

Effect of Tailored Psycho-Educational Intervention on Depression and Anxiety levels among Pregnant Women with Spontaneous Abortion History

Lawahez M. Dwedar⁽¹⁾, Elham Gomaa Ramadan Elgamal⁽²⁾, Abeer Taha Ahmed Taha⁽³⁾, Amal Roshdi Ahmed⁽⁴⁾

1) Lecturer of Woman's Health and Midwifery Nursing, Faculty of Nursing, Kafr el-sheikh University, Egypt.

2) Lecturer of Obstetric and Gynecologic Nursing, Faculty of Nursing, Damanhur University, Egypt.

3) Assistant Professor of Psychiatric Mental Health Nursing, Faculty of Nursing, Cairo University, Egypt

4) Assistant Professor of Maternal and newborn health nursing, Faculty of nursing, Bani-Suef University, Egypt.

Corresponding author: lawahez_mabrouk2014@nur.kfs.edu.eg

Abstract

Background: Abortion history has negative psychological impacts on women who might experience an increased anxiety and depression or post-traumatic stress anxiety disease which could be associated with less effective self-care management during pregnancy later on. Psycho educational interventions for the psychological disorders are a multifaceted approach promoting adaptive behaviors in these miserable experiences of abortion for pregnant woman **Aim:** The study aimed to evaluate the effect of tailored psycho-educational intervention on depression and anxiety levels among pregnant women with spontaneous abortion history. **Method:** Quasi-experimental research design (nonequivalent control group with pretest/posttest technique) was utilized. Purposive sample of (80) pregnant women with spontaneous abortion history were recruited in the study. The study was conducted at the antenatal ward of obstetrics and gynecology of National Institute of Damanhur-El-Behera governorate, Egypt. Three tools were utilized in the study; Structured Interview Questionnaire, Beck Anxiety Inventory (BAI) and Zung Self-Rating Depression Scale. **Results:** The study results revealed that there was no significant difference between the intervention and control group regarding most of socio-demographic characteristics and obstetric histories. The results of the current study also reported that there were highly statistical significant differences between intervention and control group pre, and after one and two months of intervention related to anxiety and depression levels (P-value < 0.02 and 0.001; 0.006 and 0.001) respectively. **Conclusion:** The pregnant women with spontaneous abortion histories who were participated in that tailored psycho-educational intervention exhibit less anxiety and depression levels than those who do not receive it in the control group. **Recommendation:** A tailored psycho-educational intervention could be utilized by psychiatric and midwives nurses to decrease anxiety and depression levels during antenatal care for pregnant women with spontaneous abortion history.

Keywords: Tailored Psycho-Educational Intervention, Depression, Anxiety and Spontaneous Abortion.

Introduction

Pregnancy period is characterized by dramatic physiological and psychological changes and increased anxiety and depression levels (Thatal et al., 2020). Pregnancy anxiety and depression might be related to stillbirth, history of voluntary or elective abortion, accidental or unwanted pregnancy, previous anxiety or depression disorders, anxiety about the baby's health, stress at work, and stressful situations such as unemployment or social changes (Wang et al., 2021). According to Dosani et al., (2022); Yiridomoh et al., (2020); Adams and Ray, (2019) who explained the strong relationship between the prenatal stress and depression with

fear of pregnancy and childbirth.

A healthy pregnancy is defined as period of a physically and psychologically safe and enjoyable outcome for mother, baby, and family; this can be achieved by educating pregnant women with a history of voluntary abortion about physiology, control strategies, and self-care management care. It may also help reduce the stress and anxiety associated with maternity care (Babure et al., 2020). The forced or voluntary termination of a pregnancy prior to viability is referred as "abortion." The delivery of a fetus weighing less than 500 grams and the termination of a pregnancy before 20 weeks of gestation are the classic definitions of abortion that is one of the most typical issues with early pregnancy (Lacci-

Reilly et al., 2023; Cunningham et al., 2021).

More than half of all pregnancies and 20% of planned pregnancies result in high-risk voluntary abortions, also called miscarriage, which are considered harmful to reproductive health (Ahmed et al., 2022). Around 23 million spontaneous abortions occur every year, equating to 44 pregnancy losses every minute (Quenby et al., 2021). Nearly 40% of women go to the emergency room to handle their miscarriage mostly because of convenience or experiencing active vaginal bleeding (Baird et al., 2018).

Miscarriage has negative psychological, physical impacts and economic costs. Nearly 48%–51% of women who have miscarried report psychological disorders. Comparing women without experience of miscarriage, the psychiatric illnesses prevalence in mothers with a history of miscarriage rises to 30% (Zinaman et al., 2019). Following a miscarriage, women have described shame, guilt, afraid, feeling helpless, and grieving. Also, those women may experience moderate to severe depression, moderate to severe anxiety, or post-traumatic stress disorder with global pooled prevalence rates estimated at 11.9% (Miller et al., 2019; Baird et al., 2018; Bellhouse et al., 2018; Volgsten et al., 2018).

