P*=0.126 | 8.22±6.13 | *F*=2.357, *P*=0.074 | 16.61±10.09 | *F*=2.550, *P*=0.058 |
| Worker | 13.65±8.22 | | 12.69±8.58 | | 22.20±7.74 | |
| Self-employed | 13.00±10.34 | | 11.30±8.56 | | 18.74±10.45 | |
| Jobless | 20.00±12.43 | | 16.50±3.41 | | 24.00±10.06 | |
| Place of living | | | | | | |
| City | 12.89±9.65 | *F*=0.728, *P*=0.395 | 11.15±8.30 | *F*=0.016, *P*=0.898 | 19.66±9.27 | *F*=0.167, *P*=0.684 |
| Village | 11.14±10.36 | | 11.37±8.16 | | 18.81±11.58 | |
| Economic situation | | | | | | |
| Income less than expenses | 13.45±9.93 | *F*=3.392, *P*=0.068 | 11.87±8.72 | *F*=2.693, *P*=0.103 | 20.45±10.05 | *F*=2.380, *P*=0.125 |
| Income equal to expenses | 10.53±8.62 | | 9.65±7.19 | | 17.90±9.14 | |
| Income more than expenses | 0.00±0.00 | | 0.00±0.00 | | 0.00±0.00 | |
| Social support | | | | | | |
| Yes | 11.33±8.65 | *F*=22.459, *P*=0.000 | 10.39±7.42 | *F*=18.99, *P*=0.000 | 19.01±9.45 | *F*=1.660, *P*=0.200 |
| No | 23.84±12.68 | | 20.30±11.27 | | 22.90±11.50 | |

and near-miss mothers who had experienced domestic violence and infertility showed higher anxiety levels. The present complication in pregnancy was linked to the anxiety level; mothers who had heart complications and bleeding showed higher anxiety levels. In the study by Maryam Mahdavi *et al*. (2018), postpartum depression had no significant relationship with the rank of delivery, mode of delivery, and desired or unintended pregnancy.[17] According to a study conducted in Tabriz, 34.7% of mothers experienced postpartum depression, which had a significant association with job and place of living dissatisfaction, the unpleasant experience of pregnancy, unintended pregnancy, and high-stress levels.[18] Other studies identified factors including socioeconomic status, employment status, marital status, levels of education, access to antenatal care, drug abuse, cultural background, and the quality of relationship with the spouse and parents as determinants of stress during pregnancy.[15,19,20] Moreover, higher anxiety and depression in couples with a history of infertility have been reported.[21,22]

The findings of the study indicated that mothers who did not receive adequate antenatal care or did not receive care according to the national program showed a higher score of depression and stress. The study conducted by Lee *et al*. on 357 pregnant women showed that there is an association between depression during pregnancy and poor self-care during pregnancy, insecure attachment and delayed growth in the child, and postpartum depression.[23] The study by Rezaeian *et al*. reported an increase in stress and depression in women at risk of preterm labor resulting in decreased self-care behaviors. Hence, identifying and managing pregnant women prone to stress and depression and subsequently devising a plan to decrease depression and stress can enhance their level of self-care.[24] In their study titled "Experiences of inequitable care among Afghan mothers surviving near-miss morbidity in Tehran, Iran," Mohammadi *et al*. reported that the causes of near-miss experience and its subsequent complications among mothers of foreign nationalities were as follows: discrimination, delayed diagnoses, financial hardship, lack of health insurance,

