Introduction

The perinatal mortality rate, which is an index that reflects the public health and health status of mothers and newborns [1], was 3.5 per 1,000 total births in 2009 (total number, 1,546) and 2.8 per 1,000 total births in 2018 in South Korea (total number, 904), but the rate increases as mothers become (hereafter, Korean) older [2]. Although several definitions are used for perinatal death based on the time of fetal death and postnatal death, the most common definition includes deaths at more than 20 weeks of gestation and death within 28 days of birth [3].

Perinatal death usually occurs suddenly, leading to feelings of guilt in women experiencing bereavement [4]; at the same time, nurses may experience feelings of failure and helplessness when...
Summary statement

• What is already known about this topic?
  Nurses’ perceptions of caring activities related to perinatal death are related to their attitudes and education, as well as institutional policies.

• What this paper adds
  Korean nurses’ attitude toward perinatal bereavement care (PBC) was associated with the perceived importance of policies, the perceived importance of PBC-related training, and stress related to PBC. Nurses’ stress was associated with the perceived importance of training for PBC.

• Implications for practice, education, and/or policy
  Clear policies for PBC should be implemented, and relevant education programs for nurses should be developed. In order to reduce nurses’ stress related to perinatal death, institutional efforts are necessary to prevent nurses from becoming exhausted and to support nurses in PBC.

Several studies on nurses’ attitudes, perceptions, and stress related to PBC have been conducted in Israel, Hong Kong, and across the world [14,18-20], but it would be difficult to understand Korean nurses’ attitudes toward PBC and stress based on these findings because of differences in culture and health care systems. Therefore, this study examined Korean nurses’ attitudes and stress related to PBC, as well as their associations.

Methods

Ethics statement: This study was approved by the Institutional Review Board of Seoul National University Bundang Hospital (B-1908-561-305). Informed consent was obtained from the participants.

Study design
  This descriptive correlational research was conducted to identify Korean nurses’ attitudes and stress related to PBC and to examine their relationships. The description followed the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) reporting guidelines (https://www.strobe-statement.org/).

Setting and participants
  The participants of this study were nurses working at the seven general hospitals located in Seoul and Gyeonggi Province, Korea, in departments that deal with perinatal death, i.e., labor and delivery, maternity unit, newborn nursery, and neonatal intensive care units (NICUs). This choice was made because the hospitals...
in Korea that provide PBC are mainly located in these regions. Participants were recruited through convenience sampling by the snowball method. The inclusion criteria were as follows: nurses who had been working in the maternity and neonatal related units for at least 1 year at the time of the survey and who had ever experienced at least one case of perinatal death. Nurses with less than 1 year of experience were excluded because perinatal bereavement was expected to be an infrequent experience.

**Sample size**
The sample size was calculated using G*Power version 3.10, with a significance level of 0.05, power of 0.90, and a moderate effect size of 0.3. The required number of samples was determined to be 109. The questionnaire was distributed to a total of 150 nurses, considering a possible dropout rate of 20%. Out of the 148 participants who participated in the study, 12 incomplete responses were excluded and 136 questionnaires were ultimately analyzed.

**Measurements**

**Attitudes toward perinatal bereavement support**
The Nurses’ Attitudes towards Perinatal Bereavement Support (NAPBS) scale [9] was used to measure nurses’ attitudes toward PBC and to identify required support and training needs for nurses on bereavement care. It consists of three subdomains: attitudes toward PBC (13 items), importance of policies related to PBC (four items), and importance of training related to PBC (eight items).

First, permission was obtained from Moon-Fai Chan, the developer of the NAPBS [9]. The original tool was first translated into Korean and reverse-translated into English. The translation did not focus on translating individual words and their meanings into Korean; instead, the core concepts were emphasized [21], with the goal that the end product would not feel like a translated tool. A written translation was again conducted (reverse translation) into English by the nurse. The three experts who participated in the first translation reviewed the equivalence between the reverse translation and the original version to finalize the translation. Then, the content validity of the translated tool was examined by 10 nursing experts. All 25 items had a content validity index of 0.8 or higher and were selected for inclusion in the final version. Prior to the study, the translated Korean version of the NAPBS was preliminarily tested among 10 nurses. Thereafter, the Korean version of the tool was finalized.