Moreover, women with lower socioeconomic status are more likely to have severe psychological effects after miscarriage, particularly; those with a history of psychiatric disease, a lack of social support, or all three of these factors together (DeMontigny et al., 2020; Goisis et al., 2019; Miller et al., 2019). Psychiatric disorders following spontaneous abortion are associated with difficulties in social relationships, partner relationships, sexuality with risk of death in the severest cases (Slomian et al., 2019).

Anxiety and depression levels during pregnancy are associated with less effective self-care management, postpartum anxiety and depression, and less stable relationships with newborns. Self-care is the use of life-related problem-solving and decision-making skills for women well-being. Psycho educational intervention for the psychological effects of abortion is a multifaceted self-management and treatment approach based on relaxation techniques, counseling, support, communication, or education, aimed at reducing the psychological

effects and dependability after abortion experiences and promoting adaptive behavior in these miserable experiences of abortion (Gaber Zaghoul et al., 2022; Barabady et al., 2020; Boryri et al., 2020; Shereda et al., 2018).

Benson's relaxation techniques also describe relaxation exercises such as guided imagery, slow relaxation techniques such as hypnosis, biofeedback, and breathing exercises that provide a quick way to reduce stress, anxiety, and symptoms of depression (Sajidah et al., 2021; Ibrahim et al., 2019; Elsayed et al., 2019). The psychiatric, women's health and midwifery nurses practitioner plays an important role in providing relief, complementary therapies, and demonstrating therapeutic options to ensure optimal psychological, social, and spiritual well-being (El-Khawaga et al., 2019; Elshatarat et al., 2018; Kalu, 2019; Kapp et al., 2018).

As well as, mental health nurses role during pregnancy can represented in monitoring the psychological conditions and act as a labor coach. Collaboration of the two nursing specialties may also occur during prenatal care, regular coordination of nursing care plans, and collaboration between psychiatric, midwives, and pediatricians nurse. Psycho educational intervention are prominent responsibilities of nurses in such cases including relaxation exercises such as guided emotion viewing, slow relaxation, self-hypnosis, biofeedback, Benson relaxation and breathing exercises (Barabady et al., 2020).

Significance

Early pregnancy loss after implantation occurs 31% worldwide. A spontaneous miscarriage is the most frequent reason for early pregnancy loss (Arora & Mukhopadhaya, 2019; World Health Organization, 2019). Considering the prevalence and importance of post-abortion mental health problems and their negative effects on subsequent pregnancies, measures to reduce anxiety and depression are necessary (Riddle et al., 2023; Dagher et al., 2021).

Previous studies have focused on psychological effects such as depression and anxiety after abortion, but less studies have focused on post-abortion pregnancy outcomes and their effects on subsequent pregnancies (Gebeyehu et al., 2023; Riddle et al., 2023).

Also **Barbe et al., (2023)** suggested that women who have voluntary abortions need appropriate psychological support during prenatal care. Also, a few studies have examined the effects of psycho education on anxiety and depression in pregnant women with a history of abortion.

Pregnant women are high-risk period who need the expertise of both midwives and psychiatric nurses. Various conditions in which psychiatric symptoms during pregnancy may interfere with labor are discussed in the current study. Specific principles of assessment and intervention in the care of these women are also focused in the present study, including the use of psychiatric counseling, medications, and psychiatric interventions (**Barabady et al., 2020**).

Operational definitions

Tailored Psycho-Educational intervention: is a broad range of behavioral and psychotherapeutic managements intended to lessen psychological effects and maladaptive behavior for experience of abortion through counseling, support, contact, or training (**Shereda et al., 2018**). In the current study, the Tailored Psycho-Educational intervention was carried out in the form of relaxation methods such as Benson's relaxation technique and self-care management.

Depression: is a common mental health condition that can happen to women with history of spontaneous abortion, is characterized by a low mood or loss of pleasure or interest in activities for long periods of time. It was measured by **Zung Self-Rating Depression Scale, (1965)**.

Anxiety: is a feeling of unease, such as worry or fear, which can be mild or severe. It was measured by **Beck Anxiety Inventory (BAI), (1988)**.

Aim of the current study

The study was aimed to evaluate the effect of tailored psycho-educational intervention on depression and anxiety levels among pregnant women with spontaneous abortion history.

Research hypotheses

H1: Pregnant women with spontaneous abortion history who receive tailored Psycho-educational intervention exhibits a lower anxiety level in the intervention group than

those who do not receive it in the control group

H2: Pregnant women with spontaneous abortion history who receive tailored Psycho-educational intervention in the intervention group exhibits a lower depression level than those who do not receive it in the control group

Subjects and Methods

Research design

This study used a quasi-experimental design (nonequivalent control group pretest/posttest). It is a design where in the intervention group' members (study group) are evaluated before and after the intervention implementation. In this design, the subjects were divided into two groups: the intervention and control group. The primarily values for the dependent variables were given to each participant. After that, those enrolled in the study group only had tailored psychological intervention. The post-test was finally given to every subject to evaluate the level of change in the variables (**LoBiondo-Wood and Haber, 2018**).

