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# The effect of a coping program on mothers' grief following perinatal deaths

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## Abstract:

**BACKGROUND:** Mother–child attachment is formed from early stages of pregnancy and peaks in the second trimester and continues until after childbirth. The fetal or neonatal death as a tragic event could lead to the grief experience among parents, especially mothers. The present study aimed to determine the effect of a coping program on mothers' grief following perinatal deaths.

**MATERIALS AND METHODS:** This trial study was performed on 56 women with the experience of perinatal death during the last 1–3 months with a score of Perinatal Grief Scale (PGS)  $\geq 91$ , who were referred to the health centers of Tabriz, Iran, from September 2020 to June 2021. Participants were randomly assigned into the intervention and control groups through stratified blocking on the basis of the stillbirth and neonatal death using Random Allocation Software with a block size of 4 and 6 with a ratio of 1:1. The intervention group received a coping program individually during three sessions, once a week for 45–60 min. Data collection tools included the demographic and obstetric characteristic questionnaire and PGS. The data were analyzed using SPSS<sup>24</sup>. The groups were compared through *t*-test, and ANCOVA after adjusting the effect of baseline score.

**RESULTS:** Prior to coping program, the mean standard deviation of the grief total score was 108.32 (14.31) in the intervention group and 107.92 (6.65) in the control group ( $P = 0.89$ ). After coping program, the mean of the grief total score was 82.28 (16.72) in the intervention group and 101.05 (12.78) in the control group. After adjusting the effect of baseline score and stratified factors, the mean of the grief total score in the intervention group was significantly lower than that in the control group [Adjusted mean difference (AMD):  $-18.77$ , 95% confidence interval:  $-26.79$  to  $-10.75$ ,  $P \leq 0.001$ ].

**CONCLUSION:** Conducting a coping program during 1–3 months after experiencing perinatal deaths is effective in reducing the mothers' grief reactions. It is recommended to evaluate the effectiveness of the same intervention after perinatal deaths for both parents with a longer follow-up period in further studies.

## Keywords:

Bereavement, grief, perinatal death, stillbirth

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## Introduction

Pregnancy and motherhood are considered as one of the enjoyable and evolutionary events in women's life and one of the important gender roles.<sup>[1]</sup> However, pregnancy does not always lead to the birth of a healthy baby as expected and

perinatal death is regarded as one of its negative consequences.<sup>[2]</sup> Given the months of planning and waiting for the birth of a baby, the loss of a fetus or baby is considered a tragic event for parents.<sup>[3]</sup> For decades, researchers believed that since there is no attachment between mother and fetus during pregnancy, there should be no grief associated with loss. It was later found that mother–child attachment develops from

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the beginning of pregnancy and gradually increases, as it reaches its peak in the second trimester, and continues until after delivery.<sup>[4,5]</sup> Perinatal attachment increases with perinatal diagnostic and imaging techniques, and can become a destructive emotional experience if pregnancy fails.<sup>[6,7]</sup>

Grief is a natural reaction to the process of loss and includes symptoms, such as anger, worry, loneliness and sadness, sensitivity to noise, dry mouth, muscle weakness, sleep disorders, and cry.<sup>[8]</sup> The stages of grief include disbelief, denial, physical, emotional, and psychological symptoms, such as depression, hopelessness, feeling worthless, and guilty, and anger, acceptance of loss, reconstruction, and return to normal life.<sup>[9]</sup> The psychological and physical symptoms may appear immediately after the loss or it may be delayed, exaggerated, or seemingly absent.<sup>[10]</sup> In general, families react to the loss based on their culture and religion.<sup>[11]</sup> Most people adjust to the loss within 6 months although about 15%–25% of women experience the chronic and complicated grief.<sup>[12,13]</sup>

Following perinatal loss, there is no funeral or other rituals of mourning. For this reason, perinatal death is often called the silent loss. The results of early studies indicated that the quality of life decreases among mothers with the experience of fetal or neonatal death and the rate of conflict increases between couples.<sup>[1,14]</sup> However, the routine screening and intervention measures are not taken to prevent and reduce the psychological complications following perinatal death.<sup>[15]</sup> Malkinson suggested coping programs and bereavement counseling to prevent the progression of symptoms toward chronic and complicated grief.<sup>[16]</sup>

Given the need of bereaved mothers for coping programs to help them recover from grief and due to a limited number of interventional studies on perinatal grief in Iran, based on cognitive behavioral therapy, brief supportive psychotherapy, and Warden's counseling principles,<sup>[17-19]</sup> the present study was designed to determine the effect of a coping program on mothers' grief following perinatal deaths.

