EMPIRICAL RESEARCH QUANTITATIVE

# Factors influencing the burnout dimensions among nurses: A cross-sectional study in South Korea

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## Abstract

**Aim:** To investigate the factors influencing three dimensions of burnout among clinical nurses in South Korea.

**Design:** Descriptive, correlational and cross-sectional study.

**Methods:** We recruited 300 clinical nurses to participate in an online survey conducted in June 2021. Purposive sampling was used for the survey. Multiple linear regression was used for data analysis.

**Results:** The regression models explained 55.8%, 45.8% and 34.3% variances in emotional exhaustion, depersonalization and personal accomplishment respectively. Emotional exhaustion was influenced by experience in the current department, working overtime, shift type, depression, job stress and emotional labour. Depersonalization was influenced by gender, hospital size, the associated department, overtime, coping strategies, depression and emotional labour. Personal accomplishment was influenced by clinical experience, shift type, resilience and the perceived threat of coronavirus disease 2019.

**KEYWORDS**
burnout, clinical nurses, working environment

## 1 | INTRODUCTION

Burnout in nurses is a global phenomenon. A meta-analysis revealed 11.23% of nurses worldwide experienced burnout (Woo et al., 2020). Clinical nurses in South Korea are employed in labour-intensive work environments that enhance burnout (Jin et al., 2019). The negative impact of clinical nurse burnout has been demonstrated to increase the risk of medical errors and extend patient stay in the hospital (Gómez-Urquiza, De la Fuente-Solana, et al., 2017). Moreover, the quality of nursing services can be adversely affected by a reduced willingness to work, decreased efficiency, frequent absenteeism and high turnover due to burnout (Kim & Yang, 2015;

Molina-Praena et al., 2018). Recently, during the coronavirus disease 2019 (COVID-19) pandemic, the perceived threat of COVID-19 aggravated nurse burnout (Lee et al., 2015; Manzano García & Ayala Calvo, 2020). Therefore, it is essential to understand the burnout levels of clinical nurses and identify the factors that affect it.

## 2 | BACKGROUND

According to the International Classification of Diseases, 11th Revision (ICD-11, 2021) of the World Health Organization (WHO), burnout has three dimensions: emotional exhaustion, depersonalization

and personal accomplishment. Emotional exhaustion refers to a feeling of energy depletion. Depersonalization refers to increased mental distance from one's job. Reduced personal accomplishment refers to a sense of ineffectiveness or a lack thereof.

However, several burnout-related factors have been identified and are defined as single concepts. Sociodemographic factors such as age (Gómez-Urquiza, Vargas, et al., 2017) and marital status (Lee et al., 2015) as well as work environments such as shifts, overtime (Cañadas-De la Fuente et al., 2018; Rezaei et al., 2018) and emergency departments or intensive care units (Fernandes et al., 2017; Gómez-Urquiza, Vargas, et al., 2017) have been reported to increase nurse burnout.

Psychological factors that trigger burnout have been described extensively in the literature. Factors such as emotional labour, depression (de Oliveira et al., 2019; Lee et al., 2015) and job stress (Khamisa et al., 2013) have been frequently reported to increase nurse burnout. 'Tae-wom', a type of workplace violence, describes inflicting physical or mental pain or worsening the working environment for fellow nurses beyond the proper scope of work by exploiting a superior position in the workplace (Choi & Yang, 2020; Jeong, 2018). This has been primarily reported in nursing in South Korea and has frequently been reported to increase nurse burnout (Choeng & Lee, 2016; Kwon & Lee, 2018). Compared to the well-studied factors that aggravate nurse burnout, there is little evidence regarding the protective factors that mitigate burnout. One frequently reported factor is resilience (Jackson et al., 2018). Additionally, adopting coping behaviours is known to lower the degree of burnout (Ha & Sung, 2018).

Although studies have been conducted to ascertain the determinants of nurse burnout, most have approached burnout as a single concept rather than exploring the three WHO-defined dimensions of burnout. Additionally, the factors studied to date have focused on the negative aspects of burnout (Gómez-Urquiza, De la Fuente-Solana, et al., 2017; Kim & Yang, 2015). The clinical environment has changed dramatically since the COVID-19 pandemic, significantly increasing nurse burnout (Manzano García & Ayala Calvo, 2020; Ross, 2020). This change is related to the difference in the degree of infection control, use of personal protective gear and nursing procedures, and thus considerably alters nurses' workload (Manzano García & Ayala Calvo, 2020). Therefore, we investigated factors that may influence the three dimensions of burnout among clinical nurses in the post-COVID-19 era.

# 3 | THE STUDY

## 3.1 | Aims

This study aimed to identify the degree of burnout among Korean nurses and the factors that affect burnout in the context of social and medical environment changes brought about by the COVID-19 pandemic.