Setting

The study was implemented at the antenatal ward of obstetrics and gynecology of Damanhur National Institute that was affiliated with the ministry of health in El-Behera governorate, Egypt. It included 2 rooms for admission of high-risk pregnancy where the researchers interviewed the recruited women to administer psychological measures of the psycho-educational interventions of current study. It was particularly chosen because it is a major hospital that serves Damanhur city and the surrounding areas. Also, the turnover was satisfactory for the study. It conducted approximately (5170) pregnant woman annually according to its local statistics for the year 2023 (**Obstetrics and Gynecology department, Damanhur National Institute, 2023**).

Sample

A purposive sample of 80 pregnant women were included in the current study who met the inclusion criteria which were; aged 18 to 39 years, singleton pregnancy between 4 to 18 weeks, pregnant women with a history of voluntary abortion and had telephone number with what's App. application and able to use it. However, the exclusion criteria were; woman with social

psychological crisis, end of pregnancy, diabetes, hypertension or serious diseases.

Calculation of Sample Size

It was using the following formula considering a level of significance as 5%, and power of study as 80%

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 \times 2 \times (SD)^2}{d^2} \quad (\text{Boryri et al., (2020)})$$

SD = standard deviation obtained from the previous study, $Z_{\alpha/2}$, for 5% as 1.96, Z_{β} , for 80% as 0.84 and d, for the expected difference as a 2.78. Therefore,

$$n = \frac{(1.96 + 0.84)^2 \times 2 \times (4.95)^2}{(2.78)^2} = 39.4$$

Therefore, the sample size required for this study was approximately 40 women in each group; that's a sample size of 80 pregnant women who had history of abortions. Participants were divided into two groups: intervention group and control group. Baseline values depend on the variables assigned to each participant. He then signed up for a recovery group on his own. A posttest was administered to each subject to determine the magnitude of changes caused by.

Data collection tools: Three tools were utilized in the current study.

Tool (I): A structured interview questionnaire. It was developed by the researchers after reviewing the related literatures (**De-Montigny et al., 2020**). It was divided into two parts: a. Socio-demographic characteristics of the participated pregnant women: such as age group, educational level, residential areas, occupational status, family type and telephone numbers; b. Obstetric histories: such as number of pregnancy, number of delivery, number of still birth, living children and gestational age, and number of antenatal visits, planned pregnancy and previous pregnancy problem.

Tool (II): Beck Anxiety Inventory (BAI): it is a self-report scale that was adopted by **Beck et al., (1988)** to measure the anxiety levels. It was consisted of 21 items, each describing a common symptoms of anxiety. The responses was measured on 4-point Likert scale ranging from (0) representing not at all to (3) representing severe anxiety. The scale's lowest score is 0 and the highest score is 63. Based on the total scores, the

levels of anxiety were graded into three categories: low anxiety level score from (0-21), moderate anxiety level scores from (22-35) and high anxiety level in ≥ 36 scores.

Tool (III): Zung Self-Rating Depression Scale: it was adopted by **Zung, (1965)** to describe a common symptoms of depression and its level. It was consisted of 20 items reflecting four features of depression: the pervasive effect, the physiological equivalents, other disturbances, and psychomotor activities. There are ten positively worded questions and ten negatively worded questions. Each question is rated from 1 to 4 (a little of scores from the time, some of the time, good part of the time, most of the time). The total scores ranged from 25-100 (scores from 25 to 49 was normal range), (scores from 50 to 59 was mild depression), (scores from 60 to 69 was moderate depression) and (scores from 70 to above was severe depression).

Supportive materials: Arabic booklet written in a simple Arabic language and recorded videos on what's App. groups for training.

Tools validity

The researchers created an Arabic version of the tools and gave it to three scholarly nursing professionals in maternal health and psychiatric health nursing specialty to evaluate the validity. The contents of the tools were checked for accuracy, relevance, and clarity. The experts' advices were followed in order to make the necessary requirements.

Tools reliability

Cronbach's α test was utilized to measure the scale reliability. Cronbach's α of the structured interview questionnaire was 0.896; this indicating a strong, positive correlation between the items in the instrument. The Beck Anxiety Inventory (BAI) has proven to be highly reliable, with a Cronbach's α of 0.92. The Cronbach α reliability index for Zung self-depression scale was also calculated as 0.832 (**Jury of experts, (2023); Beck et al., (1988) and Zung, (1965)**) respectively.

Ethical considerations

The Scientific Research Ethics Committee of the faculty of Nursing, Damanhur University, approved the ethical rules of the study (Research Code: 87-b). The director of the above-mentioned

department gave permission to conduct research. The purpose of the study was explained to pregnant women with a spontaneous abortion history, and they were told that they could withdraw from the study at any time for any reason and that this was completely voluntary. There were reported adverse health effects or no adverse effects in pregnant women who had voluntary abortions in this study. Women seeking voluntary abortions can be assured that this information will be used for scientific purposes only.