## Materials and Methods

### Study design and participants

This trial study was performed on 56 mothers with the experience of perinatal deaths, referred to health centers in Tabriz, Iran, from September 2020 to June 2021. Perinatal death refers to the stillbirth and neonatal deaths. Stillbirth is defined as fetal death in the womb after the 22 weeks of pregnancy and onward, weighing more than 500 g. Neonatal deaths included

deaths <28 days after birth.<sup>[20]</sup> The inclusion criteria were a minimum of 1 month and a maximum of 3 months elapsed from stillbirth or neonatal death and a score  $\geq 91$  in the Perinatal Grief Scale (PGS),<sup>[21]</sup> and the exclusion criteria included the cases of fetal abnormalities and unplanned pregnancy.

### Sample size

The sample size was calculated based on the below formula, and also using G-Power software.

$$n = \frac{\left( Z_{1-\frac{\alpha}{2}} + Z_{1-\beta} \right)^2 (S_1^2 + S_2^2)}{d^2}$$

According to the study of Golmakani *et al.*,<sup>[22]</sup> based on the grief variable, and considering  $m_1 = 41.8$ ,  $m_2 = 33.44$  with the assumption of 20% decrease due to the intervention, standard deviation  $(SD)_1 = SD_2 = 9.3$ , two-sided  $\alpha = 0.05$ , and power = 90%, a sample size of 28 was determined per group.

### Sampling

After obtaining the permission from the Ethics Committee of Tabriz University of Medical Sciences (IR.TBZMED.REC. 1399.598), sampling was done on 56 women with the experience of perinatal death, who were referred to the health centers of Tabriz. The researcher attended the health centers and identified the mothers with stillbirth (after 22 weeks of gestational age) or neonatal death (under 28 days after birth) during the last 1–3 months from the health records. Then, she called, and evaluated them in terms of the inclusion and exclusion criteria. After filling the PGS, eligible women who scored 91 or more in the PGS were invited to participate in the study. In the face-to-face session, the study objectives and methods were explained for participants and the written informed consent form was obtained.

The participants, after completing the demographic and obstetric questionnaire and the PGS, were assigned to the intervention ( $n = 28$ ) and control ( $n = 28$ ) groups through stratified blocking on the basis of the stillbirth and neonatal death with a ratio of 1:1 by blocked randomization using Random Allocation Software with a block size of 4 and 6. The type of intervention was written on paper and placed in opaque envelopes numbered in consecutive order for the allocation concealment. A noninvolved person in the sampling opened the envelopes sequentially.

### Data collection tools

The demographic and obstetric questionnaire and PGS were used to collect data in the present study. The demographic and obstetric questionnaire included the variables of age, education, occupational status,

income, number of alive children, history of abortion and infertility, and how to get pregnant.

The PGS with 33 items in 3 subscales of active grief (11 items), difficulty coping (11 items), and despair (11 items) was used to measure grief in perinatal loss. The items are answered using 5-point Likert scale and the scores 1, 2, 3, 4, and 5 are considered for options of strongly disagree, disagree, neither disagree nor agree, agree, and strongly agree, respectively, and items 11 and 32 are scored reversely. A score higher than 91 indicates severe grief.<sup>[21]</sup> High internal consistency was reported for the scale with an alpha coefficient of 0.92.<sup>[23]</sup> The Iranian version of the scale showed an alpha coefficient of 0.95.<sup>[24]</sup> In order to assess the reliability of the scale, internal consistency and intraclass correlation coefficients (ICCs) were calculated. The ICC was assessed by distributing the tool to 15 participants twice with a 10-day interval. Cronbach's alpha was 0.86. The ICC of 0.84 indicated an overall high stability of the scale.

### Intervention

For the intervention group, a coping program was provided individually in three face-to-face sessions once a week for 45–60 min in the nearest health center to the participant's home. A number of telephone and WhatsApp video sessions were held for six women who declined to attend face-to-face sessions, due to the interference of sampling with COVID-19 crisis. The general goals of coping programs for bereaved people consist of improving one's performance, helping to achieve the meaning of life, and developing human interaction with others. The principles and methods of coping programs for bereaved people include helping to find meaning in the loss, adapting to the loss, and identifying pathology grief and referral if necessary.<sup>[25,26]</sup> All coping sessions (two-sided communications) were conducted in a secluded room in health centers by the first author in the presence of the fourth author. Table 1 shows the contents of each session according to Wilson's supporting and coping program following loss and grief.<sup>[26]</sup>

In the present study, the control group received only routine postpartum care. The researcher provided her contact number to both intervention and control groups to answer the questions. Further, the necessary coordination was made using telephone call for both groups to attend the health centers to complete the PGS, 2 months after the intervention.