**Table 2: Correlation of depression, anxiety, and stress with fertility characteristics among near-miss mothers.**

| | Depression | | Anxiety | | Stress | |
|---|---|---|---|---|---|---|
| | Mean±SD | Test result | Mean±SD | Test result | Mean±SD | Test result |
| Number of pregnancies | 12.55±9.74 | *r*=0.043, *P*=0.605 | 11.19±8.22 | *r*=0.004, *P*=0.958 | 19.5±9.68 | *r*=0.074, *P*=0.381 |
| Number of deliveries | 12.55±9.74 | *r*=-0.028, *P*=0.733 | 11.19±8.22 | *r*=-0.088, *P*=0.290 | 19.5±9.68 | *r*=0.051, *P*=0.543 |
| Number of live children | 12.55±9.74 | *r*=-0.098, *P*=0.237 | 11.19±8.22 | *r*=-0.134, *P*=0.104 | 19.5±9.68 | *r*=-0.057, *P*=0.504 |
| Number of dead children | 12.55±9.74 | *r*=0.125, *P*=0.144 | 11.19±8.22 | *r*=0.106, *P*=0.215 | 19.5±9.68 | *r*=0.153, *P*=0.077 |
| Pregnancy age in the current delivery | 12.55±9.74 | *r*=-0.057, *P*=0.495 | 11.19±8.22 | *r*=-0.103, *P*=0.216 | 19.5±9.68 | *r*=-0.101, *P*=0.232 |
| Newborn weight | 12.55±9.74 | *r*=-0.084, *P*=0.320 | 11.19±8.22 | *r*=-0.145, *P*=0.081 | 19.5±9.68 | *r*=-0.128, *P*=0.133 |
| Apgar at birth | 12.55±9.74 | *r*=-0.033, *P*=0.698 | 11.19±8.22 | *r*=0.026, *P*=0.765 | 19.5±9.68 | *r*=-0.052, *P*=0.554 |
| History of abortion | | | | | | |
| Yes | 13.61±10.37 | *F*=0.428, *P*=0.514 | 12.31±8.79 | *F*=0.888, *P*=0.348 | 20.92±10.59 | *F*=0.917, *P*=0.340 |
| No | 12.44±9.55 | | 10.90±8.03 | | 19.18±9.34 | |
| Marital Satisfaction | | | | | | |
| Yes | 11.82±8.59 | *F*=4.225, *P*=0.042 | 10.93±7.70 | *F*=0.889, *P*=0.347 | 19.12±8.91 | *F*=0.783, *P*=0.378 |
| No | 16.77±14.95 | | 12.84±11.39 | | 21.37±14.02 | |
| Domestic violence | | | | | | |
| Yes | 20.18±12.72 | *F*=7.183, *P*=0.008 | 17.66±9.82 | *F*=8/116, *P*=0.005 | 23.27±10.92 | *F*=1.686, *P*=0.196 |
| No | 12.10±9.31 | | 10.72±7.92 | | 19.34±9.52 | |
| Method of the last delivery | | | | | | |
| NVD | 14.22±11.61 | *F*=0.581, *P*=0.447 | 11.57±8.80 | *F*=0.039, *P*=0.844 | 20.73±11.13 | *F*=0.352, *P*=0.554 |
| Cesarean | 12.34±9.52 | | 11.17±8.19 | | 19.31±9.47 | |
| Desired last pregnancy | | | | | | |
| Yes | 12.07±9.90 | *F*=1.042, *P*=0.309 | 10.78±8.62 | *F*=0.987, *P*=0.322 | 18.26±9.38 | *F*=6.890, *P*=0.010 |
| No | 13.94±9.25 | | 12.30±6.99 | | 23.02±9.78 | |
| History of infertility | | | | | | |
| Yes | 13.66±9.05 | *F*=0.114, *P*=0.737 | 16.92±8.02 | *F*=6.584, *P*=0.012 | 16.72±8.68 | *F*=1.126, *P*=0.290 |
| No | 12.67±9.84 | | 10.91±8.07 | | 19.95±9.74 | |
| Pregnancy the result of infertility treatment | | | | | | |
| Yes | 10.50±4.24 | *F*=0.425, *P*=0.516 | 14.22±6.20 | *F*=1.114, *P*=0.293 | 15.42±5.25 | *F*=1.463, *P*=0.229 |
| No | 12.78±9.81 | | 11.23±8.32 | | 19.95±9.79 | |
| Prevention method before last pregnancy | | | | | | |
| Withdrawal | 11.82±8.28 | *F*=1.174, *P*=0.330 | 11.01±8.23 | *F*=1.080, *P*=0.378 | 19.89±8.98 | *F*=0.644, *P*=0.667 |
| Ocp | 14.50±14.17 | | 12.50±5.74 | | 21.00±11.48 | |
| IUD | 5.00±7.07 | | 9.00±7.07 | | 11.00±15.55 | |
| Condom | 11.66±5.98 | | 8.66±5.31 | | 22.00±7.34 | |
| Ampol | 14.00±0.00 | | 20.00±0.00 | | 24.00±5.65 | |
| No method | 17.50±10.68 | | 14.66±8.41 | | 21.83±7.30 | |
| Sex of fetus in the last delivery | | | | | | |
| Boy | 12.22±8.85 | *F*=0.005, *P*=0.942 | 11.28±7.47 | *F*=0.328, *P*=0.568 | 30.02±9.41 | *F*=0.699, *P*=0.405 |
| Girl | 12.34±10.85 | | 10.50±8.77 | | 18.62±10.24 | |
| The status of the child from the current delivery | | | | | | |
| Healthy | 12.11±10.32 | *F*=1.769, *P*=0.110 | 10.47±8.32 | *F*=1.943, *P*=0.078 | 18.56±10.33 | *F*=0.782, *P*=0.586 |
| Preterm birth | 11.76±8.85 | | 11.23±7.92 | | 19.76±9.32 | |
| Hypoxy | 13.00±1.41 | | 9.00±4.24 | | 26.00±2.82 | |
| Dead birthday | 22.00±10.58 | | 18.72±10.16 | | 24.00±6.59 | |
| Hospitalization | 10.28±4.68 | | 8.75±4.89 | | 17.50±8.92 | |
| Neonatal death | 12.33±10.68 | | 11.33±6.77 | | 22.80±13.08 | |
| History and type of complication in previous pregnancies | | | | | | |