Pilot Study

Eight pregnant women who met the selection criteria were enrolled in the pilot study who represent 10% of the study sample. The cause from conducting this study to determine whether the research material is applicable, appropriate and accurate and to evaluate the feasibility of the research. It's also done to estimate the time needed to complete the tools. The study's results of pilot sample was indicating that no problems obstructing the collection of data were found, and the research instruments didn't require any changes. The main study sample did not contain any of the participants from the pilot study.

Procedure

Five months from September 2023 to February 2024 for Data collection of the study tools in the study settings as four days per a week from 9:00 am to 1:00 pm. The current study was conducted by five phases: preparation, interviewing & assessment, implementation, follow up and re-evaluation phases.

Preparation phase: Official approval of the managers of the study settings was obtained to carry out the study. In order to construct the educational program and the data collecting tools, a review of relevant literature has been done. Also, during this phase, preparation of teaching materials, i.e., Arabic booklet and videos were carried out (study group link: [https:// chat.whatsapp.com/ FGXWa4eroMG8negxnQ13xS](https://chat.whatsapp.com/FGXWa4eroMG8negxnQ13xS)) and control group link: <https:// chat.Whatsapp.Com/ EUm2 NIRFee640RGGBoJV26>).

Interviewing and assessment (Initial visit) phase: The researchers recruited the pregnant woman with spontaneous abortion history who fit the inclusion criteria and clarify the aim of the study and importance of study interventions for them. Moreover, the researcher welcomes them to

share in the present research intervention. Written agreement form was gained from participated pregnant woman with spontaneous abortion history. The sample were distributed into two groups (40 pregnant women in the control group and 40 pregnant women in the intervention group (who attend the tailored psycho-educational intervention group).

Then, the researchers were conducting the structured interview for all participated pregnant woman to collect the study required data of socio-demographic characteristics and the obstetrical histories using the study tool. The items were introduced and collected by Arabic languish and the answers were reported by the researchers. Moreover, the participated woman with spontaneous abortion history were assessed for the anxiety and depression levels to obtain the baseline evaluation for their anxiety and depression levels for two groups and the responses were documented also. All pregnant women in the two groups who were subjected to interviews and assessments underwent these processes.

The researchers told all participated women in the two groups who would include them in what's App. groups, and those were agreed upon. Each group, whether the intervention group or the control group, had what's App. link separate from the other. Regarding to intervention group, what's app. link was used for download videos, educated the exercise and answered any question. This interview and assessment took roughly 25 to 30 minutes for each one.

Implementation phase: regarding to the intervention group, they was taken to the regular hospital routine antenatal care as well as the study' tailored psycho-educational intervention but, the other control group was taken to the regular hospital routine of care only. The intervention group were divided (N=40) into eight subgroups in each session. The researcher asked every pregnant woman to attend three sessions within 3 weeks so that attendance at the session is once every two days, each session lasting approximately 50-60 minutes. To attain the aim of each session, a variety of teaching strategies were employed including brainstorming, discussion, demonstration, and re-demonstration. The Tailored psycho-educational intervention contents were made clearer with the

usage of instructional media included videos contain all content of the tailored psycho-educational intervention and educational booklet about spontaneous abortion and managing anxiety and depression. Following the completion of the tailored psycho-educational intervention sessions, woman received an Arabic booklet comprising summaries of the topics covered during the sessions.

Session 1: This session's aimed to inform pregnant woman in intervention group about definition, etiology, clinical classification and management of abortion.

Session 2: This session aimed to learn anxiety and depression-reduction strategies to pregnant woman about tailored psycho-educational intervention through Benson's relaxation technique and self-care management). The researchers highlight the advantages of tailored psycho-educational intervention sessions in lowering anxiety and depression. The researcher taught intervention group how to conduct self-care management regarding anxiety and depression through emotional support, problem solving, interpersonal, assertiveness skills. The researchers recognized the participated women with the methods of self-care management to overcome high levels of anxiety and give tips for managing the anxiety during pregnancy.

Session 3: This session aimed to teach the experienced spontaneous abortion of pregnant women with a techniques of managing their anxiety and depression. The advantages of Benson's relaxation response have been proven by the researchers, who also walk through how to done it. Benson's relaxation technique includes this instructions: sitting in a comfortable position; close your eyes; deep relaxation of all muscles; starting from the foot and working up to the face; breathing through the nose while becoming aware of one's own breathing; continuing this exercise for twenty minutes; then, sitting quietly for some minutes, initially with their eyes closed and then with them open. The researchers, demonstrate the steps of the technique, and ask the pregnant women to re-demonstrate it to make sure that she is using it correctly. Finally, researchers advised participated woman in the study group to do daily the tailored psycho-educational intervention (Benson's relaxation technique combined with self-care management).

Follow up phase: This session aimed to follow up of each pregnant woman participated in the intervention group to do the tailored psycho-educational intervention daily, and follow up the studied groups for continuation of pregnancy to reach the 18 weeks of gestational age. This was through telephone number (what's App. group).

