# The Path Analysis between Spiritual Well- Being and Religiosity Mediated by Mental Health and Grief Severity Fetal or Neonatal Deaths

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## Abstract

### Background
Recently there has been concern about grief following the loss of a child and the factors affecting its severity that have been less addressed in research. This study aimed to investigate the relationship between spiritual well-being, mental health and religiosity and grief severity in women who experienced the fetal or neonatal deaths.

### Materials and Methods
A cross-sectional-analytical study was carried out on 200 women who experienced the perinatal deaths and referred to four hospitals affiliated to Shahid Beheshti University of Medical Sciences, Tehran, Iran. The data were collected using demographic questionnaire, Spiritual well-being scale (SWBS), Perinatal grief scale (PGS), Muslim religiosity scale (MRS), and General healthy questionnaire (GHQ). The data were analyzed using SPSS software version 19. LISREL software version 8.8 was used to test the designed model.

### Results
There was a significant relationship between spiritual well-being level and the grief severity (p <0.001). Also, a significant relationship was observed between religiosity and mental health level and the grief severity (p <0.001). Religiosity has the most negative relationship ($\beta$=-0.838), and mental health has the most positive relationship ($\beta$=0.33) with the severity of fetal-neonatal grief.

### Conclusion
According to the results, spiritual well-being and religiosity can reduce the grief severity; therefore, it is recommended that the interventional studies should be performed to minimize this problem.

*Key Words:* Death, Grief, Fetal, Spiritual well-being, Mental health, Neonate.

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## 1- INTRODUCTION

Perinatal mortality refers to miscarriages, stillbirths, and neonatal deaths occurring before the seventh day after delivery (1). Perinatal mortality is the most painful and devastating event that parents can ever experience (2). Perinatal death occurs suddenly and unexpectedly, and parents are usually unable to anticipate it or be prepared for grief (3, 4). The stress of perinatal death can be harmful, affecting the health of parents, especially the mothers (5). Researchers have found that bereaved parents describe their grief as feelings of emptiness, intense sadness, and despair, and studies on the effects of perinatal death on the bereaved parents showed that they experience post-traumatic stress symptoms (PTSD), anger, depression, decreased quality of life and lower participation in social activities (2, 6, 7). Usually, stillbirth or newborn death leads to depression, PTSD, suicide, obsessive-compulsive disorder, family challenges, immune system disorders, guilt over child protection, and jealousy in interpersonal communication with relatives, child neglect and loss of emotional management in family for an extended time and even divorce in women (8-12). Also, women who experience perinatal mortality are at higher risk of postpartum depression in their subsequent pregnancies (13), and the death of a child can have a devastating effect on a couple's relationship (14, 15). The physical and emotional symptoms that occur in the early stages of grief may last for years (4, 16). Health care has changed dramatically as a result of technological developments over the past six decades, and the best possible care is provided by the health care system while perinatal deaths are labeled as a common phenomenon occurring each year worldwide (17). Seven million stillbirths and neonatal deaths (18), and 43.8 million abortions occur annually worldwide (19); 73% of these deaths are concentrated in developing countries (20). In Iran, the stillbirth and neonatal mortality rates are reported to be 13 and 12 per 1000 births, respectively (21), but the number of abortions in the country is estimated between 70.54 to 116.9 per 1000 births (22, 23).Grief counseling or grief therapy can occur in one-on-one counseling or in group therapy. It can be effective for different types of losses which cause psychological stress and consequently impair the immune system (24). Today, many communities are making attempts to design the treatment programs for bereaved individuals or families which can help them to cope with their grief. In this regard, several therapeutic options have been proposed, but studies have found that people respond to loss according to their culture and religion (25, 26). On the other hand, many studies indicate that other biological, psychological and social dimensions cannot work properly without spiritual well-being and both religion and spirituality overlap (27-30). Despite the high prevalence of perinatal loss, this issue has been largely ignored in public policies, research law, and even universities (31, 32). Considering the absence of support and care protocol for women who experienced the perinatal mortality in Iran and lack of information about mothers' experiences in this regard, this study aimed to investigate the relationship between spiritual well-being, mental health and religiosity and grief severity in samples of Iranian women who experienced the neonatal deaths.