*Contd...*

**Table 2: Contd...**

| | Depression | | Anxiety | | Stress | |
|---|---|---|---|---|---|---|
| | Mean±SD | Test result | Mean±SD | Test result | Mean±SD | Test result |
| No complications | 12.46±9.38 | *F*=0.673, *P*=0.134 | 11.06±8.21 | *F*=0.362, *P*=0.236 | 19.59±9.54 | *F*=1.357, *P*=0.239 |
| genetic | 0.00±0.00 | | 0.00±0.00 | | 0.00±0.00 | |
| blood pressure | 11.00±7.34 | | 8.00±4.16 | | 16.00±9.12 | |
| Preterm delivery | 16.66±13.31 | | 11.33±9.45 | | 24.00±15.62 | |
| diabetes | 16.66±17.47 | | 16.66±9.23 | | 20.66±9.01 | |
| Kidney | 34.00±0.00 | | 20.00±0.00 | | 34.00±0.00 | |
| heart | 1.00±1.41 | | 0.00±0.00 | | 6.00±5.65 | |
| coronavirus | 4.00±0.00 | | 4.00±0.00 | | 26.00±0.00 | |
| The type of complication in the last pregnancy | | | | | | |
| No complications | 0.00±0.00 | *F*=1.845, *P*=0.074 | 0.00±0.00 | *F*=2.393, *P*=0.019 | 0.00±0.00 | *F*=2.150, *P*=0.036 |
| severe corona | 12.87±10.45 | | 12.15±9.85 | | 19.05±9.77 | |
| Postpartum bleeding | 13.28±9.84 | | 10.85±7.39 | | 29.60±6.06 | |
| Heart | 12.28±6.47 | | 20.00±6.92 | | 20.90±9.03 | |
| Platelet disorder | 9.11±6.86 | | 8.44±4.55 | | 20.28±6.77 | |
| Embolism | 21.00±0.00 | | 14.33±0.00 | | 12.75±0.00 | |
| Kidney | 21.00±0.00 | | 12.33±0.00 | | 13.75±0.00 | |
| Hysterectomy | 11.75±10.24 | | 10.23±7.96 | | 18.25±12.26 | |
| Pre-eclampsia, eclampsia, HELLP syndrome | 8.18±6.60 | | 6.90±6.41 | | 18.54±9.03 | |
| Bleeding in pregnancy | 28.00±0.00 | | 22.00±0.00 | | 32.00±0.00 | |