Re-Evaluation phase: An evaluation of the two main outcomes of anxiety and depression levels. This was done for the control and intervention group for 10-15 minutes. The first assessment took place immediately after obtaining the baseline data for the control group. While for the intervention group it took place after one month from completion of the tailored psycho-educational intervention for assessment of anxiety and depression levels using the study tools. The second evaluation was performed after two month of completion of the psycho-educational intervention for both the intervention and control groups during the visit of antenatal follow-up.

Statistical analysis

The gathered data was collected, coded, tallied, and error-checked. Next, the Statistical Package for the Social Science program, version 26 of (SPSS), was utilized to statistically analyze the data. The continuous data were presented as mean \pm standard deviation (SD) and had a normal distribution. Frequency and percentage were used to express categorical data. Chi square test was used to study differences between levels of the two groups. Pearson correlation coefficient was used to study correlations between variables. Results were considered significant if p-value less than 0.05, and less than 0.001 were considered highly significant.

Results

The present study results are divided into three sections: Socio-demographics, the previous & current obstetrical histories and anxiety & depression levels.

1. Socio-demographic characteristics

The results shows that there were no statistically significant differences between the intervention and control group in the items of age group, educational level, occupational status, residential areas and family type at ($p > 0.05$), results of the current study demonstrated

homogeneity and matching between the pregnant women in the intervention and control groups. According to **Table (1)**, shows that (87.5%) and (85%) of the intervention and control group's age were (20–29) years with Mean± SD (24.9±4.1 & 25.4±4.1) respectively. In relation to educational level, (35%) of intervention group was with secondary educational level while (32.5 %) of control group was finished their primary / preparatory education. Concerning the pregnant women's occupational status, housewives represents the majority of women in the intervention and control group (77.5%). Regarding to residential areas, more than half of the intervention and control group were from rural areas. Regarding to, family type, (65.0%) of the intervention group and (72.5%) of the control group both were nuclear type.

2. The previous & current obstetrical histories

It was shows that the participated women in the intervention and control group were homogeneous with regard to the previous ant current obstetrical histories because there were no statistically significant differences between the intervention and control group in terms of number of pregnancies, deliveries, abortion, still births, type of previous abortion, living children, planned pregnancy, gestational age and antenatal visits ($p>0.05$).

Table (2 and 3) reports that, number of pregnancies among intervention group was three times for (40%) while was one time for (37.5%) of control group. Concerning number of deliveries among study group was one time for (35%) while was no time for (45%) of control group. In terms of number of abortion, (72.5%) of the study group experienced abortion one time, while the control group was (85%).The most (95%) of the both groups had not still births. Regarding type of previous abortion, 30% of intervention group had previous threatened abortion or incomplete pregnancy while, (27.5%) of the control group had previous inevitable abortion (**Table, 2**). In terms of planned pregnancy (75%) of intervention group and (82.5%) of control group had planned for pregnancy. Concerning gestational age, the results showed that (30.0%) of the intervention group was in 7 weeks and (25.0%) of the control group was in 9 weeks of pregnancy. In relation to antenatal visits, (65.0%) and (77.5%) of

intervention group and control group respectively were regular antenatal visits (**Table, 3**).

3. levels of anxiety & depression

Figure (1) illustrates that, levels of anxiety was (17.5%, 37.5% and 45%); (60%, 25% and 15%); 80%; (15% and 5%) respectively in the intervention group during pre, after one and two months of intervention as compared to it in the control group (25%, 27.5% and 47.5%); (30%, 35% and 35%); (37.5%, 40% and 22.5%) respectively in. Furthermore, there was a highly statistically significant difference between both groups in terms of level of anxiety during pre after one and two months of intervention (p -value 0.55, 0.02 and 0.001) respectively.

Figure (2) illustrates that, levels of depression was (12.5%, 15%, 35% and 37.5%); (30%; 37.5%; 25% and 7.5%); (45%,30%, 25% and 0%) respectively in the intervention group during pre, after one and two months of intervention as compared to (17.5%, 10%, 30% and 42.5%); (22.5%, 15%, 25% and 37.5%); (25%, 17.5% , 27.5% and 30%) respectively in the control group. Furthermore, there was a highly statistically significant difference between both groups in terms of level of anxiety during pre, after one month and two months of intervention (p -value 0.0.79, 0.006 and 0.001) respectively.

Table (4) shows that, there was highly statistical significant correlation between scores of anxiety and depression among intervention and control group (P -value <0.0001)

Table (5): Shows that there was no statistically significant difference between scores of anxiety and depression pre the Tailored Psycho-Educational Intervention (P -value= 0.12). While, it found that, there was highly statistical significant correlation between scores of anxiety and depression after one and two months of Tailored Psycho-Educational Intervention among intervention group (P -value = 0.0001).

