

# Translation and Validation of the Persian Version of the Perinatal Grief Scale in Iranian Mothers with an Experience of Pregnancy Loss

Saeedeh Siadatnezhad (1)

Tayebeh Ziaei (2)

Elham Khoori (2)

Mohammad Ali Vakili (3)

Judith Lasker (4)

(1) MSc in Midwifery Counselling, Golestan University of Medical Sciences, Golestan, Iran,

(2) PhD in Reproductive Health, Counselling and Reproductive Health Research Centre, Golestan University of Medical Sciences, Gorgan, Iran

(3) Associate Professor in Biostatistics, Neonatal and Children Health Research Centre, Golestan University of Medical Science, Gorgan, Iran.

(4) Professor of Sociology, Department of Sociology and Anthropology, Lehigh University, Bethlehem, PA, USA

## Corresponding Author:

Elham Khoori,

Counselling and Reproductive Health Research Centre,

Golestan University of Medical Sciences, Po. Box 568-49165,

Gorgan, Iran

**Email:** elhamkhoori@yahoo.com

## Abstract

**Objective:** Loss of pregnancy and subsequent grief is a very difficult experience in the life of expectant parents. Grief refers to the process of experiencing psychological, behavioral, social, and physical responses to loss, which is a natural process, but if it persists for a long time, it can become complicated, more severe and debilitating. We need a valid and reliable tool to measure grief after perinatal loss. Because of the lack of such a tool in Iran, this study aimed to translate and culturally adapt the Perinatal Grief Scale (PGS) in an Iranian target group, and determine the psychometric properties of the scale in this population.

**Material and Method:** During this methodological study, 330 women who had an experience of perinatal loss over the previous year were chosen through "Convenience" sampling from two teaching hospitals and Health Centers in Gorgan. The PGS was translated using the forward-backward translation technique. The validity of the PGS Persian version (PGS-P) was evaluated through face, content, and structural validity (confirmatory factor analysis), while its reliability was assessed using Cronbach's alpha coefficient. SPSS software version 16 and Amos software version 24 were used for data analysis.

**Results:** On the basis of the target group's and expert panel's comments in the validity stage, item 32 (Being a bereaved parent means being "Second-Class Citizen") was removed from the original scale. In reviewing the confirmatory factor analysis, all fitness indicators confirmed the 3-factor structure of the main scale with 32 items. All items had a factor load over 0.20. Cronbach's alpha coefficient for the total scale was 0.95 and ranged from 0.84 to 0.89 for the factors of PGS-P.

**Conclusion:** The results of confirmatory factor analysis and Cronbach's alpha coefficient showed that PGS-P is valid. Therefore, it recommends that the PGS-P be used to assess grief severity in parents after perinatal loss and to identify high-risk women who are more vulnerable so that the health-care system can help them.

**Key words:** Translation, validity, grief, perinatal loss, reliability

Please cite this article as: Khoori E. et al. Translation and Validation of the Persian Version of the Perinatal Grief Scale in Iranian Mothers with an Experience of Pregnancy Loss. *World Family Medicine*. 2018; 16(1):55-61  
DOI: 10.5742/MEWFM.2018.93197

## Introduction

Perinatal loss is the unwanted or unintentional loss of a fetus or infant through a miscarriage, stillbirth, or newborn death (through 28 days of life) (1), which account for one-third of the pregnancies in the world (2). It is a very bitter experience in the life of expectant parents, especially for the mother, and it is often accompanied by great pain, grief, and suffering (3,4).

Grief is a reaction to the loss of an object or person who has been extremely favored (5,6); this person can also be a fetus or an infant (6). The grief associated with the loss of pregnancy is a unique state of grief, since the child is a part of the parental identity and besides feeling emptiness, sad and physically exhausted, the mother who has pregnancy loss may feel that she is to blame, that she is a failure and that it may be repeated in subsequent pregnancies (2, 7). Although grief is a natural and non-pathologic response, it can be typified as complex or prolonged grief in cases where the symptoms are debilitating, pervasive, and severe (3), including symptoms such as intense passion for being with the deceased person, denial and disbelief, intense anger, and feeling of emptiness in life (8). The average rate of suicide in mothers with this type of grief is significantly higher than that of women of reproductive age in the general population or women with a history of live births (9, 10).

