Original Article

The Effect of Resiliency Training on Mental Health and Resilience of Pregnant Women with Unwanted Pregnancy: A Randomized Clinical Trial

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Abstract

Background: Unwanted pregnancy has many negative consequences in terms of women's physical and mental health. Resilience is a process of utilizing important resources to maintain mental health in the face of stress. In addition, resilience can be promoted through. This study was performed to evaluate the effect of resiliency training on the mental health and resilience of pregnant women with an unwanted pregnancy. **Materials and Methods:** This randomized clinical trial was conducted on 66 women in Sabzevar, Iran, in 2020 with unwanted pregnancies, mild or moderate mental health problems, and low resilience. The participants were randomly divided into two groups through a simple lottery. In the intervention group, resilience training was performed once a week in groups of 10-15 people in six training sessions, each lasting 60 to 90 minutes. Mental health and tolerability were measured using the 28-item General Health Questionnaire and the Connor-Davidson Resilience scale before the intervention, and immediately after and 1 month after the intervention. **Results:** The mean (SD) of mental health immediately 35.46 (5.59) and 1 month after the intervention 33.73 (3.85) in the intervention group ($F = 91.23$; $p < 0.001$) was reduced significantly compared to the control group ($F = 94.02$; $p < 0.001$). The results of the mean (SD) showed that the resilience training intervention significantly increased the resilience score in the intervention group 84.36 (8.49)(compared to the control group (49.13) 6.67)($p < 0.001$). **Conclusions:** Resilience training was effective in promoting the mental health and resilience of pregnant women with unwanted pregnancies.

Keywords: *Mental health, pregnancy, psychological resilience, unwanted*

Introduction

Unwanted pregnancies are pregnancies that, from the point of view of a woman, her husband, or both, are unintended and occur without the will of the couple or without prior planning.[1] The results of a previous study indicated that 26% of pregnancies in Iran were unwanted or unplanned.[2] Unintended pregnancy is a global problem that affects women, children, families, and ultimately society, and in some cases, leads to miscarriage, premature birth, and sometimes even complications that cause the death of the mother.[3] Moreover, the lack of regular visits of women with unintended pregnancies to health centers results in the lack of timely identification and follow-up of potential risks such as hypertension and gestational diabetes, which is a serious threat to maternal and fetal health.[4]

Mental health and its subscales have a significant relationship with unwanted pregnancies, so women who had unwanted pregnancies had physical complaints, anxiety, social dysfunction, depression, and overall lower mental health.[5] In fact, an unwanted pregnancy is an unforeseen event that imposes responsibilities beyond the mother's power; thus, violence and rejection can be one of the consequences of having an unwanted child.[6] Nazari *et al*. reported a significant relationship between unwanted pregnancy and mental health and its subscales.[5] Mental health helps people to adapt to their environment by creating the right mental and emotional methods and choosing better ways to solve their problems.[7]

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One of the factors that can be considered in mental health and depression is positive psychological concepts such as resilience.[8] Resilience is defined as the ability to resist stress and return to normal balance after experiencing stressors.[9] The more resilient people are, the less stress, anxiety, and depression they will experience.[10] Resilience is an efficient process of utilizing important resources to maintain physical and emotional health in the face of stress. Promoting resilience is very important in stress management and reduces depression.[11] Connor and Davidson describe resilience as an individual's ability to maintain psychological and biological balance in adverse conditions. Therefore, it can be promoted through education and help people to face life events in a positive and efficient way.[12] A resilience approach is also suitable for the development of interventions due to its focus on increasing environmental and social support in the mother's environment.[11] One of the sources of resilience is the existence of communication networks and external support.[13] The study of reproductive behavior in unwanted pregnancies can be a guide for effective interventions in reducing stress, depression, and maternal and child mortality.[14] Resilience training has been significantly effective on psychological well-being and its components in infertile women.[12] A descriptive-analytical study has shown the protective role of resilience in improving women's health when pregnant women are exposed to the negative effects of stress.[15] Due to the high prevalence and importance of unwanted pregnancies and their effects on the mental health of pregnant women, the need for psychological support for women by midwives, and considering that based on the review conducted in the present study, no study has been performed on the resilience of pregnant women with unwanted pregnancies, we performed the present study. The present study was designed to determine the effect of resiliency training on mental health and resilience of pregnant women with an unwanted pregnancy.