Table (6) illustrates that, there was highly statistical significant correlation between scores of anxiety and age groups before, immediately and one month after Tailored Psycho-Educational Intervention implementation (P -value <0.002, 0.01 and 0.001) respectively. Also, the results showed that there is highly statistical significant correlation between scores of depression and gestational age by weeks of pregnant women and

age group (p-value <0. 02 and 0.002) respectively.

Table (1): Distribution of Socio-demographic Characteristics among the Intervention and Control group (N=80)

Socio-demographics	Intervention (n=40)		Control (n=40)		X2	p-value
	Freq.	%	Freq.	%		
Age						
20-29	35	87.5	34	85	10.5	0.78
30-39	5	12.5	6	15		
Mean ± SD	24.9±4.1		25.4±4.1			
Educational levels						
Illiterate	0	0	0	0	1.5	0.67
Read and Write	10	25	11	27.5		
Prim. /Prep.	9	22.5	13	32.5		
Secondary	14	35	10	25		
Faculty and more	7	17.5	6	15		
Occupational status						
Housewife	31	77.5	31	77.5	0.0	1.0
Working	9	22.5	9	22.5		
Residential areas						
Rural	23	57.5	22	55	0.05	0.82
Urban	17	42.5	18	45		
Family type						
Nuclear	26	65	29	72.5	0.52	0.46
Extended	14	35	11	27.5		

*Significant at p-value<0.05

**Highly Significant at $p \leq 0.01$

Table (2): Distribution of Previous Obstetric Histories among the Intervention and Control group (N=80).

Previous Obstetric Histories	Intervention (n=40)		Control (n=40)		X2	p-value
	Freq.	%	Freq.	%		
No. of Pregnancies						
1	10	25	15	37.5	5.15	0.16
2	8	20	13	32.5		
3	16	40	9	22.5		
4	6	15	3	7.5		
No. of Delivery						
0	11	27.5	18	45	3.7	0.29
1	14	35	13	32.5		
2	12	30	6	15		
3	3	7.5	3	7.5		
No. of Abortions						
1	29	72.5	34	85	1.86	0.17
2	11	27.5	6	15		
No. of Still Births						
0	38	95	38	95	0.0	1.0
1	2	5	2	5		
Type of the previous abortion						
Threatened abortion	12	30	8	20	0.67	0.41
Inevitable	5	12.5	11	27.5		
Incomplete	12	30	8	20		
Complete	3	7.5	6	15		
Missed	6	15	5	12.5		
Septic	2	5	2	5		

Living Children					8.7	0.03
None	14	35	19	47.5		
One	14	35	19	47.5		
Two	11	27.5	2	5		
Three or more	1	2.5	0	0		

Table (3): Distribution of The current Obstetric Histories among Intervention and Control group (N=80).

Obstetric Histories	Intervention (n=40)		Control (n=40)		X2	p-value	
	Freq.	%	Freq.	%			
Planned Pregnancy for Current Pregnancy						0.67	0.41
Yes	30	75	33	82.5			
No	10	25	7	17.5			
Gestational Age by Weeks for Current Pregnancy						2.1	0.71
6	5	12.5	6	15			
7	12	30	9	22.5			
8	4	10	8	20			
9	10	25	10	25			
10	9	22.5	7	17.5			
Antenatal Visits for Current Pregnancy						1.52	0.21
Regular	26	65	31	77.5			
Irregular	14	35	9	22.5			