Studies published documenting the troubled emotions and reactions of women suffering from miscarriage, stillbirth, and fetal death have increased remarkably over the past two decades (4). Therefore, dealing with mothers after the loss experience is an indispensable part of their care to help ease the normal grief process (9). It is very important to investigate the grief process in these mothers in order to provide psychological support and necessary care for them (11).

Obviously, vulnerable mothers must first be identified, then evaluated and be consulted. To identify them, special tools are required (12). Since accurate information is provided through the use of a precise, reliable and sensitive tool (13), it seems necessary to design or to use existing tools to identify the process of grief in mourning mothers (12). Despite the similarity of "perinatal loss" grief with the grief caused by the death of other loved ones, in some cases they are completely different (2, 3, 7). The loss of a baby during the perinatal period almost always involves the loss of hopes, dreams, and expectations invested in the expected child (14). Therefore, the study of this kind of grief requires a special tool (2).

To have such a tool, the researcher has two options: a) designing a new instrument, which is a time-consuming process and requires the observance of specific scientific and specialized principles and, b) using previously validated instruments, usually questionnaires that are adapted for use in another "target" culture and language (15). So far, various scales or questionnaires have been designed in different languages that are also used in other countries.

For example, in the field of perinatal grief, among available tools, the Perinatal Grief Scale (PGS), which is in English, is considered the most comprehensive and precise tool for identifying potential complications in the grief process of parents, and it has been translated into more than half a dozen languages with successful results (6,16-18).

This scale was designed to investigate and comprehend the variations and changes in the grief process in women and men who experienced loss of pregnancy including miscarriage, stillbirth or fetal death and neonatal death (6). Moreover, it is widely used in research projects (6,16,18-20). It includes three subscales; "Active grief", "Difficulty coping" and "Despair". "Active grief" measures what is often considered normal grief, as it incorporates items such as sorrow, missing the child or crying. "Difficulty coping" measures difficulty with normal life activities and with other people, such as lack of support, feelings of guilt, and problems in marital relationships. "Despair" describes the potentially most serious effects of the loss. It involves existential feelings of helplessness and hopelessness (6,17). Scoring Instructions are such that the total PGS score is arrived at by first reversing all of the items except 11 and 33 (2,18). There are 11 statements related to each subscale that the respondent evaluates on a 5-point Likert scale that is limited by the statements completely agree and completely disagree with a neutral central point. Each respondent can score a total minimum of 11 and maximum of 55 points on each subscale. The total score of the PGS varies between 33 and 165 points. Higher scores represent higher intensities of grief. Values above 91 points represent potential psychiatric morbidity (2,6,17).

A review of studies showed in some countries, including Iran, grief after perinatal loss was not always considered, not only in the scientific texts and publications but also in clinical matters including psychological and counseling support (21). In Iran, there is very little information regarding the experiences of mothers following the loss of pregnancy, and more importantly, there is no specific protocol to support them (21). An explanation for the limited information on this issue can be the lack of appropriate tools for identifying the problems faced by bereaved parents, which leads to lack of progress in scientific and clinical research. Therefore, the present study aimed to translate and culturally adapt the PGS and evaluate the validity and reliability of the PGS Persian version (PGS-P) in Iranian women with an experience of pregnancy loss, so as to provide a tool for further research and for clinical identification of mothers vulnerable to complicated grief.

## Material and method

This methodological study was carried out in 2016 in Gorgan, a city in north Iran. It was approved and funded by Golestan University of Medical Sciences (with code of 391215).