The final 25 questions are scored on a 5-point Likert score (1, ‘I do not agree at all’ to 5, ‘I strongly agree’). Higher summed scores for each subdomain (possible range: 13–65 for attitude, 4–20 for policy importance, 8–40 for training importance) correspond to more positive attitudes toward PBC or a greater recognition of the importance of policies or training related to PBC. Chan et al. [9] reported that Cronbach’s α was .92 for the total items, and .86, .83, .90 for the three subdomains of attitude, importance of policies, and importance of training, respectively. In the current study, Cronbach’s α was .87 for the total items, and .73, .67, and .90 for the three subdomains, respectively.

**Stress related to perinatal bereavement care**
The tool developed by Jang [22] was used in this study after receiving permission. This tool is composed of 29 questions in four domains: difficulties in providing care for patients affected by perinatal death (6 items), lack of knowledge (five items), inadequacies of the environment and systems for handling perinatal death (10 items), and psychological difficulties (eight items). Using a 5-point Likert score (1, ‘do not agree at all’ to 5, ‘strongly agree’), higher summed scores (possible range, 29–145) indicate high levels of stress. For all items, Jang [22] reported that Cronbach’s α was .87, while in the current study, Cronbach’s α was .89.

**General characteristics**
A questionnaire for general characteristics was developed from the literature. Information was gathered on participants’ demographic characteristics, including level of education, religion, and marital status. Additionally, information was collected on workplace, total career experience and experience at their current workplace, number of times PBC was experienced over the years, personal bereavement experience within the past year, they were also asked about whether they had ever received training on PBC. These factors were hypothesized to be associated with nurses’ perceptions and stress related to PBC based on the research framework [9].

**Data collection**
Data were collected from September 1 to September 31, 2019, after obtaining permission from officials at the seven general hospitals in Seoul and Gyeonggi-do. Nurses working in the obstetrics or neonatal units received an explanation of the study purpose and procedures with a written protocol, and the questionnaire was distributed to nurses who voluntarily chose to participate. The researcher distributed questionnaires in an envelope individually and collected them in the same way to ensure confidentiality of the data. The participants received a small gift as a reward for participation (approximately 3 US dollars).
Data analysis
Data were analyzed using IBM SPSS for Windows ver. 25.0 (IBM Corp., Armonk, NY, USA).

General characteristics and the main variables of the study were analyzed using descriptive statistics (mean, standard deviation, frequency, and percentage). NAPBS (attitude, importance of policies, and importance of training related to PBC) and PBC-related stress according to their general characteristics were analyzed using the independent t-test and one-way analysis of variance. Pearson correlation coefficients were calculated for continuous variables. The relationships among the three subdomains of NAPBS and stress were analyzed by Pearson correlation coefficients. All tests used a significance level of 0.05.

Results

General characteristics of the participants
The average age of the nurses was 31.33 ± 6.76 years (range, 23–55 years), with the age group of 25 to 29 years comprising 44.9% of all participants. All of the participants were women, 48 (35.3%) were married (among whom 27 responded that they had children), and 79 (58.1%) had no religion. The majority (n = 105, 77.2%) had a bachelor’s degree, and 19 (14.0%) stated that they had a master’s degree or higher.

Recent experiences (within the past year) of bereavement of a close friend or family member were reported by 22 of participants (16.2%). Only 10 (7.4%) had ever received education on bereavement care, and 69 (50.7%) had no policy related to bereavement care in their current workplace.

Overall, 82.4% of participants were staff nurses, 47.1% worked in the delivery room, and 44.1% worked in the NICU. On average, nurses’ clinical career duration was 100.17 ± 81.93 months (range, 12–396 months) and 68 (50.0%) had at least 73 months of career experience. In terms of the total number of instances of PBC experienced by participants, 45 (33.1%) reported having experienced fewer than five instances, 43 (31.6%) reported having experienced 15 or more instances, and 28 participants (20.6%) reported having experienced PBC 5 to 9 times (Table 1).