Materials and Methods

The present study was a two-group, clinical trial (IRCT code IRCT20200630047968N1) and a part of a master's thesis in midwifery. This study was performed from May to mid-September 2020, and sampling continued using convenience method. The research environment in the present study was the comprehensive health centers of Sabzevar, Iran; two centers were assigned to the intervention group and two centers to the control group. The simple random allocation was through lottery method. The names of the four health centers were written on a small piece of paper and placed in a container. After the draw, the first and second sheets were assigned to the intervention group and the next two sheets to the control group. Sample size was determined based on the study by Behzadpour *et al*. (2015) and using the formula of comparing means with 90% test power and the confidence of 99%.[12] The sample size was determined to be 30 people in each group, and then, increased to 33 people taking into account the possible 10% loss of samples. The inclusion criteria included willingness to participate in the study, unwanted pregnancy or unplanned pregnancy, gestational age of 12-20 weeks (according to the first trimester ultrasound), Iranian nationality and residing in Sabzevar, a minimum education of fifth elementary level, being married, being 18-35 years of age, single pregnancy, no medical or midwifery problems (Underlying diseases including diabetes, cardiovascular disease, hypertension, epilepsy, migraine, history of head trauma, thyroid disease, connective tissue disease, asthma, respiratory disorders, kidney disease, anemia, and stroke), no medical contraindications to maintain pregnancy, no use of drugs and psychotropic substances, no history of major mental illness, no accidents and severe stress during the previous 6 months, failure to diagnose fetal abnormalities in fetal screening tests, mild or moderate mental health problem based on mental questionnaire (mental health score of 23 to 60), and low resilience score (score of less than 50 based on the resilience scale). People with severe mental health problems (scoring 61 or higher on the mental health questionnaire) were referred to a psychologist. The study exclusion criteria included unwillingness to continue cooperation, spontaneous or intentional miscarriage during the study, absence from more than one training session, medical and midwifery problems or hospitalization, and the occurrence of a tragic or severe stressful event during the study.

The data collection tools used included an obstetric and demographic characteristics form, the 28-item General Health Questionnaire (GHQ-28; Goldberg, 1972), and the Connor-Davidson Resilience Scale (CD-RISC). The demographic and obstetric information form contains 23 questions which measure demographic and obstetric variables, and was prepared according to the objectives of the research and the latest related sources and articles. The demographic and obstetric information form was prepared under the supervision of the supervisor and co-supervisors and was provided to seven professors of Mashhad University of Medical Sciences, Iran, for content validity assessment. After considering the necessary suggestions and corrections, the final tool was used.

The GHQ-28 was validated by Goldberg.[16] The GHQ is a 28-item measure of emotional distress in medical settings. The GHQ-28 has been divided into the four subscales of somatic symptoms (items 1 to 7), anxiety and insomnia (items 8 to 14), social dysfunction (items 15 to 21), and severe depression (items 22 to 28). The GHQ-28 asks participants to indicate how their general health has been over the past few weeks using behavioral items scored on a 4-point Likert scale ranging from 0 to 3 (not at all, no more than usual, rather more than usual, and much more than usual). The minimum and maximum total scores of this scale are 0 and 84, respectively. In the

study of Robinson and Price (1986), which was performed on 103 patients who had previously had a heart attack, the reliability coefficient of this instrument was 0.90.[17] The reliability of the GHQ-28 was confirmed by internal consistency with Cronbach's alpha coefficient (r = 0.87).

CD-RISC is a 25-item instrument that measures resilience constructs. The items are scored on a 5-point Likert scale ranging from 0 to 4 (Completely false, rarely true, sometimes true, often true, and always true). The total score on the scale ranges between 0 and 100.[18] This test has five factors: perception of individual competence, trust in individual instincts, tolerance of negative emotions, positive acceptance of change and safe relationships, and control and spiritual effects. Connor and Davidson (2003) reported the test-retest reliability of this questionnaire to be 24 for Generalized Anxiety Disorder (GAD) patients and 0.87 for Post-Traumatic Stress Disorder (PTSD) patients.[19] The reliability of the resilience scale was confirmed by internal consistency with Cronbach's alpha coefficient (r = 0.96.

The educational content was prepared by the researcher under the supervision of the supervisors by studying the latest books, articles, and instructions published, and after reviewing the necessary suggestions and corrections, the final content of the training was used. In the intervention group, resilience training, consisting of six training sessions of 60-90 minutes in groups of 10-15 people, was held once a week through lectures, questions and answers, and group discussions.[12] The training was conducted by a trained midwife researcher with 15 years of experience in health care centers, licensed by the Executive Committee for Education and Empowerment of the University, which was trained under the supervision of the supervisor and co-supervisor, who was a specialist counselor in psychology. All sessions, except the first session, were held with the presence of the psychologist who was a teacher in the empowerment and promotion of social resilience courses for women and had passed the resilience coach training course. The last 15 minutes of each session were devoted to reviewing the content of the sessions and answering the women's questions related to the research topic. Moreover, for distance learning, educational materials in the form of booklets and pamphlets were provided to the intervention group. Before the intervention, and immediately and 1 month after the end of the educational intervention, the GHQ-28 and CD-RISC were completed.