### Data analysis

The collected data were analyzed using SPSS (version 24, SPSS, IBM, Armonk, NY, 2016). and Shapiro–Wilk test was employed to evaluate the normality of data distribution. Shapiro–Wilk test of normality is more

**Table 1: Summary of coping sessions for the intervention group (n=28)**

Session	Summary
Session 1	Introducing and discussing on the prevalence, causes, and related factors of the stillbirth and neonatal death in simple and understandable language, asking questions about mothers' concerns and ambiguities and resolving them, helping mothers to accept loss through talking about the conditions and events surrounding perinatal death and how it happens, and assessing the experiences of loss, such as anger, feeling guilty, anxiety, helplessness, and sadness
Session 2	Helping to cope effectively with loss by training coping skills, helping to find meaning in the loss, like "I should learn something from this matter," such as engaging in humanitarian or caring activities, training appropriate emotion management skills and avoiding emotional avoidance coping styles, such as blame, denial, social isolation, drug abuse, and encouraging mother to write and vent thoughts and feelings, and thinking about being pregnant in the future and planning for fun events
Session 3	Evaluating coping styles, and behavioral responses, redefining the current situation, being able to seek social support, reviewing taught skills, and ultimately, identifying individuals with pathological grief, and referring them to a psychiatrist

sensitive in small samples. The independent *t*-test was used to compare grief scores and its subscales between the two groups before the intervention and ANCOVA was applied for adjusting the effect of baseline score and parity (nulliparity or multiparity), after the intervention. All analyses were done according to the intention to treat. There was a significant difference at the level of  $P < 0.05$ .

### Results

From 101 participants, 42 were not eligible to participate in the study and 3 women declined to participate in the study. Finally, 56 women were randomly assigned into the intervention ( $n = 28$ ) and control ( $n = 28$ ) groups and analyzed. There was no loss to follow-up during the study [Figure 1].

The mean (SD) age of the participants in the intervention and control groups was 26.8 (5.9) and 27.5 (5.4), respectively ( $P = 0.69$ ). The mean of the number of alive children was 1 (0.4) in the intervention group and 1.7 (0.7) in the control group ( $P = 0.21$ ). The majority of participants in both groups had high school/diploma education ( $P = 0.45$ ) and were homemakers ( $P = 0.23$ ). The family income level of most of the participants was somewhat enough ( $P = 0.18$ ). In general, there was no significant difference between the two groups in terms of the demographic and obstetric characteristics [Table 2].

Prior to coping program, the mean (SD) of the grief total score was 108.32 (14.31) in the intervention group and 107.92 (6.65) in the control group ( $P = 0.89$ ). After