Initially, the permission for translation and using the PGS were obtained on August 21st, 2015, from its original designer, Professor Toedter. The scale was then translated and culturally adapted based on a combination

of the approaches proposed by WHO, Wild, and Beaton, described below (22-24).

The questionnaire was translated independently by two translators fluent in both the source and destination languages and whose native language is Persian (Farsi). They were instructed to avoid verbatim translation and asked to give a clear translation with equalized concepts. Then, the two initial translations were compared by an expert panel including a psychiatrist, a gynecologist, a psychologist and the research team, and after slight modifications in wording, they agreed on the Persian version (22-24). In order to ensure the accuracy of the primary translation, the questionnaire was back translated into English by a fluent translator in both Persian and English, who did not participate in the previous phase and did not see the original version of the scale (22). Then the expert panel and the research team reviewed and compared the back-translated English version of the scale with the original version. After agreeing upon the translated English version (22-24), to assure the accuracy of the translation and equality of the concepts with the original version, the backward translated version was emailed to the original designer (24). After applying some modifications on the basis of the designer's recommendations, it was approved by her and the pre final Persian version of PGS was prepared and adjusted. In this step, Face, content, and construct validity were considered.

### 1. Face validity Assessment

The face validity of the pre-final PGS-P was assessed both qualitatively and quantitatively. Quantitatively, face validity assessment was done using the impact score method. In this connection, the questionnaire was given to 20 mothers with a history of diverse types of pregnancy loss (abortion, stillbirth and neonatal death), educational level of diploma to PhD, age distribution of 18 to 38 years, and various social classes. They were asked to express their opinions about importance of the items based on the 5-point Likert scale (very important = 5, important = 4, relatively important = 3, slightly important = 2, and not important = 1) (25, 26). For all 33 items of the tool, the face validity was calculated quantitatively through formula [Impact Score = Frequency (%) × Importance] and each item with a score higher than 1.5 was accepted (25). They were also asked to comment on the questionnaire regarding its flow, ease of use and comprehension, content, sentences and phrases, and ambiguous items (27).

### 2. Content Validity Assessment

The content validity of the pre-final version of PGS-P was also assessed both qualitatively and quantitatively. To assess qualitative content validity of the pre-final PGS-P, reactions to the questionnaire's content, modification comments about the scale, on wording, item allocation, and scaling of the items were sought from eleven experts (composed of one clinical sociologist, one family counselor, two reproductive health experts, two instrument designers, two psychiatric nurses, two psychologists, and one psychiatrist).

The content validity index (CVI) was used for the quantitative part of the assessment, and the responses given were also used for the qualitative part of the assessment. Accordingly, the same 11 experts were asked to rate all items in the pre-final PGS-P based on three criteria including relevancy, simplicity, and clarity, using a 4-point Likert scale. For example, we asked the experts to rate the relevancy of items on a 4-point Likert scale from 1 to 4. The 4 points for rating the relevance of the items ranged from 1 (not relevant) to 4 (highly relevant). CVI for each item was calculated using a formula [CVI = Number of raters giving a rate of "3" or "4" / Total number of raters] (28). Using guidelines proposed by Waltz and Bausell, CVI < 0.7 was unacceptable, CVI 0.7-0.78 required modification and revision, and CVI ≥ 0.79 was acceptable (29, 30). After providing explanations to the experts, minor modifications were made to some items with required modification and revision with the least possible changes to the original PGS. In the second round, five of the previous experts were asked to evaluate the relevance of the revised set of items and to compute the CVI (29).

Guided by input obtained from women in the target group and the expert panel's opinions, we subsequently revised the pre-final PGS-P. The final version of the PGS-P was prepared to use in the next stage to examine construct validity.

### 1. Construct Validity Assessment

To examine PGS-P construct validity, we also performed confirmatory factor analysis (CFA) (18). Since the CFA evaluates a predetermined model that is based on previous theories and studies, the number of factors is already predicted by the initial designer in the model; besides, it is known which items are subsets of which corresponding factors. Moreover, it is determined whether questions measure intended indices based on the factors (31).