The control group received routine pregnancy care from the comprehensive health service centers including routine training during pregnancy. After collecting the data, the educational materials presented to the intervention group were also given to the control group in the form of an educational booklet. Finally, the collected data were analyzed in SPSS software (version 16, SPSS Inc., Chicago, IL, USA) using Mann–Whitney test, independent *t*-test, analysis of covariance (ANCOVA), and analysis of variance (ANOVA) with repeated measures. A *p*- value of less than 0.05 was considered significant.

Ethical considerations

The present study was approved by the Ethics Committee of Mashhad University of Medical Sciences with the ethics code IR.MUMS.NURSE.REC.1399.100 in 2020.06.02. At the beginning of the study, the patients were given explanations about the purpose and method of the research. They were also informed about their right to either participate in or withdraw from the study at any time. They were asked to sign a written consent form at the onset of the study and were assured of the confidentiality of their personal information. After collecting the information, the control group was given an educational booklet including the contents of the training sessions and general information related to resilience and mental health.

Results

In this study, 60 pregnant women with unwanted pregnancies completed the study; three people in the intervention group were lost at follow-up (1 due to abortion, and two due to not attending more than one training session), and three people in the control group (1 due to abortion, one due to relocation, and one due to unwillingness to continue) [Figure 1].

The mean age of the participants in the intervention and control group was 26.76 (±5.60) and 26.56 (5.55) years, and the groups were homogeneous ($p = 0.864$). A majority of the participants in the study had diplomas and were housewives and occupants. The research units were homogeneous in the variables of spouse's age, education, place of residence, and occupation at the beginning of the study ($p > 0.05$). Due to the heterogeneity of income in the two groups, ANOVA with repeated measures was performed by adjusting the income variable, which had no effect on the *p*- value ($p = 0.029$) [Table 1].

The mean score of the GHQ-28 before the intervention in the control group was 51.40 (5.28), and in the intervention group was 52.20 (3.94), which was not statistically significant ($p = 0.509$; t = 0.66). The mean score of mental health immediately and 1 month after the intervention in the intervention group was reduced (improved) significantly compared to the control group (immediately after: F =91.23, $p < 0.001$; 1 month after: F =94.02, $p < 0.001$). However, there was no statistically significant difference in the control group [Table 2].

The mean score of resilience before the intervention was 45.33 (6.07) in the control group and 41.78 (6.26) in the intervention group, which was not statistically significant (z = 1.99; $p = 0.051$). Resilience score was significantly increased immediately and 1 month after the intervention in the intervention group compared to the control group (immediately after: t = 155.78, $p < 0.001$; 1 month after: t = 18.67, $p < 0.001$) [Table 3].

Table 1: Comparison of Demographic and obstetric information of women in the intervention and control groups

Variables	Intervention (30) Mean (SD)	Control (30) Mean (SD)	Results of Statistical tests
Age (years)	26.76 (5.60)	26.56 (5.55)	0.86*
Spouse age (years)	32.33 (4.67	31.46 (4.67)	0.57*
Variables	**Number (percent)**		**Results of Statistical tests**
Number of pregnancies			
1-2 times	11 (36)	17 (56)	
3-4 times	17 (56)	13 (43)	0.33**
5 and more times	2 (6)	0 (0)	
Number of deliveries			
0	2 (7)	6 (37)	0.50**
1	11 (40)	12 (30)	
2	11 (33)	9 (23)	
3-4	6 (20)	3 (10)	
Number of children			
0	2 (7)	9 (30)	
1	12 (40)	11 (37)	0.11**
2	10 (33)	7 (23)	
3	6 (20)	3 (10)	
Education			
Middle school	12 (40)	14 (46.70)	
Diploma	17 (56.70)	16 (53.40)	0.86**
College education	1 (3.30)	0 (0)	
Spouse's education			
Middle school	12 (40)	14 (47)	
Diploma	17 (47)	13 (43)	0.93**
College education	4 (13)	3 (10)	
Residence			
Homeowner	11 (37)	11) 37)	
Tenant	19 (63)	18 (60)	0.10**
Other	0 (0)	1 (3)	
Job			
Housewife	19 (63)	26 (87)	
Student	7 (23)	2 (7)	0.11**
Employed	4 (13)	2 (6)	
Spouse's job			
Manual worker	11 (37)	11 (37)	
Employee	3 (10)	2 (7)	>0.10**
Self-employment	16 (53)	17 (57)	
Income			
Less than enough	14 (47)	6 (20)	0.03**
Enough	15 (50)	24 (80)	
More than enough	1 (3)	0 (0)	