# 4 | METHODS

## 4.1 | Study design and participants

In this descriptive, correlational and cross-sectional study, we recruited clinical nurses to explore the factors that could influence the three dimensions of burnout. The inclusion criterion was clinical nurses who had been providing independent care for the past month during data collection. The sample size was calculated based on previous research (Galanis et al., 2021; Kim & Yang, 2015; Manzano García & Ayala Calvo, 2020): for a fixed model, multiple linear regression using G-power 3.1 (Faul et al., 2009) with an effect size of 0.1, α 0.05 and power 0.95; the number of possible predictors was 8, and the minimum required sample size was 236. A total of 300 participants were recruited for the study.

## 4.2 | Instruments

### 4.2.1 | Sociodemographic and work-related characteristics

Regarding demographic characteristics, the participants' gender, age, marital status, religion and educational level were assessed. The participants' work-related characteristics, job position, hospital size, clinical experience, experience in the current department, working department, overtime during the past month and type of work were assessed.

### 4.2.2 | Study variables

Emotional labour was measured using the scale developed by Morris and Feldman (1996), translated into Korean and validated by Song (2011). This scale comprises nine items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The possible scores range from 9 to 45, with higher scores indicating increased emotional labour. In this study, Cronbach's α was 0.86.

Depression was measured using the Center for Epidemiologic Studies Depression Scale (Radloff, 1977). This scale has been translated into Korean and validated by Lee et al. (2016). The scale consists of 20 items rated on a 5-point Likert scale (0 = less than 1 days, 4 = almost every day for 2 weeks). Possible scores range from 0 to 80, with higher scores indicating increased depression. In this study, Cronbach's α was 0.94.

Job stress was measured using the instrument developed by Gu and Kim (1985) and modified by Ahn (2003). This scale consists of 23 items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The possible scores range from 23 to 115, with higher scores indicating increased job stress. In this study, Cronbach's α was 0.93.

Tae-wom was measured using a scale developed and validated by Korean nurses (Choi & Yang, 2020). This scale comprises 26 items rated on a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree).

Possible scores range from 26 to 104, with higher scores indicating an increased degree of Tae-wom. In this study, Cronbach's α was 0.95.

The perceived threat of COVID-19 (Manzano García & Ayala Calvo, 2020) comprised four items rated on a 5-point Likert scale (0 = not at all, 4 = a lot). Possible scores range from 0 to 16, with higher scores indicating an increased degree of a perceived threat of COVID-19. In this study, Cronbach's α was 0.76.

Resilience was measured using the Korean version (Baek et al., 2010) of the Connor-Davidson Resilience Scale (Connor & Davidson, 2003). This scale comprises 25 items rated on a 5-point Likert scale (0 = strongly disagree, 4 = strongly agree). Possible scores range from 0 to 100, with higher scores indicating increased resilience. In this study, Cronbach's α was 0.9.

Coping behaviour was measured using the Way of Coping Checklist (Lazarus & Folkman, 1984), translated into Korean and validated by Oh and Han (1990). This scale comprises 33 items rated on a 4-point Likert scale (1 = never, 4 = always) that measures six coping behaviours: problem-focused (eight items), wishful thinking (five items), detachment (six items), seeking social support (seven items), focusing on the positives (four items) and tension reduction (three items). The Cronbach's α values for these coping behaviours were 0.66, 0.52, 0.55, 0.62, 0.57 and 0.28 respectively. Three items on tension reduction were excluded from this study because of their low reliability.

### 4.2.3 | Outcome variable

Burnout was measured using the Maslach Burnout Inventory (Maslach & Jackson, 1981), validated and translated into Korean by Kang and Kim (2012). This scale consists of 22 items rated on a 7-point Likert scale (0 = not at all, 6 = every day): emotional exhaustion (nine items), depersonalization (five items) and personal accomplishment (eight items). Higher scores on emotional exhaustion and depersonalization indicate higher burnout, whereas higher scores on personal accomplishment indicate lower burnout. Cronbach's α values were 0.9, 0.8 and 0.86, respectively, for the three dimensions of burnout: emotional exhaustion, depersonalization and personal accomplishment.

### 4.3 | Data collection

In June 2021, advertisements were posted to recruit participants from three large online nursing communities. The members of these three online communities were 960, 94,000 and 170,000 respectively. A purposive sampling method was used to recruit clinical nurses. Participants reviewed the inclusion criteria before participating in the online survey.

### 4.4 | Data analysis

We used R 4.1.0 for Windows to facilitate data analysis. Descriptive statistics were used to report sociodemographic and work-related characteristics and study variables. Differences in demographic and work-related variables across the three dimensions of burnout were assessed using $t$-tests and ANOVA. Pearson's correlation coefficient was used to examine the relationships between the study variables. Multiple regression analyses were used to identify factors influencing the three dimensions of burnout.

### 4.5 | Ethical considerations

Before conducting the survey, we received approval from the institutional review board of the principal investigator's institution. Informed consent was obtained from all the participants. At the end of the survey, a referral list and the researcher's contact information were provided to those who might have experienced distress due to burnout-related questions.