CFA is a method of presenting structural equations used in determining goodness-of-fit between a theoretical model and data obtained from study samples (32). Compatibility of the model was determined using a maximum probability algorithm. There are several goodness-of-fit indices for deciding compatibility of the model, and it is preferable to use several indices (33).

Therefore, in the present study, to investigate the adjustment of the foreseen factors, the CFA stage was performed using the AMOS 24 software. Goodness-of-fit indices used included Chi sq/df, Root Mean Square Error of Approximation (RMSEA), Goodness-of-Fit index (GFI), Comparative Fit Index. RMSEA is an important index, with values less than 0.08 indicating acceptability. Appropriate values for other indices include CFI and GFI that is closer to 1, which is more desirable (34).

To perform the CFA, the ideal number of participants was considered to be 330 people, which is 10 times the number of items in the questionnaire (35). A convenience sampling method was used. The inclusion criteria were: 1) women who experienced a pregnancy loss no more than one year before the beginning of the sampling, 2) willingness to take

part in the study, 3) no history of treatment for psychiatric disorders or having a serious psychiatric problem now (based on self-declaration), 4) literacy to read and write. For this purpose, after coordinating with the head of two educational hospitals of Gorgan, the addresses and phone numbers of women with a history of perinatal loss during the past year were extracted from medical documents in the maternity and neonatal units and gynecologic clinics. After contacting them, the purpose of the research was explained. If they agreed to participate in the study, an appointment was established in a health care center close to their home or at their home.

Of approximately 400 women contacted, 330 participated. At their appointment, they were informed again about study objectives and also about the confidentiality of their responses. After giving written informed consent, they were asked to complete the demographic information form and the PGS-P.

#### 4. Reliability Assessment

To determine the reliability of the final version of the PGS-P, Cronbach's alpha was calculated to assess the internal consistency of the scale based on data from 330 women of the target group.

## Results

The demographic characteristics of 330 women participating in this research project showed that their ages ranged from 15 to 47 years, with an average age of 28.88(SD=6.22). Of the 330 women, 211 had experienced a miscarriage, 64 a stillbirth, and 55 a neonatal death.

The questionnaires were clear for them and took less than 10 minutes to complete.

In total, the impact score of 31 items in the pre-final Persian version of the PGS were greater than 1.5, only items #29 and #32 were lower than 1.5. Therefore, two items were candidates to exclude in this step. According to the views expressed by the target group in the validity stage, the Likert spectrum of "neither agree nor disagree" was changed to "no idea", due to the lack of transparency for them. There were also comments on modification of some terms in some items (#3, #29, #32) which were applied in the research team's investigations. Item #3, which was "I feel empty inside", was changed to "I feel emptiness from inside". Some participants had problems understanding item 32 (Being a bereaved parent means being "Second-Class Citizen") and item #29 (It's safer not to love).

Evaluation of the pre-final PGS-P CVI showed that the CVI of 31 items was higher than 0.79; hence, they were considered as the appropriate items. Only two items (#29, #32) obtained CVI scores less than 0.79, and based on the views expressed by 11 experts, some obscure words and phrases were reported and also some modifications were recommended to better understand the target group. According to their ideas (target group and experts) we applied modification as follows:

The phrase "Second-Class Citizen" in item #32 was changed to "lower social status". Item #29, "It's safer not to love" changed to "It's less problematic not to love somebody". Item #4, which was originally translated as "I can't keep up with my normal activities", changed to "I cannot continue my daily routines as before."

After considering the recommendations of experts regarding items with low score CVI, the pre final "PGS-P" was again sent to 5 related specialists and 5 mothers from the target group. Consequently, through the re-examination all items gained acceptable scores from experts and were confirmed by the target group except #32. So, based on the common views of the two target and experts' groups, item #32 was eliminated from the original scale due to low score, and the process was continued without these items. Generally, according to the results of pilot phase and suggestions by the expert panel opinion, and the research team, we made minor changes for some of items of PGS to provide better understanding for the mothers. Ultimately, the final PGS-P with 32 items in 3 subscales "Active Grief" with 11 items, "Difficulty of Coping" with 11 items and "despair" with 10 items was obtained<sup>1</sup>.