**Table 3: Correlation of depression, anxiety, and stress scores with maternal care conditions among near-miss mothers**

| | Depression | | Anxiety | | Stress | |
|---|---|---|---|---|---|---|
| | Mean±SD | Test result | Mean±SD | Test result | Mean±SD | Test result |
| Care according to the national program | | | | | | |
| Yes | 12.20±9.47 | *F*=8.194, *P*=0.005 | 11.14±8.14 | *F*=1.987, *P*=0.161 | 19.37±9.57 | *F*=2.806, *P*=0.096 |
| No | 26.00±10.70 | | 17.00±10.13 | | 28.66±2.30 | |
| Care in the health sector | | | | | | |
| Yes | 11.64±9.09 | *F*=5.380, *P*=0.022 | 11.02±8.35 | *F*=0.429, *P*=0.513 | 18.79±9.40 | *F*=5.361, *P*=0.022 |
| No | 16.26±11.46 | | 12.13±7.10 | | 23.48±9.35 | |
| Care in the private sector | | | | | | |
| Yes | 12.21±9.46 | *F*=2.026, *P*=0.157 | 11.03±8.06 | *F*=0.430, *P*=0.513 | 19.49±9.63 | *F*=0.013, *P*=0.908 |
| No | 16.14±12.73 | | 12.57±10.47 | | 19.83±11.36 | |
| Pregnancy care agent in the health sector | | | | | | |
| Behvarz | 11.38±11.61 | *F*=0.358, *P*=0.699 | 11.38±10.01 | *F*=0.276, *P*=0.759 | 18.83±8.88 | *F*=0.370, *P*=0.691 |
| Health care | 8.00±8.48 | | 7.00±4.24 | | 14.00±11.31 | |
| Midwife | 12.89±9.74 | | 11.56±8.48 | | 19.74±9.91 | |
| Pregnancy care agent in the private sector | | | | | | |
| Midwife | 0.00±0.00 | *F*=1.626, *P*=0.205 | 0.00±0.00 | *F*=0.128, *P*=0.722 | 0.00±0.00 | *F*=2.039, *P*=0.156 |
| General practitioner | 0.00±0.00 | | 8.00±0.00 | | 6.00±0.00 | |
| Gynecologist | 12.40±9.68 | | 10.96±8.26 | | 19.81±9.62 | |
| Hospital of admission | | | | | | |
| First level | 28.00±0.00 | *F*=1.358, *P*=0.260 | 8.00±0.00 | *F*=0.305, *P*=0.737 | 40.00±0.00 | *F*=2.736, *P*=0.068 |
| Second level | 13.20±12.29 | | 13.60±9.73 | | 22.80±14.60 | |
| Third level | 12.24±9.50 | | 11.02±8.21 | | 19.05±9.33 | |
| Week of starting the first care in pregnancy | 12.55±9.74 | *r*=0.224, *P*=0.007 | 11.19±8.22 | *r*=0.118, *P*=0.152 | 19.50±9.68 | *r*=0.226, *P*=0.007 |
| Number of care during pregnancy | 12.55±9.74 | *r*=-0.080, *P*=0.365 | 11.19±8.22 | *r*=0.020, *P*=0.817 | 19.50±9.68 | *r*=0.024, *P*=0.785 |
| The number of prenatal care in the health sector | 12.55±9.74 | *r*=0.021, *P*=0.802 | 11.19±8.22 | *r*=0.065, *P*=0.441 | 19.50±9.68 | *r*=0.015, *P*=0.866 |
| Duration of hospitalization after complications | 12.55±9.74 | *r*=0.070, *P*=0.412 | 11.19±8.22 | *r*=0.235, *P*=0.005 | 19.50±9.68 | *r*=0.095, *P*=0.270 |

low literacy levels, inattentive healthcare providers.[25] To explain the reasoning behind these findings, it can be stated that antenatal care based on the national program results in improved maternal health and, consequently, a decrease in the levels of anxiety, stress, and depression.

Additionally, mothers' follow-up appointments effectively identify pregnancies requiring special attention, high-risk pregnancies, and mental health problems. As a result, this leads to early identification of these mothers and necessary and timely interventions to reduce the complications. Moreover, mothers are provided with the necessary education during different weeks of pregnancy, the condition of the mother and fetus, nutrition education, pregnancy risk symptoms, and so on when receiving antenatal care. Receiving support from maternal healthcare providers and increasing maternal knowledge and awareness about pregnancy leads to an increase in self-confidence, consequently, a reduction in maternal stress, anxiety, and depression.

## Conclusion

The findings indicated that lack of social support, domestic violence, and marital dissatisfaction leads to a significant increase in the mean score of depression among near-miss mothers. Additionally, an unemployed spouse, low level of education, lack of social support, unintended pregnancy, high blood pressure complications, and bleeding during pregnancy contribute to a significant increase in the mean score of stress among near-miss mothers. Furthermore, domestic violence, infertility history, and experiencing heart and bleeding complications significantly enhance anxiety among near-miss mothers. As a result, it is crucial to provide the necessary support to this vulnerable group of mothers to reintegrate them into normal living long after childbirth and discharge.

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## Conflicts of interest

Nil.

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