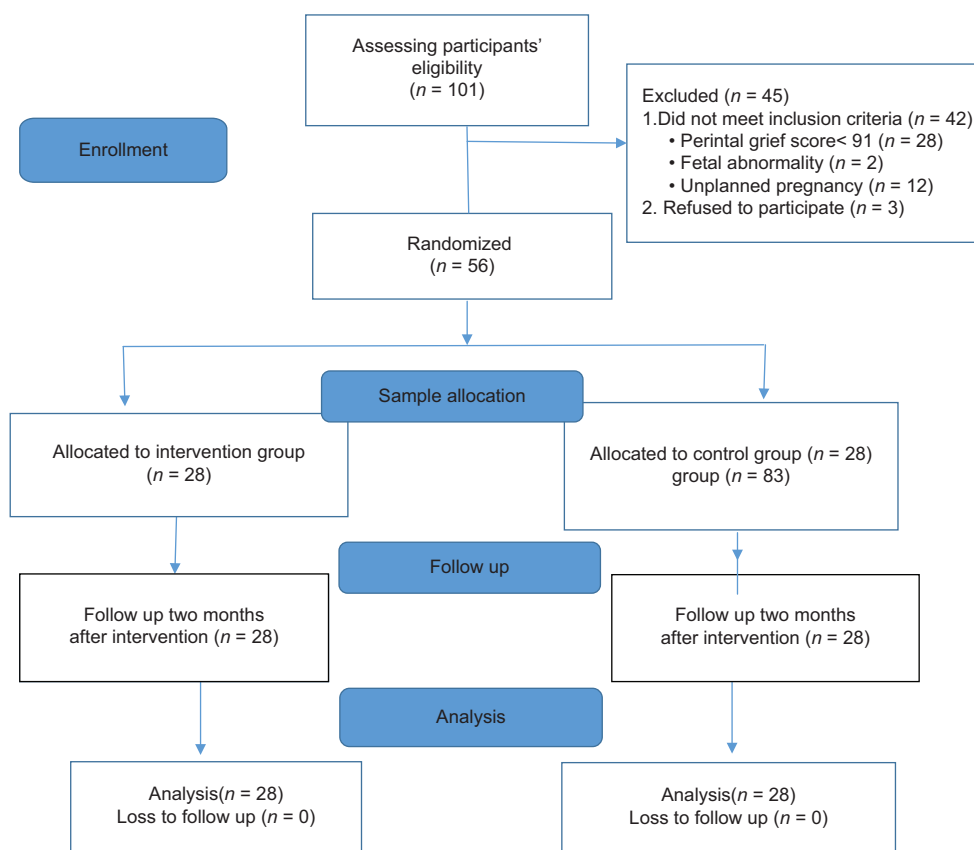


Figure 1: Flowchart of the study

adjusting the effect of baseline score and parity, the mean of the grief total score in the intervention group was significantly lower than that in the control group (AMD:  $-18.77$ , 95% confidence interval [CI]:  $-26.79$  to  $-10.75$ ,  $P \leq 0.001$ ).

Before coping program, the mean (SD) score of the subscale of active grief was  $36.46$  ( $3.58$ ) in the intervention group and  $37.53$  ( $2.87$ ) in the control group ( $P = 0.22$ ). After coping program, and controlling the effect of baseline score and parity, the mean score of active grief in the intervention group was significantly lower than that in the control group (MD:  $-7.85$ , 95% CI:  $-11.12$  to  $-4.59$ ,  $P \leq 0.001$ ).

Before coping program, the mean (SD) score of the subscale of despair was  $35.89$  ( $8.14$ ) in the intervention group and  $34.75$  ( $3.35$ ) in the control group ( $P = 0.49$ ). After coping program, and controlling the effect of baseline and parity, the mean score of despair in the intervention group was significantly lower than that in the control group (MD:  $-7.35$ , 95% CI:  $-11.91$  to  $-2.79$ ,  $P = 0.002$ ).

Prior to coping program, the mean (SD) score of the subscale of difficulty coping was  $35.96$  ( $6.68$ ) in the intervention group and  $35.64$  ( $2.76$ ) in the control

group ( $P = 0.81$ ). After coping program, the mean score of difficulty coping in the intervention group was significantly lower than that in the control group after controlling the effect of baseline score and parity (MD:  $-3.69$ , 95% CI:  $-5.55$  to  $-1.84$ ,  $P < 0.001$ ) [Table 3].

## Discussion

The present study aimed to determine the effect of a coping program on mothers' grief following perinatal deaths. The results indicated that the women receiving coping program experienced less active grief, despair, and difficulty coping compared to the women in the control group. Consistent with the findings of the present study, Hagigi *et al.* reported that following six sessions of intervention based on Warden's counseling principles among mothers with early and late pregnancy loss, the total score of grief and its subscales, including active grief, despair, and difficulty coping in the intervention group, was significantly lower than that in the control group.<sup>[19]</sup> In another study, following a supportive care program on mothers' grief with early miscarriage, including three training sessions based on the Swanson's theory, the grief symptoms in the intervention group significantly decreased compared to the control group.<sup>[22]</sup> Further, Johnson and Langford indicated

that bereavement intervention increases women’s ability to cope with early pregnancy loss.<sup>[27]</sup> Based on the results of another study, immediate professional support after stillbirth, besides printed educational materials, and long-term support by family, friends, and social networks were reported to be important in

reducing parental grief.<sup>[28]</sup> Additionally, Nikcević *et al.* demonstrated that psychological counseling is associated with reduced grief, and self-blame among mothers with missed abortion.<sup>[29]</sup>