## 2- MATERIALS AND METHODS

### 2-1. Study design and population

A cross-sectional-analytical study was carried out on 200 women who experienced the neonatal deaths and referred to selected centers affiliated to Shahid Beheshti University of Medical Sciences, Tehran, Iran. For this purpose, four hospitals (Mahdeyeh,Taleghani,

Emam Hosein,Shohada), were selected from MRS regions of Tehran (north, central, west and east), a quota was assigned to each of them based on the number of clients, and the participants were randomly selected.

## 2-2. Inclusion and exclusion criteria

The study inclusion criteria were as follows: being literate; age 18-35 years; women who experienced perinatal deaths over the last 3 to 6 months; being a Muslim; those who were not pregnant while completing a questionnaire, no history of mental illnesses or physical conditions; and the absence of stressful environmental conditions. The subjects who did not complete all questions were excluded from the study.

## 2-3. Sample size

The sample size was estimated by the formula used in study of Bavarsad et al. (2014) (33), and the sample size was calculated to be 200.

$$n \geq \left[ \frac{\left(z_{1-\alpha/2} + z_{1-\beta}\right)}{0.5 \times \ln\left[(1+r)/(1-r)\right]} \right]^2 + 3$$

$$r = 0.20$$
$$\alpha = 0.05 \Rightarrow z_{1-\alpha/2} = 1.96$$
$$\beta = 0.10 \Rightarrow z_{1-\beta} = 1.28$$

## 2-4. Measuring tools

In this study, the data were collected using demographic questionnaire, spiritual well-being scale (SWBS), perinatal grief scale (PGS), and the Muslim religiosity scale (MRS), and General healthy questionnaire (GHQ).

### 2-4-1. Demographic questionnaire

Demographic characteristics included age, place of residence, number of children, maternal occupation, level of education, monthly family income, age of husband and type of housing.

### 2-4-2. Spiritual well-being scale (SWBS)

This scale was developed by Paloutzian and Ellison (1982) (34). This 20-item questionnaire is scored on a 6-point Likert scale ranging from "strongly agree" (1) to "strongly disagree"(6). This scale includes two 10-item subscales: religious well-being (RWB), and existential well-being (EWB). The scores for each of the religious and existential subscales ranged from 10 to 60. The total score of spiritual well-being is the sum of the scores of these two subgroups, which ranged from 20 to 120. In the statements with positive verbs, "strongly agree" responses are scored 6 and "strongly disagree" responses are scored 1. In the statements with negative verbs, "strongly disagree" responses are scored 6 and "strongly agree" responses are scored 1. In sum, the status of spiritual well-being is categorized as follows: low (20-40), average (41-99), and high (100-120). The reliability of the scale was measured using Cronbach's alpha coefficient (0.82) (35).

### 2-4-3. Muslim religiosity scale (MRS)

Religiosity is measured based on the Glock and Stark model (1962)(36). The MRS is a 26-item self-reported measure with the four subscales as follows: (1) believing (items 1-7); (2) emotional (items 8-13); (3) consequential (items14-19); and (4) ritualistic (items 20-26). The scale is scored based on the 5-point Likert method (5 = totally agree, 4 = agree, 3 = somewhat agree, 2= disagree, and 1 = totally disagree). Total scores ranged from 26 to 130, with a higher score indicating higher religiosity. The validity of this questionnaire was confirmed by Mohammadi et al. (2014). Also, the reliability of this tool was measured by Cronbach's alpha coefficient. The

reliability of total score was 0.72 which showed good reliability (37).

### 2-4-4. Perinatal Grief Scale (PGS)

For the first time, perinatal grief scale was developed in Iran by Feizollahi et al. (38). The PGS involves a Likert type scale with six response options ranging from strongly disagree to strongly agree. In general, in addition to calculating the total score, this scale also calculates a separate score for each subscale. The scores on each of the items are added together to obtain the item score total. The highest severity of grief is scored 450 and the lowest severity of grief is scored 75. The scores of each subscale range from 3-18 (acceptance of loss), 10-60 (psycho-physical reaction), 12-72 (anger), 10-60 (decreased self-confidence), 6-36 (security), 4-24 (feeling of guilt), 5-30 (coping), and 25-150 (initial reactions). The score of each subscale was determined by calculating the mean item scores of each subscale. The validity of this questionnaire was confirmed by Feizollahi et al.; internal consistency was confirmed using Cronbach's alpha (0.89), and the stability of the instrument was confirmed by the intra cluster correlation coefficient (0.89) (38)