*Mann-Whitney *U* test, **Fisher's exact test

Discussion

The present study was designed to determine the effect of resiliency training on mental health and resilience of pregnant women with an unwanted pregnancy. The mental health score after the educational intervention in the intervention group was significantly improved but did not change in the control group.. The results showed that the intervention of resilience training significantly increased the resilience score in the intervention group compared to the control group. Immediately and 1 month after the intervention, the scores of the mental health subscales, including physical symptoms and signs, anxiety and insomnia, social functioning disorder, and severe depression, differed significantly between the groups and were lower in the intervention group.

Millston states that resilient people, like other people, experience many difficulties in their lives, but they can overcome difficulties faster and better because they have adapted in a different way, and in this process, they have learned new skills and gained more self-confidence.[20] Although resilience is partly a function of personal characteristics, it

Table 2: Comparison of mean mental health score before and after the intervention in the intervention and control groups

Mental health	Mean (SD)		Intergroup test result
	Intervention group	Control group	
Before the intervention	52.20 (3.94)	51.4 (5.28)	p=0509*, t=0.66
Immediately after the intervention	35.46 (5.59)	52.66 (8.04)	p<0.001**, F=91.23
One month after the intervention	33.73 (3.85)	51.76 (8.60)	p<0.001**, F=94.10
Differences immediately after the intervention compared to the start of the study	-16.74(1.65)	1.26 (2.76)	
Differences one month after the intervention compared to the start of the study	-1.47 (0.09)	-0.90 (3.32)	
Intragroup test immediately after the intervention compared to the beginning of the study	p<0.001	p<0.43	
Intragroup test result one month after the intervention compared to the beginning of the study	p<0.001	p<0.82	
Time effect		p<0.001**	
Effect of intervention		p<0.001**	
Interaction of time and intervention		p<0.001***	

*Independent *t*-test, **Analysis of covariance, ***Analysis of variance with repeated measures

Table 3: Comparison of mean resilience score before and after the intervention in the intervention and control groups

Resilience score	Mean (SD)		Intergroup test result
	Intervention group	Control group	
Before the intervention	41.78 (6.26)	45.33 (6.07)	p=0.051*, Z=1.99
Immediately after the intervention	80.50 (8.90)	49.66 (7.37)	p<0.001**, t=155.78
One month after the intervention	84.36 (8.49)	49.13 (6.67)	p<0.001**, t=177.67
Differences immediately after the intervention compared to the start of the study	38.72 (2.64)	4.33 (1.66)	
Differences one month after compared to the start of the study	42.53 (2.23)	3.80 (0.60)	
Intragroup test result (immediate after compared to the start of the study)	p<0.001	p<0.002	
Intragroup test result (one month after compared with the start of the study)	p<0.001	p<0.004	
Intragroup time effect		p<0.001***	
Effect of intergroup intervention		p<0.001***	
Time interaction and intergroup intervention		p<0.001***	

*Mann-Whitney test, **Analysis of covariance, ***Analysis of variance with repeated measures

is also a function of individuals' environmental experiences. Therefore, human beings are not absolute victims of the environment and heredity, and individuals' reactions to stress, unpleasant events, and difficulties can be altered so that they can overcome problems and their negative environmental impact.[21] Moreover, resilience can be promoted through education and help people deal with unpleasant events and realities of life in a positive and efficient way.[22]

Resilience training was shown to increase the ability to cope with the demands and problems of daily life in women with unwanted pregnancies. Morbid anxiety is associated with worry, anxiety, disturbing thoughts, physical symptoms, feelings of stress, and impaired performance.[23] Depression is a very debilitating condition. Depressed people show apparent disturbances in social adjustment, both short-term and long-term. Depression affects the Quality of Life (QoL) of individuals and impairs their performance.[24] The results of the present study show the effectiveness of resilience training in reducing the level of anxiety and depression in women with unwanted pregnancies.