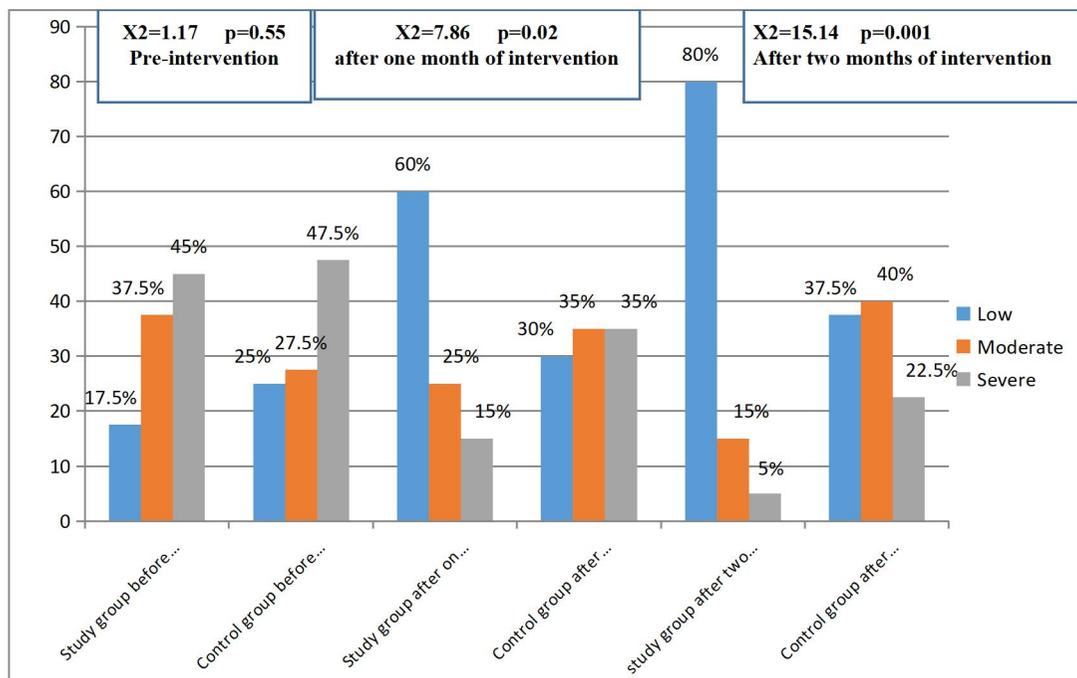


Figure (1): Differences between Levels of Anxiety among Intervention and control Group Pre, after

one month, and two months of Intervention

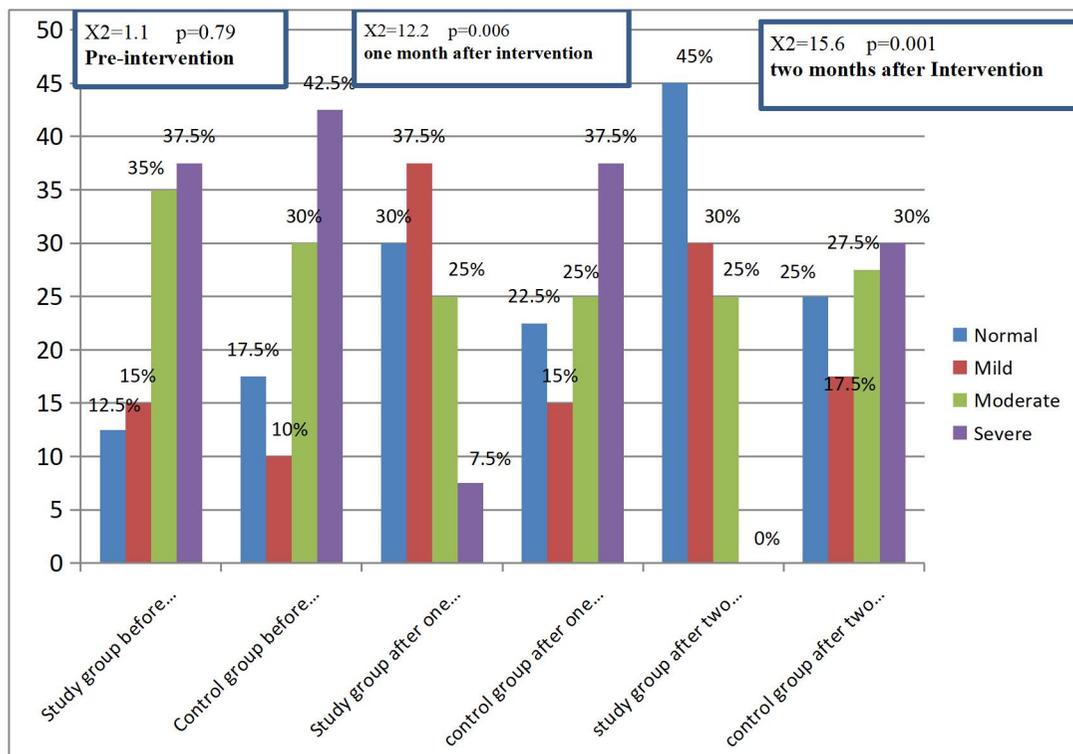


Figure (2): Differences between Levels of Depression among Intervention and Control Group Pre, after one month, and two months of Intervention.

Table (4): The Correlation between Scores of Anxiety and Depression among the Intervention and Control Group (No =80)

Scores	Anxiety scale			
	Intervention group		Control group	
	X2	P-value	X2	P-value
Depression scale	4.5	0.6	60.3	0.0001*

significant at p-value<0.05

Highly Significant at p≤ 0.01**

Table (5): The Correlation between Scores of Anxiety and Depression Pre, after one month, and two months of Tailored Psycho-Educational Intervention among the Studied Group (N=40)

Time	Correlation	
	r	P
Pre-Tailored Psycho-Educational Intervention	0.17	0.12
After one month of Tailored Psycho-Educational Intervention	0.45	0.0001*
After two months of Tailored Psycho-Educational Intervention	0.45	0.0001*

Significant at p-value<0.05

Highly Significant at p≤ 0.01**

Table (6): The Correlation between Scores of Anxiety and Depression and Socio-Demographic characteristics/ Obstetric Histories Pre, after one month, and two months of Tailored Psycho-Educational Intervention among the Intervention Group (N=40)