Nurses’ Attitudes towards Perinatal Bereavement Support and stress related to perinatal bereavement care
The average scores for the three subdomains of NAPBS were all at greater than midpoint level; 52.59 ± 4.94 points for attitude toward PBC, 15.86 ± 2.03 points for the importance of policies related to PBC, and 34.72 ± 3.70 points for the importance of training on PBC. The item average scores for the subdomains were

Table 1. General characteristics of the participants (N=136)

| Variable                                      | Categories                      | Mean ± SD or n (%) |
|-----------------------------------------------|---------------------------------|--------------------|
| Age (year)                                    | Range: 23–55                   | 31.33 ± 6.73       |
|                                               | 20–24                           | 11 (8.1)           |
|                                               | 25–29                           | 61 (44.9)          |
|                                               | 30–34                           | 29 (21.3)          |
|                                               | ≥ 35                            | 35 (25.7)          |
| Sex                                           | Female                          | 136 (100)          |
| Religion                                      | Protestant                      | 29 (21.3)          |
|                                               | Catholic                        | 16 (11.8)          |
|                                               | Buddhist                        | 12 (8.8)           |
|                                               | None                            | 79 (58.1)          |
| Marital status                                | Unmarried                       | 88 (64.7)          |
|                                               | Married                         | 48 (35.3)          |
| Having children                               | Yes                             | 27 (19.9)          |
|                                               | No                              | 7 (5.1)            |
| Education                                     | Associate degree                | 12 (8.8)           |
|                                               | Bachelor degree                 | 105 (77.2)         |
|                                               | Master degree or more           | 19 (14.0)          |
| Bereavement experience in the past year       | Yes                             | 22 (16.2)          |
|                                               | No                              | 113 (83.1)         |
| Received education about perinatal bereavement care | Yes                          | 10 (7.4)           |
|                                               | No                              | 124 (91.2)         |
|                                               | No response                     | 2 (1.5)            |
| Have a clear policy for the management of bereavement in the workplace | Yes | 61 (44.9) |
|                                               | No                              | 69 (50.7)          |
|                                               | No response                     | 6 (4.4)            |
| Work role                                     | Staff nurse                     | 112 (82.4)         |
|                                               | Charge nurse                    | 20 (14.7)          |
|                                               | Advanced practice nurse         | 4 (2.9)            |
| Current working unit                          | Delivery room                   | 64 (47.1)          |
|                                               | NICU                            | 60 (44.1)          |
|                                               | Nursery                         | 4 (2.9)            |
|                                               | Maternity unit                  | 8 (5.9)            |
| Clinical career (month)                       | Range: 12–396                   | 100.16 ± 81.93     |
|                                               | ≤ 24                            | 19 (14.0)          |
|                                               | 25–48                           | 20 (14.7)          |
|                                               | 49–72                           | 29 (21.3)          |
|                                               | ≥ 73                            | 68 (50.0)          |
| Clinical career in the maternity or neonatal unit (month) | Range: 5–319                  | 73.44 ± 58.39      |
|                                               | ≤ 24                            | 27 (19.9)          |
|                                               | 25–48                           | 28 (20.6)          |
|                                               | 49–72                           | 28 (20.6)          |
|                                               | ≥ 73                            | 52 (39.0)          |
| Frequency facing circumstances involving bereaved parents (time) | Less than once a year          | 19 (14.0)          |
|                                               | Once a year                     | 36 (26.5)          |
|                                               | Once every 3 months             | 46 (33.8)          |
|                                               | Once a month                    | 29 (21.3)          |
|                                               | Once a week                     | 3 (2.2)            |
|                                               | Irregular                       | 3 (2.2)            |
| Total number of experiences of perinatal death (time) | < 5                           | 45 (33.1)          |
|                                               | 5–9                             | 28 (20.6)          |
|                                               | 10–14                           | 20 (14.7)          |
|                                               | ≥ 15                            | 43 (31.6)          |

NICU: Neonatal intensive care unit.
4.05 ± 0.38, 3.97 ± 0.51, and 4.34 ± 0.46, respectively, also at greater than midpoint level. Specifically, the highest scores were reported for “It is important to find support when feeling emotional exhaustion” (4.58 points), “We need to provide enough time for bereaved parents to mourn” (4.54 points), and “I will treat bereaved parents with respect and dignity” (4.51 points) (Table 2).

Regarding the nurses’ stress, the overall average score was greater than midpoint level (112.16 ± 13.46). The items with the highest scores were “caring for a dying newborn along with a heavy workload” (4.25 points) and “telling parents that their neonate has a poor prognosis” (4.25 points) (Table 3).