CFA was performed for assessment of construct validity on data obtained from 330 women who experienced pregnancy loss in order to provide the most appropriate model of PSG-P; in order to achieve a better result and improve the model, we examined the corrective indices. Evaluating the significant error variance, item #8 with item #9, item #10 with item #11, item #30 with item #31, the item #25 with #31 were implemented. After using some performable covariance, the desired results were obtained. Table 1 presents CFA results and Figure 1 shows the model. Therefore, the structure of the "PGS-P" was confirmed only by deleting a single item. In other words, the PGS-P with 32 items and three factors in Persian is trusted and can be used to evaluate grief of women who have a history of loss of their pregnancy.

The reliability of the scale was assessed using the internal consistency methods. Cronbach's alpha was calculated to assess the internal consistency reliability of the Persian version of PGS. Cronbach's alpha was calculated as 0.95 for the total scale and as 0.88, 0.87, and 0.84 for the subscales of Active Grief, Difficulty Coping and Despair respectively (Table 2).

## Discussion

The purpose of the present study was to describe the process of translation and cultural adaptation of the PGS and determine the psychometric properties of the Persian version of the scale. We were able to successfully translate and adapt the PGS. The PGS-P was developed while only one item was deleted from the original items in the scale. We did not face serious problems during the translation and cultural adaptation process of PGS. Although substantial changes to the original version were not necessary, we made minor changes in some

1. If anybody wishes to receive PGS-P, kindly contact the corresponding author.

Figure 1: Conceptual model of confirmatory factor analysis “PGS-P”