Time	Socio-Demographic/ Obstetric Histories	Scores of Anxiety		Scores of Depression	
		r	P	r	P
Pre-Tailored Psycho-Educational Intervention	Age	0.33	0.002*	0.07	0.51
	Educational levels	0.06	0.54	0.008	0.94
	No. of pregnancies	0.03	0.77	0.05	0.64
	No. of deliveries	-0.06	0.56	0.01	0.99
	No. of abortions	0.08	0.45	0.13	0.24
	No. of Still births	0.08	0.43	0.005	0.96
	Living children	0.07	0.53	0.009	0.94
	Gestational age by weeks	-0.16	0.15	0.18	0.1
After one month of Tailored Psycho-Educational Intervention	Age	0.28	0.01*	0.02	0.8
	Educational levels	0.1	0.36	0.03	0.79
	No. of pregnancies	0.05	0.62	0.06	0.6
	No. of deliveries	0.02	0.85	0.01	0.9
	No. of abortions	0.06	0.54	0.11	0.31
	No. of Still births	0.07	0.51	0.02	0.83
	Living children	0.07	0.51	0.008	0.9
	Gestational age by weeks	0.18	0.1	0.25	0.02*
Two months after Tailored Psycho-Educational Intervention	Age	0.37	0.001*	0.33	0.002*
	Educational levels	0.03	0.77	0.03	0.75
	No. of pregnancies	0.11	0.29	0.05	0.62
	No. of deliveries	0.13	0.22	0.01	0.93
	No. of abortions	0.05	0.61	0.13	0.24
	No. of Still births	0.01	0.88	0.008	0.94
	Living children	0.11	0.03	0.01	0.91
	Gestational age by weeks	0.09	0.38	0.004	0.97

Significant at p-value<0.05

*Highly Significant at p ≤ 0.01***

Discussion

The current study was aimed to evaluate the effect of tailored psycho-educational intervention on depression and anxiety among pregnant women with spontaneous abortion history. The results of the study will be discussed in relation to the two research hypotheses in the frame that follows; The first and second research hypothesis is supported by the results of the current study: Pregnant women with spontaneous abortion history who was taken tailored Psycho-educational intervention exhibits a lower levels of depression and anxiety than those who did not taken it.

As mentioned by **Farren et al., (2018)** and **Wang et al., (2021)** that the most prevalent mental health issues among women who experienced spontaneous relationships are anxiety and depression as well as; pregnant women who experience spontaneous abortions are known to suffer grave and long-lasting

consequences (**Li et al., 2022**). Moreover, pregnancy loss has been linked to lowered quality of life, strained relationships with family members, and low self-efficacy (**Tavoli et al., 2018**).

Therefore, in relation to level of anxiety, the current study showed that, there was no statistically significant difference between the intervention and control group concerning level of anxiety at the primary assessment while immediately and after one month and two months of follow-up to tailored Psycho-educational intervention, there was highly statistically a significant decline in anxiety levels among both groups (p<0.001).

This result highlights the necessity of tailored Psycho-educational intervention for pregnant women with spontaneous abortion history in order to decrease anxiety and depression levels. These may be caused by the fact that a tailored psycho-educational intervention offers numerous advantages,

including decreased activity of cortisol hormones, help in the reduction of unpleasant responses leading to a decrease in somatic and subjective experiences of anxiety and depression. Additionally, educating pregnant women about spontaneous abortion raises awareness, which in turn lessens symptoms of anxiety and depression. Therefore, it would be essential to provide pregnant women with a tailored psycho-educational intervention during antenatal care that includes mental health components in order to lessen the effects of anxiety and depression.

The study results congruent with the results of **Pouryous et al., (2022)** who mentioned that holding pregnancy-training classes using group discussion technique is a good strategy to reduce anxiety among pregnant women. As well as the comparison of the mean scores of different dimensions of post-intervention pregnancy anxiety between the control and intervention groups indicated a decrease in the level of anxiety of pregnant mothers in both groups. This result also is agreed with the result of **Barat et al., (2020)** who suggested that there was statistically significant difference between the brief supportive psychological therapy group and control groups and recommended that brief supportive psychological therapy is an effective and applicable care for reducing anxiety, depression symptoms, and perinatal grief.

In the same line **Ibrahim et al., (2019)** who suggested that, there was statistically significant difference between the intervention groups participated in Benson's relaxation technique and control groups. Moreover, his study recommended that the application of Benson's relaxation method to decrease the depression and anxiety level in patient during emergency care. These results were point to success of the tailed psycho-educational intervention on lowering the anxiety and depression levels in the antenatal period for pregnant women who had spontaneous abortion history.

Conclusion

The study concluded that the pregnant women with spontaneous abortion history who were participated in the tailored psycho-educational intervention exhibit less anxiety

and depression levels than those who do not receive it in the control group, which is verified by validity of the study hypothesis.

Recommendation: based on the results of the study, the following suggestions are made:

- A tailored psycho-educational intervention could be used as an intervention by nurses to decrease anxiety and depression levels during antenatal care for pregnant women with spontaneous abortion history.
- Provide pregnant women with spontaneous abortion history with adequate evidence based knowledge about strategies that decrease anxiety and depression levels
- Suggest including a tailored psycho-educational intervention among women with spontaneous abortion history in the nursing curriculum.
- Future research could be replicated the present study by using a large sample from different regions of the country.

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