### Nurses’ Attitudes towards Perinatal Bereavement Support and stress related to perinatal bereavement care by general characteristics

Attitude toward PBC showed significant associations with having received training on PBC (t = –3.38, p = .001) and length of career experience in maternity and neonatal units (r = .22, p = .005). The importance of policies related to PBC showed significant associations with the existence of a policy in the workplace (t = –.423, p < .001), the number of experiences of PBC (F = 4.47, p = .005), and length of career experience in related units (r = .19, p = .015). The importance of training for PBC was associated with length of career experience in related units (r = .16, p = .029), and the number of experiences of PBC (F = 4.15, p = .008). However, no factor showed a significant relationship with nurses’ PBC-related stress (Table 4).

| Table 2. Levels of Nurses’ Attitudes towards Perinatal Bereavement Support (N=136) |
|------------------------------------------|------------------|
| **Contents**                             | **Mean ± SD**    |
| Attitude toward perinatal bereavement care |                  |
| I agree that parents should be given time to grieve. | 52.59 ± 4.94 |
| I agree that parents should be treated with respect and dignity. | 4.54 ± 0.54 |
| All those who care for and support bereaved parents should have access to support for themselves. | 4.51 ± 0.56 |
| I agree that parents should be supported in making their own decisions about what happens to them. | 4.36 ± 0.53 |
| All those involved in the care of bereaved parents should be well informed. | 4.34 ± 0.57 |
| I agree that a private room should be arranged for a woman who is suffering from intrauterine death. | 4.26 ± 0.79 |
| I respect bereaved parents’ feelings and needs. | 4.12 ± 0.81 |
| I will communicate with parents in a clear, sensitive, and honest manner. | 4.12 ± 0.60 |
| I believe that a grief counseling program can provide psychological support to the bereaved couple. | 4.07 ± 0.62 |
| I agree that parent support groups can provide support to parents with similar experiences. | 3.98 ± 0.68 |
| I am confident in providing perinatal bereavement support to bereaved couples. | 3.93 ± 0.75 |
| I believe that a photograph and footprints can assist parents in working through their grief. | 3.68 ± 0.66 |
| I will encourage the bereaved couples to view and hold their baby’s body. | 3.35 ± 1.33 |
| Perceived importance of policy to perinatal bereavement care |                  |
| The policy should be understood by all staff involved. | 3.32 ± 1.25 |
| The policy should be clearly informed to all staff involved. | 4.05 ± 0.62 |
| Nurses should feel assured that they are working within an operational policy which is adequate and appropriate. | 3.86 ± 2.03 |
| The unit should have a clear policy for the management of bereavement. | 4.21 ± 0.62 |
| Perceived importance of training for perinatal bereavement care |                  |
| Seeking support when feeling burnout. | 4.37 ± 1.20 |
| Nurses involved in the care and support of bereaved parents need to be equipped with relevant knowledge, skills, and understanding. | 4.37 ± 1.05 |
| Sharing the experience with colleagues and working as a team. | 4.46 ± 1.05 |
| Nurses need to feel confident that they are providing adequate and appropriate care. | 4.41 ± 0.55 |
| Nurses need to know that they have a limitation when providing perinatal bereavement care. | 4.17 ± 1.20 |
| Nurses need opportunities to express their own feelings and needs. | 4.23 ± 1.06 |
| Participating in bereavement care. | 4.21 ± 0.65 |
| Joining training program on bereavement care. | 4.17 ± 0.67 |
The overwhelming majority of the participants in this study (91.2%) had not received training on bereavement care, and nurses who had received education on PBC showed more positive attitudes toward PBC than those who had not. Participants’ responses revealed a high degree of necessity of training for PBC, and participants simultaneously reported a high level of stress due to a knowledge deficit when providing nursing care for a dying baby. PBC education for health care professionals has been shown to be effective for enhancing their perceptions of emotional support for bereaved parents [23]. Bereavement services for nurses can be improved by including guidelines, policies, and educational support, the most important components of which are education and training on adequate communication with women and families experiencing bereavement, wishes and needs assessments, connecting nurses with peer support, and formulating a debriefing plan for staff members [12]. Although guideline development for PBC is difficult due to a lack of empirical evidence and the emotionally burdensome nature of the experience,