### 2-4-5. General healthy questionnaire (GHQ)

The General Health Questionnaire is a self-report screening questionnaire used in clinical settings to track people with a mental disorder. The original text was first designed by Goldberg (39). This 28-item questionnaire has four subscales: physical complaints (questions 1 to 7), anxiety and insomnia (questions 8 to 14), social maladaptation (questions 14 to 21), and severe depression (questions 21 to 28). The Likert system is used which scores each of the four options (0, 1, 2, and 3). A higher score on this test is a sign of a more severe mental health disorder. In Iran, Javanmard and Mamaghani's study of

Cronbach's alpha coefficient of the whole questionnaire was reported to be 0.87 (40).

### 2-5. Ethical consideration

The study protocol was approved by the ethics committee of Shahid Beheshti University of Medical Sciences, Iran. The people who were eligible to participate in the study were first identified, and then the purpose of study was explained to them. The subjects provided the written informed consent to participate in the study. Sufficient explanations were then givento them to fill in a questionnaire. The subjects were assured that any information provided would remain confidential. IR.SBMU.RETECH.REC.1399.510.

### 2-6. Data Analyses

Descriptive statistics (such as mean and standard deviation) were used to determine the scores of grief severity, spiritual well-being, and mental health and religiosity levels. Normal distribution of continuous variables was assessed by the Kolmogorov–Smirnov test. The Pearson correlation coefficient was applied to measure the correlation between variables. Path analysis was applied to determine the most important determinants of grief severity and the direct and indirect effects of various variables. Path analysis method is a generalization of ordinary regression that can show, in addition to expressing direct effects, indirect effects and the total effect of each of the independent variables for dependent variables. The collected data were analyzed using SPSS software (version 19.0, SPSS Inc., Chicago, IL, USA), and LISREL (version 8.8, Scientific Software International, IL, and USA). LISREL (linear structural relations) is used for factor analysis calculations and structural equation modeling.

### 3- RESULTS

The mean age of participants was 29.66 ± 5.56 years and the mean age of the women's husbands was 34.47±7.27

years old. The majority of subjects (60.5%) were housewives and 42% of them had one child (42%). The results of this study demonstrated that spiritual well-being showed the highest negative correlation with grief severity and all its subscales except coping (P <0.05). In other words, as spiritual well-being decreased, grief severity increased (**Table.1**). The study also showed that there is a negative correlation between the severity of grief and spiritual health and religiosity. In other words, as spiritual well-being decreased, grief severity increased also the severity of grief is negatively correlated with mental health, the better mental health, the less severity the grief (**Table.2**).

**Table-1**: Baseline characteristics of the studied samples.

| Variables | | Mean ± Standard deviation |
|---|---|---|
| Age of women | | 29.66±5.56 |
| Age of husband | | 34.47±7.27 |
| Religiosity | | 107.24±21.65 |
| Grief severity | | 194.78±91.11 |
| Spiritual well-being | | 93.95±26.41 |
| General health | | 59.34±22.19 |
| Maternal occupation, Number (%) | Housekeeper | 121(60.5) |
| | Employed | 79(39.5) |
| Number of children, Number (%) | Zero | 41(20.5) |
| | One | 84(42) |
| | Two | 45(22.5) |
| | Three | 30(15) |

**Table-2**: Correlation between spiritual well-being and the religiosity mental health and grief severity.

| Variables | PGS | GHQ | SWB | MRS |
|---|---|---|---|---|
| PGS | 1 | -0.755** | -0.652** | -0.342** |
| P value | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| GHQ | -0.755** | 1 | 0.751** | 0.494** |
| P value | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| SWB | -0.652** | 0.751** | 1 | 0.562** |
| P value | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| MRS | -0.342** | 0.494** | 0.562** | 1 |
| P value | 0.0001 | 0.0001 | 0.0001 | 0.0001 |

**Correlation is significant at the 0.01 level (2-tailed). Perinatal Grief Scale (PGS), General health questionnaire (GHQ), Muslim religiosity scale (MRS), Spiritual well-being scale (SWBS).

**Table.3** shows that among the variables related to maternal fetal and neonatal grief in both ways, religiosity has the most negative relationship (β=-0.838), and among the variables that are related to grief in only one way, mental health has the most positive relationship (β=0.33) (**Table.3 and Figure.1**). Since the closer the indices (CFI, IFI, NFI, and GFI) are to one, the better the fit of the model with the observed data, so the model has a good fit (**Table.4**).