**Table 2: The comparison of demographic and obstetric characteristics between intervention and control groups**

Demographic and obstetric characteristics	Frequency (%)		P
	Intervention group (n=28)	Control group (n=28)	
Age* (year)	26.8 (5.9)	27.5 (5.4)	0.69**
Spouse’s age* (year)	31.6 (5.5)	33.1 (4.6)	0.26**
Number of alive children*	1 (0.4)	1.7 (0.7)	0.21**
Number of pregnancies*	2.3 (0.9)	2.6 (0.9)	0.33**
Occupation			
Housekeeper	22 (78.6)	22 (78.6)	0.23 <sup>§</sup>
Working at home	1 (3.6)	4 (14.3)	
Working outdoors	5 (17.9)	2 (7.1)	
Level of education			
Elementary/secondary	12 (42.8)	9 (32.1)	0.45 <sup>§</sup>
High school/diploma	13 (46.4)	13 (46.4)	
Academic	3 (10.7)	6 (21.4)	
Income			
Somewhat enough	14 (50)	17 (60.71)	0.18 <sup>§</sup>
Less than enough	7 (25)	6 (21.42)	
More than enough	7 (25)	5 (17.85)	
How to get pregnant			
Spontaneously	27 (96.4)	28 (100)	1.000 <sup>§</sup>
Following infertility treatment	1 (3.6)	0 (1)	
History of infertility			
Yes	2 (7.1)	1 (3.6)	1.000 <sup>§</sup>
No	26 (92.9)	27 (96.4)	
History of abortion			
Yes	15 (53.6)	13 (46.4)	0.79 <sup>§</sup>
No	13 (46.4)	15 (53.6)	

\*Mean (SD), \*\*Independent samples t-test, <sup>§</sup>Chi-square. SD=Standard deviation

Raitio *et al.* evaluated the effect of a support package, in addition to peer supporters’ and health-care providers’ contact for grieving mothers after death of a child under 3 years old, including stillbirth experience during the last 2–6 weeks. The support package included written information about the grief process and the impact of child death on family members and their coping strategies. They found no significant difference in the grief symptoms between the intervention and control groups,<sup>[30]</sup> which is not in line with the findings of the present study. The result of a meta-analysis showed that psychosocial intervention has a small effect on grief after intervention and has a better effect 3–4 months after psychological intervention.<sup>[31]</sup> Bamniya *et al.* reported that the longer the duration of attachment to the child, the greater the intensity of grief perceived by parents and the longer it takes to adjust to grief.<sup>[32]</sup> There may be factors, such as length of gestational age, number of counseling sessions, intervention length, different grief tools, practice of intervention components, and follow-up duration, which may have contributed to differences in the study results.<sup>[33]</sup>

**Limitation and recommendation**

One of the limitations of the present study is holding consultation sessions individually and only for women. Further, a number of consultation sessions were held as telephone or video via WhatsApp, due to the interference of sampling with the COVID-19 crisis.

Conducting coping program following perinatal deaths seems to be effective in reducing maternal grief.

**Table 3: The comparison of the mean score of mothers’ grief between two groups (n=56)**

Variable	Mean (SD)		MD (95% CI) <sup>†</sup>	P
	Intervention group (n=28)	Control group (n=28)		
Active grief				
Before intervention	36.46 (3.58)	37.53 (2.87)	-1.07 (-2.81-0.66)	0.22*
After intervention	26.94 (4.62)	34.80 (7.16)	-7.85 (-11.12--4.59) <sup>#</sup>	<0.001**
Despair				
Before intervention	35.89 (8.14)	34.75 (3.35)	1.66 (-2.19-4.48)	0.49*
After intervention	26.10 (10.35)	33.45 (6.53)	-7.35 (-11.91--2.79) <sup>#</sup>	0.002**
Difficulty coping				
Before intervention	35.96 (6.68)	35.64 (2.76)	0.32 (-2.24-3.09)	0.81*
After intervention	29.15 (3.69)	32.85 (3.14)	-3.69 (-5.55--1.84) <sup>#</sup>	<0.001**
Total score of grief				
Before intervention	108.32 (14.31)	107.92 (6.65)	0.39 (-5.58-6.37)	0.89*
After intervention	82.28 (16.72)	101.05 (12.78)	-18.77 (-26.79--10.75) <sup>#</sup>	<0.001**

\*Independent t-test, \*\*ANCOVA after controlling the effect of baseline score and parity, <sup>†</sup>Adjusted mean difference. MD (95% CI)=Mean difference (confidence interval 95%), SD=Standard deviation

## Conclusion

Providing a coping program during 1–3 months after experiencing perinatal deaths is effective in reducing the mothers' grief reactions. It is recommended to evaluate the effectiveness of the same intervention after perinatal deaths for both parents with a longer follow-up period in further studies.

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## Conflicts of interest

There are no conflicts of interest.

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