**Table 3. Levels of nurses’ stress related to perinatal bereavement care (N=136)**

| Contents                                                                 | Mean ± SD     |
|--------------------------------------------------------------------------|---------------|
| **Lack of knowledge**                                                    | 19.80 ± 2.87  |
| - When you cannot give emotional support to bereaved parents due to a lack of communication skills | 4.14 ± 0.72   |
| - When an emergency situation cannot be handled quickly                   | 4.08 ± 0.96   |
| - When it is difficult to give systematic care to a dying baby            | 3.93 ± 0.80   |
| - When knowledge of terminal care is not sufficient                       | 3.88 ± 0.80   |
| - When the treatment and nursing care of a dying baby is not timely        | 3.77 ± 0.91   |
| **Lack of an appropriate physical and structural environment**            | 39.25 ± 5.73  |
| - When talking to bereaved parents about the poor prognosis of a baby     | 4.25 ± 0.71   |
| - When administrative work is delayed after a death of baby              | 4.03 ± 0.90   |
| - When turning away from the sadness of bereaved parents                 | 4.01 ± 0.83   |
| - When there is no guideline or policy for bereavement care               | 3.98 ± 0.84   |
| - When bereaved parents do not have enough time spent with their dying baby | 3.97 ± 0.80   |
| - When it is difficult to give a private room to bereaved parents         | 3.95 ± 0.83   |
| - When having to explain the administrative work of funeral procedures after death | 3.82 ± 1.07   |
| - When parents want ongoing life-sustaining treatment, even if the baby's condition is hopeless | 3.80 ± 1.02   |
| - When bereaved parents do not accept their baby's death after a doctor declares it | 3.76 ± 1.07   |
| - When parents do not make any decision about a dying baby's care plan    | 3.68 ± 0.92   |
| **Difficulties related to end-of-life care practice**                    | 23.46 ± 3.72  |
| - When you have to care for a dying baby with a heavy workload            | 4.25 ± 0.83   |
| - When carrying out post-mortem treatment directly                        | 4.07 ± 1.01   |
| - When caring for dying babies frequently                                | 4.04 ± 0.85   |
| - When a terminal baby's care brings a work overload                     | 3.90 ± 1.06   |
| - When nursing a dying baby is physically exhausting due to excessive physical labor | 3.79 ± 1.04   |
| - When bereaved parents have a lot of requirements when a baby is about to die | 3.41 ± 1.16   |
| **Emotional stress**                                                     | 39.25 ± 5.73  |
| - When a long-term nursing baby dies                                      | 4.06 ± 0.94   |
| - When you think you would experience a dying baby again                  | 3.97 ± 1.05   |
| - When caring for another baby before grieving for a baby                | 3.82 ± 0.99   |
| - When your feelings become dull as you experience repeated death         | 3.80 ± 0.99   |
| - When you need to perform temporary symptomatic nursing care and not care for a therapeutic purpose | 3.63 ± 0.86   |
| - When trying to forget a dying baby, but not finding it easy             | 3.52 ± 0.99   |
| - When you cannot talk about your feelings after experiencing the death of a baby | 3.49 ± 0.94   |
| - When a baby's death is felt to result from the nurse's own failure     | 3.37 ± 1.26   |
| **Total**                                                                | 112.16 ± 13.46|

The distance of training on PBC ($r = .38, p < .001$) (Table 5).

**Discussion**

The overwhelming majority of the participants in this study (91.2%) had not received training on bereavement care, and nurses who had received education on PBC showed more positive attitudes toward PBC than those who had not. Participants’ responses revealed a high degree of necessity of training for PBC, and participants simultaneously reported a high level of stress due to a knowledge deficit when providing nursing care for a dying baby. PBC education for health care professionals has been shown to be effective for enhancing their perceptions of emotional support for bereaved parents [23]. Bereavement services for nurses can be improved by including guidelines, policies, and educational support, the most important components of which are education and training on adequate communication with women and families experiencing bereavement, wishes and needs assessments, connecting nurses with peer support, and formulating a debriefing plan for staff members [12]. Although guideline development for PBC is difficult due to a lack of empirical evidence and the emotionally burdensome nature of the experience,
Table 4. Associations of nurses’ attitudes towards perinatal bereavement domains and stress related to perinatal bereavement care (PBC) according to general characteristics (N=136)