**Table-3**: Direct and indirect effects of spiritual health, religiosity and mental health on the severity of fetal-neonatal grief.

| Variables | Direct effect | Indirect effect | Total | T-value |
|-----------|---------------|-----------------|-------|---------|
| MRS | -0.34 | -0.498 | -0.838 | 19.58 |
| GHQ | 0.33 | - | 0.33 | 9.99 |
| SWB | -0.42 | -0.207 | -0.627 | 19.09 |

GHQ: General health questionnaire, MRS: The Muslim religiosity scale, SWBS: Spiritual well-being scale.

**Table-4**: The goodness of fit indices for the fitted model.

| $X^2$ | df | $X^2$/df | CFI | GFI | NFI | RMSEA |
|-------|-----|----------|-----|-----|-----|-------|
| 4.59 | 3 | 1.53 | 1 | 0.95 | 1 | 0.001 |

CFI: Comparative Fit Index, GFI: Goodness of Fit Index, NFI: Normed Fit Index, RMSEA: Root Mean Square Error of Approximation.
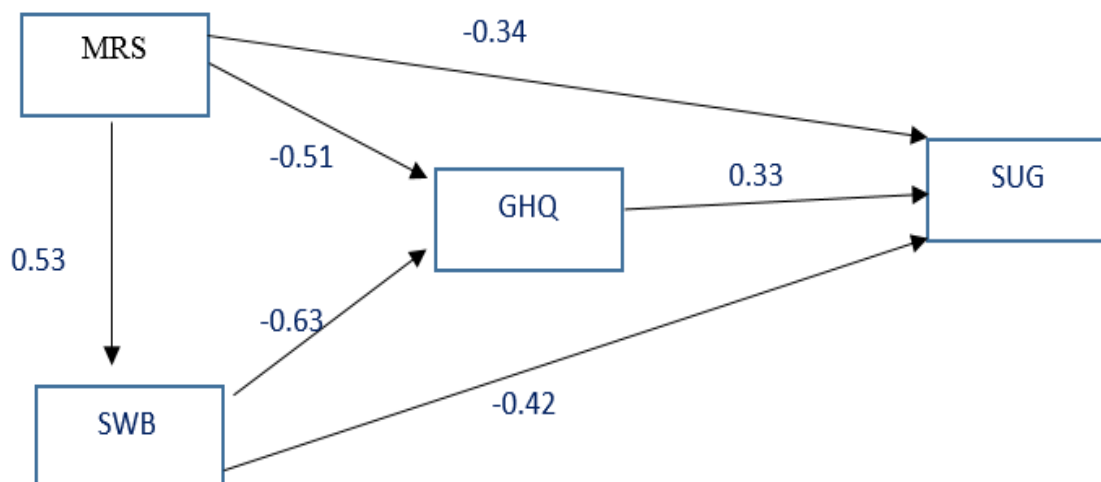


**Fig.1**: Full Empirical Path Model for the investigation of the effects of spiritual health, religiosity and mental health on the severity of fetal-neonatal rief.

PGS: Perinatal Grief Scale, GHQ: General health questionnaire, MRS: Muslim religiosity scale, SWBS: Spiritual well-being scale.

## 4- DISCUSSION

The results of this study demonstrated that there was a significant relationship between spiritual well-being level and mental health on the grief severity, so that as spiritual well-being level increased, the grief severity decreased. Also, a significant relationship was observed between religiosity level and the grief severity in such a way that, as the religiosity level increased, the grief severity reduced. In the present study, there was a significant relationship between religiosity level and

grief severity, as the religiosity level increased, the grief severity reduced. Religiousness helps to shape different aspects of social life and plays an important role in the life of human beings (41). Religion is one of the most basic human needs and has beneficial effects on individual and social life (42). Religiousness plays a significant role in different aspects of social life. Increasing studies on religiosity indicated that it is an important factor in human life (43). Religiosity can be classified into three dimensions: religious beliefs, religious interests and adherence to religious duties. Religious beliefs are often considered as the most fundamental dimension of religiosity and they determine a person's religiosity. Here, belief is synonymous with faith, and literally means belief in someone's word, acknowledging and accepting it. In religious terms, belief is defined as acceptance and heartfelt acknowledgment of the principles of religion (44). So far, several studies have been conducted to investigate the causes, complications and consequences of perinatal deaths, but very limited research has examined the relationship between spiritual well-being and religiosity especially the religion of Islam. The results of Simwaka et al.'s (2014) study showed that some participants said that the death of their baby was God's wish (45).