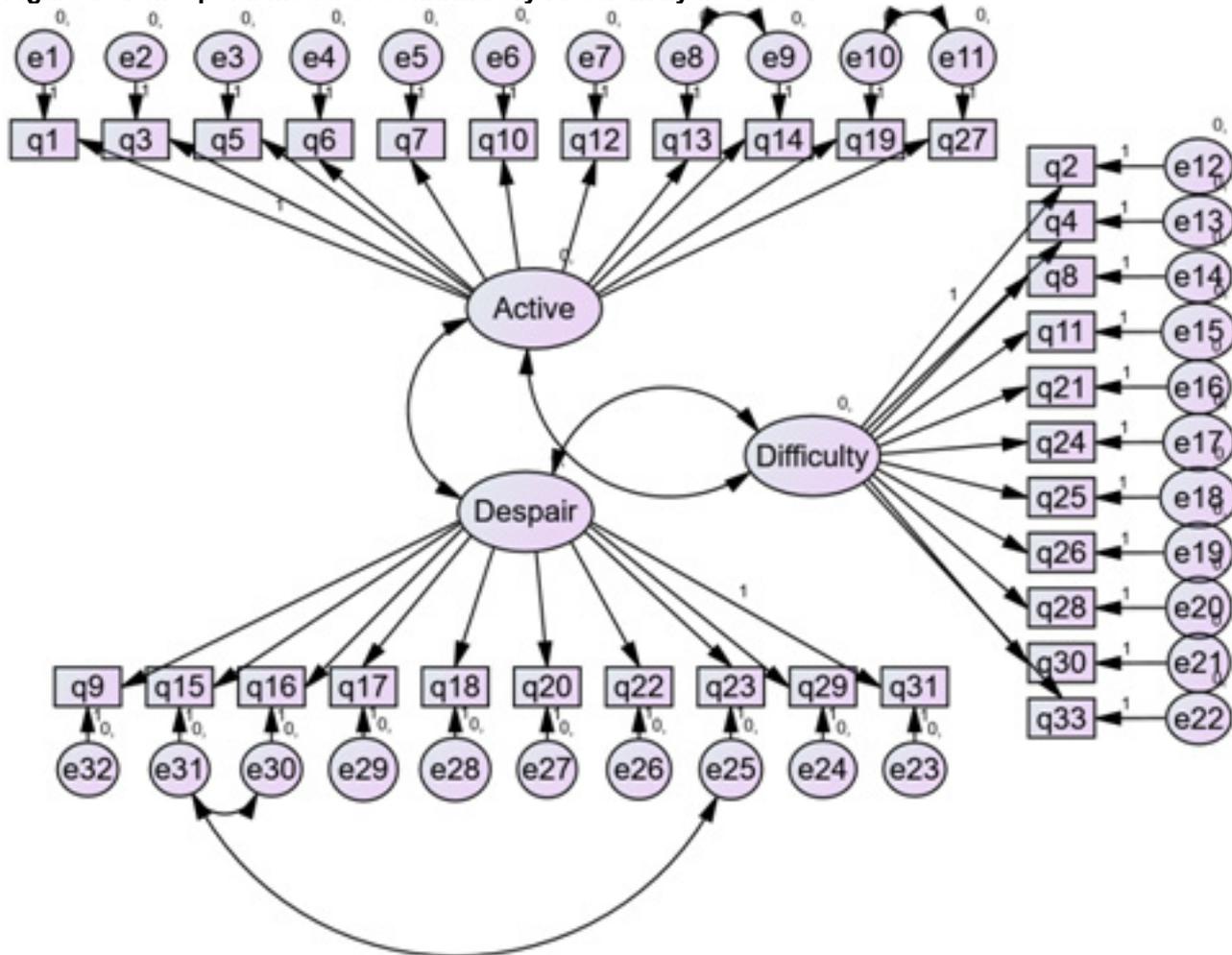


Table 1: Score of PGS-P fitness indices

PNFI <sup>1</sup>	PCFI <sup>2</sup>	GFI <sup>3</sup>	CFI <sup>4</sup>	RMSEA <sup>5</sup>	Chi sq/df
0.72	0.79	0.86	0.86	0.068	2.506

<sup>1</sup> Parsimonious Normed of Fit Index, <sup>2</sup> Parsimonious Comparative of Fit Index, <sup>3</sup> Goodness-of-Fit Index,

<sup>4</sup> Comparative Fit Index, <sup>5</sup> Root Mean Squared Error of Approximation

Table 2: Comparison of the results of reliability of PGS-P in present study and the original PGS

Subscales	Internal consistency; Cronbach's alpha (present study)	Internal consistency; Cronbach's alpha (Toedter's study)(36)
Active Grief	0.88	0.92
Difficulty Coping	0.87	0.91
Despair	0.84	0.86
Total	0.95	0.95

questions to facilitate mothers' understanding and to be culturally appropriate for Iranian mothers.

Other translators of the PGS have made a number of cultural adaptations. Ratislavová et al. (2013), who did their translation process based on the translation/back translation technique to translate the scale from English into Czech, changed the Likert scale item of “not disagree, not agree” to “I don't know”, since this term is used more often by the Czech people (6). Similarly, we changed

the “neither agree nor disagree” Likert item to “no idea”, because it was unclear for the mothers. Adolfsson et al., in their study in Sweden, replaced the 5-choice Likert scale with a 10-optional Likert scale since their community was more familiar with this number of options (37).

Since the equivalent word for “grief” exists in Persian, no change was made. However, Capitulo et al. in Spain encountered a challenge to replace the word. They did not find the equivalent word for “Grief” in Spanish and used

two words of “duelo and luto” instead. Since in Spanish the word “duelo” means sorrow and the word “luto” means mourning, the combination of these two words has the same meaning as the word Grief (20).