| Characteristics                              | Categories                           | n       | Attitude toward PBC | Perceived importance of policy on PBC | Perceived importance of training for PBC | Nurses’ stress related PBC |
|----------------------------------------------|--------------------------------------|---------|---------------------|--------------------------------------|-----------------------------------------|--------------------------|
|                                              |                                      |         | Mean ± SD            | r or t or F (p)                      | Mean ± SD                                | r or t or F (p)            | Mean ± SD                                | r or t or F (p) |
| Age (year)                                   |                                      |         | Mean ± SD            | r or t or F (p)                      | Mean ± SD                                | r or t or F (p)            | Mean ± SD                                | r or t or F (p) |
| Religion                                     | Have                                 | 56      | 53.43 ± 5.30         | .13†                                | 15.75 ± 2.24                             | .02†                      | 35.30 ± 3.91                             | .01†               |
|                                              | Not have                             | 80      | 52.00 ± 4.61         | (.097)                              | 15.93 ± 1.88                             | (.599)                    | 34.31 ± 3.51                             | (.124)              |
| Marital status                               | Unmarried                            | 88      | 52.07 ± 4.48         | 1.67                                | 15.86 ± 2.11                             | -.03                     | 34.69 ± 3.48                             | .12                |
|                                              | Married                              | 48      | 53.54 ± 5.61         | (.097)                              | 15.85 ± 1.90                             | (.979)                    | 34.77 ± 4.10                             | (.907)              |
| Education                                    | Associate                            | 12      | 52.50 ± 5.99         | .49                                 | 16.08 ± 2.43                             | .09                      | 36.25 ± 3.57                             | 1.53               |
|                                              | Bachelor                             | 105     | 52.41 ± 4.86         | (.615)                              | 15.83 ± 2.03                             | (.917)                    | 34.45 ± 3.71                             | (.220)              |
|                                              | Master                               | 19      | 53.63 ± 4.81         | 1.67                                | 15.89 ± 1.88                             | .35                      | 35.26 ± 3.60                             | .11               |
| Bereavement experience in the past year      | Yes                                  | 22      | 52.74 ± 4.43         | -.16                                | 15.36 ± 2.54                             | 1.25                     | 34.95 ± 3.42                             | -.32               |
|                                              | No                                   | 114     | 52.56 ± 5.04         | (.875)                              | 15.96 ± 1.92                             | (.212)                    | 34.68 ± 3.76                             | (.747)              |
| Received education about perinatal bereavement care | Yes                             | 10      | 57.40 ± 3.34         | -.33                                | 16.90 ± 2.47                             | -1.69                    | 36.70 ± 3.13                             | -1.78              |
|                                              | No                                   | 124     | 52.14 ± 4.82         | (.001)                              | 15.79 ± 1.96                             | (.949)                    | 34.54 ± 3.72                             | (.078)              |
| Had a clear policy for the management of bereavement in my working hospital | Yes                             | 61      | 53.14 ± 4.99         | -.15                                | 16.52 ± 1.79                             | -4.23                    | 35.26 ± 3.60                             | -1.80              |
|                                              | No                                   | 69      | 51.83 ± 4.79         | (.129)                              | 15.13 ± 1.95                             | (<.001)                   | 34.10 ± 3.74                             | (.074)              |
| Work role                                    | Staff nurse                          | 112     | 52.33 ± 4.64         | 2.07                                | 15.71 ± 2.06                             | 1.95                     | 34.58 ± 3.53                             | 1.26               |
|                                              | Advanced practice nurse              | 4       | 57.25 ± 4.35         | (.130)                              | 17.25 ± 1.50                             | (.148)                    | 37.50 ± 3.70                             | (.288)              |
|                                              | Charge nurse                         | 20      | 53.10 ± 6.28         | 1.64                                | 16.40 ± 1.82                             | (.829)                    | 34.95 ± 4.52                             | (.822)              |
| Current working unit                         | Delivery room                        | 64      | 51.14 ± 5.21         | 5.58                                | 15.70 ± 2.19                             | .85                      | 34.28 ± 4.01                             | .84                |
|                                              | NICU‡                                | 60      | 54.14 ± 3.89         | (.001)                              | 15.88 ± 1.80                             | (.470)                    | 35.15 ± 3.30                             | (.474)              |
|                                              | Nursery                              | 4       | 56.50 ± 5.07         | (.695)                              | 17.25 ± 2.75                             | (.275)                    | 36.25 ± 5.68                             | (.775)              |
|                                              | Maternity unit                       | 2       | 50.62 ± 5.83         | 16.25 ± 2.05                         | 34.25 ± 2.71                             | (.375)                    | 113.13 ± 10.30                           |                  |
| Clinical career (month)                      |                                      |         | Mean ± SD            | r or t or F (p)                      | Mean ± SD                                | r or t or F (p)            | Mean ± SD                                | r or t or F (p) |
|                                              |                                      |         | Mean ± SD            | r or t or F (p)                      | Mean ± SD                                | r or t or F (p)            | Mean ± SD                                | r or t or F (p) |
| Frequency of caring for grieving parents     | Less than one a year                 | 19      | 52.91 ± 4.02         | 1.52                                | 15.84 ± 2.46                             | .41                      | 34.47 ± 3.01                             | .41                |
|                                              | Once a year                          | 36      | 54.21 ± 4.52         | (.189)                              | 15.79 ± 1.91                             | (.843)                    | 35.27 ± 3.54                             | (.839)              |
|                                              | Once a quarter of a year             | 46      | 52.61 ± 5.76         | 1.50                                | 15.90 ± 1.70                             | (.403)                    | 34.73 ± 4.00                             | (.843)              |
|                                              | Once a month                         | 29      | 50.90 ± 4.73         | 1.57                                | 15.57 ± 2.38                             | (.979)                    | 34.50 ± 3.26                             | (.124)              |
|                                              | Once a week                          | 3       | 51.00 ± 2.83         | 16.00 ± 1.41                         | 34.60 ± 2.12                             | (.615)                    | 129.00 ± 4.24                            |                  |
|                                              | Irregular                            | 3       | 51.84 ± 4.34         | 16.54 ± 2.11                         | 33.84 ± 5.16                             | (.615)                    | 106.84 ± 18.47                           |                  |
| Total number of experienced perinatal death (time) | < 5‡                              | 45      | 53.79 ± 4.14         | 1.96                                | 16.18 ± 2.08                             | 4.47                      | 35.53 ± 3.21                             | 4.15               |
|                                              | 5–9‡                                 | 28      | 50.96 ± 4.48         | (.122)                              | 15.11 ± 1.77                             | (.006)                    | 32.75 ± 4.24                             | (.008)              |
|                                              | 10–14‡                               | 20      | 52.26 ± 5.55         | 14.95 ± 2.14                         | 34.30 ± 3.29                             | (a,d>b)                   | 11.10 ± 12.98                            |                  |
|                                              | ≥ 15‡                                | 43      | 52.55 ± 5.50         | 16.44 ± 1.86                         | 35.35 ± 3.58                             | (.843)                    | 113.60 ± 14.07                           |                  |