Few studies have been conducted on the effect of religious beliefs or religious coping on parents who have experienced a pregnancy loss while Mann et al. revealed being employed reduced the grief severity score (46). The results of the study by Cowchock et al. (2010) demonstrated that prayer and supplication reduced the grief score of perinatal loss in the next follow-up (47). Van (2001) interviewed 10 African-American women over the age of 18 years to identify strategies. The results showed that the strategies used by these women were as follows: spirituality, avoidance, inner voice of comfort, and finding purpose in the loss (48). Sereshti et al. found that religious tendencies can reduce people's pain and suffering (23). Most women used religious strategies to cope with the grief following perinatal death and they could reduce their suffering and accept their current situation by engaging in religious activities. They stated that family members, especially their spouses and mothers, were strong people who were always reminded them of the continuation of religious activities and prayer. Women who were aware of the low chance of survival of their baby before delivery also stated that they sincerely accepted it as a test from God. They agreed that they should give their baby more opportunities to have the best quality of life and did not regret it (23).

The fact that people use religious strategies to cope with stressful situations is currently supported by credible sources (49) .The results of a study by Kersting et al. showed that increased social activity and religious orientation help bereaved people to return to their normal daily lives (50). A systematic review that evaluated the effect of religious/spiritual beliefs on grief showed that the majority of the studies (94%) reported positive effects of religious/spiritual beliefs on bereavement. However, problems in design and implementation prevent a definitive conclusion. However, the role of religion in coping with stressful situations is considerably complex, and not yet fully understood (26). Also, the results indicate that according to Pearson correlation test, spiritual health has a significant relationship with mental health, so that with increase of spiritual health, mental health increases by 0.751. On the other hand, according to Pearson correlation test, religiosity has a significant relationship with mental health. Studies have shown that stillbirth and death of the baby in the mother are associated with shock, anger,

feelings of emptiness and helplessness (42), depression, guilt and negative feelings in life (51), the presence of anxiety symptoms, PTSD, suicide, substance abuse, and marital conflict (31, 52, 53). Morris et al. in 2020 showed severe forms of grief especially in parents following the death of a child. They concluded that the uniform severity of grief in the parents of dead children needs psychological intervention (54). In general, what was found in this study is extremely worrying. The findings of the present study showed the grief severity in women who experienced perinatal deaths and the relationship between spiritual well-being, religiosity levels and mental health on grief severity. Also, Johes et al. in 2019 found that the loss of a child has a drastic psychological effect on parents. This psychological effect can damage their well-being and health as well (55). It is expected that the findings of this study would be used in the science production of midwifery and reproductive health fields and students at different levels. Our findings indicated the grief severity in women who experienced perinatal deaths, thus the support and care protocol for them is one of the research priorities in Iran.

### 4-1. Limitations of the study

One of the limitations in this study was small sample size of 200 subjects but due to the low rate of perinatal deaths, we tried to increase the sample size by involving four hospitals affiliated to Shahid Beheshti University of Medical Sciences, Tehran, Iran.

### 5- CONCLUSION

The results of this study demonstrated that there was a significant relationship between spiritual well-being level and mental health on the grief severity, in which as spiritual well-being increases, the grief severity decreases. Also, a significant relationship was observed between religiosity level and the grief severity, so that as the religiosity level increases, the grief severity reduces. Considering the importance of the grief and the absence of support and care protocol for women who experienced the perinatal mortality in Iran and lack of information about mothers' experiences in this regard, it is recommended to perform further studies with a larger sample to minimize this problem.

### 6- AUTHORS' CONTRIBUTION

PP, MD and JS were the principal investigators of the study, observed accuracy and validity of the study, PP and MD collected the data and followed the study. MN and ZM Review the article and perform statistical analysis of the data and interpreted it. MD and ZM wrote the paper. All authors have read and approved the content of the manuscript and confirmed the accuracy or integrity of all parts of the work.

### 7- ACKNOWLEDGMENTS

### 8- CONFLICT OF INTEREST: None.

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