In validity assessment, after re-evaluating according to the women in the target group and experts' opinions, item #32 still was low in importance and was not relevant. Indeed, among the 3 criteria for the CVI assessment (simplicity, relevancy, and clarity), it lacks the most important criterion of CVI; “relevancy” (29). Both groups believed that in our culture, none of the mothers who experienced pregnancy loss would be judged as a person of “lower social status”; rather the people of our community sympathize with mourning mothers. Considering the advice of experts with experience in instrument development, it was decided to delete only the items that the target group and the experts both agreed to remove, so at this stage, item #32 was removed from the PGS-P, and the process was continued without it. In other studies of translating this scale into other languages, no report was provided regarding the item deletion at this stage; before the confirmatory analysis. Therefore, the removal of one or more items at this stage was not comparable with other studies.

The results of the CFA in the present study determined that model fitness indicators were appropriate. The “PGS-P” was confirmed with three factors- “Active Grief” (with 11 items), “Difficulty Coping” (with 11 items) and “Despair” (with 10 items). However, in the study of Ratislavová et al., who did not consider the fitting indices in the obtained data as acceptable through the CFA investigating, the EFA was evaluated using the probability of maximum Varimax rotation. Therefore, only one item was deleted and ultimately, a scale with three subscales “Active Grief” with 6 items, “Difficulty of Coping/ Despair” including 23 items and “Sin” with 3 items were obtained (6). In the study of Capitulo et al., Exploratory Factor Analysis (EFA) was performed prior to CFA. According to the results obtained in this step, from 33 items in the main scale, 19 items had a desirable factor expressed on two factors. Then, the CFA was performed and the scale was confirmed by two factors called “Active Grief” with 13 items and “Difficulty of Coping/ Despair” each with 6 items (38). In the study of Biatric et al., EFA was performed before evaluating the confirmatory factor analysis. After completing this step, the 4 items were removed from the scale, and all remaining questions appeared on the two “Active Grief” and “Complicated Grief” subscales that the two-factor structure of the scale was confirmed in CFA (39).

The results obtained in the reliability stage of the scale in the present study showed that the PGS-P has a high stability. Thus, Cronbach's alpha coefficients of the total scale and the subscales of “Active grief”, “Difficulty of Coping”, and “Despair” were appropriate. Consistent with the present study, Maniatelli et al. also reported the reliability of the scale using Cronbach's alpha coefficients (18). We didn't assess reliability using test-retest, since grief involves a dynamic concept with its intensity decreasing over time; according to some researchers, it has no stability feature (2, 40). Thus, the test-retest method cannot be reliable in

assessing the stability of this concept. Since the stability index decreases over time as a result of the dynamicity of this concept, the reliability, and stability of the scale may be considered as inaccurate, falsely. However, Biatric et al. used two methods of internal consistency assessment (Cronbach's alpha coefficients) and stability assessment (test-retest) to examine the reliability of this scale (38). Cronbach's alpha coefficient for the two subscales of “Active Grief” and “Complicated Grief” were reported as optimal.

## Conclusion

Considering the results of the present study, it can be concluded that PGS-P is appropriately valid and reliable, and the use of PGS-P in women with pregnancy loss experience is acceptable. Relying on findings from other studies (2,6,17) that identified a score of over 91 as possibly indicating complicated grief, participants in the study who had such a score were referred to a psychologist or psychiatrist for further assessment and treatment. The scale can be useful for identifying women who experience a high intensity of grief so that they can be offered consultation or support from medical and social systems.

Since no valid and reliable tool previously existed in this field of study in Iran, it seems that its use in clinical practice is justified, and we recommend using it in midwifery as well as in consultations for the bereaved, psychological counseling or by psychiatrists working with women after perinatal loss. Midwives could routinely use the PGS-P when assessing women after perinatal loss in the postpartum period and to avoid potential complications in the grieving process and recommended professional psychological help as needed. Moreover, considering the ease of implementation in this tool, understanding and completing it through the target group does not require much time and effort.

## Acknowledgements

Professor Lori Toedter is gratefully acknowledged for her generous assistance with this study.

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