NICU: Neonatal intensive care unit.

†Scheffé test, ‡Pearson correlation coefficients.

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high-quality bereavement care is critical for women and families following perinatal death [7]. It is urgently necessary to address nurses’ educational needs related to PBC. A prerequisite for this is the development and dissemination of the educational materials related to PBC for Korean nurses.

As the three domains of NAPBS—attitude, importance of policies, and importance of training—were found to be closely related, supporting nurses in terms of attitudes, related policies, and the provision of training or education on PBC may facilitate provision of PBC. Medical institutions and hospitals in Korea should therefore establish clear policies and supportive programs related to PBC for nurses.

Regarding the NAPBS, each of the three subdomains can be considered separately. First, regarding attitudes toward PBC, nurses showed a positive attitude toward giving the parents sufficient time for the bereavement process, but they seemed to hesitate and worry about showing the dying baby to the parents. This is similar to the finding of a previous Korean study [24] that nurses felt conflicted about whether to accept or reject parents’ requests to see their dead baby. However, in a systematic review, Kingdon et al. [25] reported that showing parents their dead baby and giving them the chance to hold the baby could help in the parents’ bereavement process. No guideline or protocol currently exists regarding whether parents can view or photograph their dead baby in Korea; therefore, culturally-specific conversations among health professionals are needed to address this issue. Second, regarding policies, our sample of nurses showed a high level of recognition of the importance of all staff members understanding policies related to PBC, which supports the findings of Chan et al. [26] from three cities in Asia. Third, in relation to the importance of training, nurses placed the highest importance on seeking support when they were emotionally exhausted. This finding is similar to the results of a previous study [27], in which Korean nurses working in the NICU sought social support as their coping mechanism. Furthermore, this supports another Korean study that reported nurses had the strongest demand regarding stress and exhaustion among the palliative nursing education needs [28].