Behzadpour *et al*. concluded that resilience training significantly affected psychological well-being in infertile women.[12] Their results showed that resilience training had a significant effect on psychological well-being and its components including self-acceptance, positive relationships, and personal growth in infertile women. Their findings are consistent with that of the present study. The reason could be that in their study, resilience training was performed to improve mental health, and in the present study, mental health was improved by increasing resilience.

Consistent with the present study, some studies have indicated the effect of resilience training on variables that are among the components of mental health. For example, the research by Steinhardt *et al*. confirmed the effectiveness of resilience training on self-confidence, positive emotions, and self-leadership.[25] The findings of this study also indicate the effect of resilience training on improving positive relationships with others and autonomy, which is in line with the results of the studies by Behzadpour

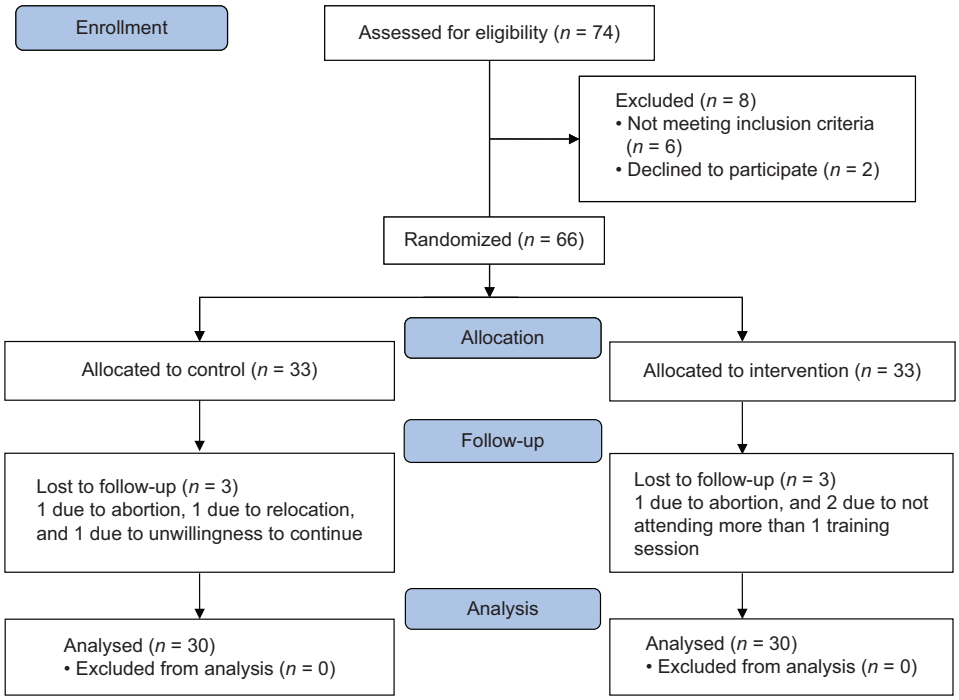

Figure 1: Study flow diagram

et al.,[12] Golshani *et al*.,[26] Lee *et al*.,[27] Kim *et al*.,[28] and Shojaee *et al*.[29] In the resilience program, people learn the right ways to communicate, they become aware of the importance and role of social support during resilience training, and as a result, they interact better with others. Thus, resilience training promotes the component of positive relationships with others in individuals.

A study by Lee *et al*. showed that resilience education intervention is effective in promoting the psychosocial well-being of children of parents with HIV/AIDS in rural China.[27] The results of the study by Kim *et al*. showed that resilience training had a positive effect on interpersonal relationships and improved mental health.[28] Positive behavioral introspection increases resilience and self-confidence, and thus, mental health.[30] A study by Williams *et al*. showed that resilience training can prevent anxiety.[31]

Therefore, resilience is a protective factor that acts like a kind of vaccination. People with high resilience use effective coping strategies in dealing with life issues and see problems as opportunities for learning and growth.[32] However, during pregnancy counseling and training, less attention has been paid to the mental health of pregnant women with unwanted pregnancies. Therefore, considering the resilience capabilities and its impact on mental health, it seems that it is possible to help promote the mental health of pregnant women with unwanted pregnancies by educating them and increasing their resilience.

One of the limitations of the present study was the lack of long-term follow-up to determine the stability of the level of psychological health of women with unwanted pregnancies. Therefore, it is suggested that future studies be conducted among different populations with longer follow-up periods.

Conclusion

The results of the present study showed that resilience training is effective in promoting the mental health of pregnant women with unwanted pregnancies. Therefore, it is recommended that the educational intervention of the present study be widely used in clinics to increase the mental health of pregnant women with unwanted pregnancies.

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Conflicts of interest

Nothing to declare.

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