In regard to nurses’ stress related to PBC, the findings of high levels of stress when informing parents of a poor prognosis and coping with PBC in combination with a heavy workload are consistent with those of previous studies in Korea; on nurses caring for dying adults [29-31] and neonates in the NICU [22]. Therefore, administrative efforts are needed in the hospital setting to improve the efficiency of the distribution of nurses’ workload and to provide spaces for parents to mourn when perinatal death

### Table 5. Relationships among nurses’ attitudes towards perinatal bereavement (NABPBS) and stress related to perinatal bereavement care (PBC)

| Variable | NABPBS, r (p) | Stress related to PBC, r (p) |
|----------|---------------|-----------------------------|
| Attitude toward PBC | Perceived importance of policy on PBC | -0.29 (<0.001) |
| | Perceived importance of training for PBC | -0.33 (<0.001) |
| | Lack of knowledge | -0.24 (<0.001) |
| | Lack of physical and structural environment | -0.14 (0.110) |
| | Difficulties related to end-of-life care practice | -0.24 (0.009) |
| | Emotional stress | -0.29 (<0.001) |
| | Total scores of stress related PBC | -0.32 (<0.001) |

https://doi.org/10.4069/kjwhn.2022.05.24.1
occurs. Nurses who will experience PBC could be monitored for their feelings, emotions, and stress related to PBC and counseled at any time before or after PBC. This study’s findings of an association between nurses’ stress and attitudes toward PBC and the perceived importance of training for PBC, can be interpreted as implying that when nurses perceive PBC as a nursing duty for which they are responsible, they easily feel stress and need professional training. Thus when providing PBC education for nurses, we should consider their burden and stress related to PBC and perform an intervention to reduce nurses’ sense of stress or pressure.

Regarding the relationships of general characteristics to the NAPBS, it was found that previous training on PBC was related to a positive attitude toward PBC, consistent with the findings of Chan et al. [9], which emphasizes the importance of nurse training on PBC. Nurses were more aware of the importance of policies when their departments had a clear policy about bereavement care, which is similar to another study in Korea [32], indicating that policies or protocols should be established to improve nurses’ recognition and performance of bereavement care. In this study, there was an unclear relationship between the frequency of PBC and the perceived importance of training for PBC. A possible interpretation may be that as nurses came to have more experiences of PBC, or nurses experienced PBC relatively infrequently, they perceived PBC training as more important or valuable or became increasingly aware of the difficulties and their lack of confidence regarding PBC.

The limitations of this study are as follows. First, participants were selected using convenience sampling, which could interfere with the generalizability of the results to all nurses, especially since variations exist in hospital policies, departmental characteristics, and patient severity. As the Korean version of the NAPBS used in this study was translated and used for the first time, qualitative research on Korean nurses’ attitudes toward PBC, would be beneficial to reexamine the domains of the tool and possibly reconstruct it. Also, nurses’ stress was measured using a tool developed for nurses working in the NICU and may be limited in fully reflecting nurses’ stress for perinatal death outside of the NICU, such as in the delivery room. Thus, there is a need to develop a tool capable of sensitively measuring nurses’ stress related to PBC.

In conclusion, nurses’ attitudes toward PBC were higher if they had received training on perinatal death and if relevant policies had been clearly established in their workplace. More positive attitudes toward PBC were associated with higher stress. Therefore, clear policies for PBC should be implemented, and relevant education programs for nurses should be developed. In order to reduce nurses’ stress related to perinatal death, institutional efforts are necessary to prevent nurses from becoming exhausted and to support nurses in the PBC.

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Conceptualization, Formal analysis: Kim E, Kim HW; Data collection, Funding acquisition: Kim E; Writing–original draft: Kim E; Writing–review & editing: Kim HW.

**Conflict of interest**

The authors declared no conflict of interest.

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**Data availability**

The dataset files are available from Harvard Dataverse at https://doi.org/10.7910/DVN/PATF8B

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