## 5 | RESULTS

### 5.1 | Demographic and work-related characteristics and study variables

Table 1 lists the study variables. Our participants were 32.6 ± 5.6 years old, primarily female (94.0%), and most had a bachelor's degree (70%). More than half of the participants were single (58.0%) and worked as staff nurses (80%) in hospitals with more than 500 beds (69.9%). The scores for the burnout dimensions were 30.61 ± 10.83 (range: 0–54) for emotional exhaustion, 13.37 ± 6.53 (range: 0–30) for depersonalization and 29.86 ± 8.39 (range: 0–48) for personal accomplishment.

### 5.2 | Differences in burnout according to demographic and work-related variables

The differences in burnout dimensions according to demographic and work-related variables are shown in Table 2. Emotional exhaustion significantly differed according to age ($F = 6.166$, $p = 0.002$), marital status ($F = 2.132$, $p = 0.034$), educational level ($F = 3.67$, $p = 0.027$), clinical experience ($F = 3.859$, $p = 0.022$), overtime ($F = 2.752$, $p = 0.019$) and type of shift ($F = 5.544$, $p = 0.004$). Using the Scheffé test as a post hoc analysis, further differences were identified in the ANOVA results. Nurses in their 20s had higher scores for emotional exhaustion than those in their 30s and 40s. Nurses with bachelor's degrees had higher emotional exhaustion scores than those with graduate degrees. Nurses with less than 5 years of clinical experience had higher scores for emotional exhaustion than those with more than 10 years of clinical experience. Nurses who worked 8-h shifts had higher scores for emotional exhaustion than those who worked fixed shifts. There were no significant differences in emotional exhaustion according to gender, religion, job position, hospital size, experience in the current department, working department and overtime during the past month.

**TABLE 1** Demographic and work-related characteristics and study variables (*N* = 300).

| Variables | N (%) | Mean (SD) | Possible range of scores |
|---|---|---|---|
| I. General characteristics | | | |
| Gender | | | |
| Female | 282 (94.0) | | |
| Male | 12 (4.0) | | |
| N/A | 6 (2.0) | | |
| Age (years) | | 32.6 (5.6) | |
| 20–29 | 93 (31.0) | | |
| 30–39 | 168 (56.0) | | |
| ≥40 | 39 (13.0) | | |
| Marital status | | | |
| Married | 125 (41.7) | | |
| Single | 174 (58.0) | | |
| Divorced/Separated | 1 (0.3) | | |
| Religion | | | |
| Yes | 135 (45.0) | | |
| No | 165 (55.0) | | |
| Education level | | | |
| Diploma | 26 (8.7) | | |
| Bachelor's degree | 210 (70.0) | | |
| Graduate degree | 64 (21.3) | | |
| Job position | | | |
| Staff nurse | 240 (80.0) | | |
| Charge nurse/Head nurse/Team leader | 60 (20.0) | | |
| Hospital size (beds)[a] | | | |
| ≤100 | 29 (9.7) | | |
| 101~500 | 61 (20.4) | | |
| ≥500 | 209 (69.9) | | |
| Clinical experience (years)[a] | | 105.9 (68.4) | |
| <5 | 80 (27.2) | | |
| 5~10 | 124 (42.2) | | |
| >10 | 90 (30.6) | | |
| Experience at current department (years)[a] | | 56.1 (48.5) | |
| <5 | 187 (63.8) | | |
| 5~10 | 80 (27.3) | | |
| >10 | 26 (8.9) | | |
| Working department | | | |
| General ward | 131 (43.7) | | |
| ICU | 44 (14.7) | | |
| Special units | 41 (13.7) | | |
| Outpatient clinic/administration | 78 (26.0) | | |
| Others | 6 (2.0) | | |
| Overtime on average during the past month (hours)[a] | | 57.2 (62.4) | |
| None | 49 (16.7) | | |
| ≤0.5 | 86 (29.3) | | |
| ≤1 | 90 (30.6) | | |

**TABLE 1** (Continued)

| Variables | N (%) | Mean (SD) | Possible range of scores |
|---|---|---|---|
| ≤1.5 | 22 (7.5) | | |
| ≤2 | 30 (10.2) | | |
| >2 | 17 (5.8) | | |
| Type of shift | | | |
| Fixed | 114 (38.0) | | |
| 8-h shift | 166 (55.3) | | |
| 12-h shift | 18 (6.0) | | |
| Others | 2 (0.7) | | |
| II. Study variables | | | |
| Burnout | | | |
| Emotional exhaustion | | 30.61 (10.83) | 0~54 |
| Depersonalization | | 13.37 (6.53) | 0~30 |
| Personal accomplishment | | 29.86 (8.39) | 0~48 |
| Emotional labour | | 32.15 (6.21) | 9~45 |
| Depression | | 12.58 (11.71) | 0~80 |
| Job stress | | 81.38 (15.29) | 23~115 |
| Tae-wom | | 47.51 (14.66) | 26~104 |
| Perceived threat of COVID-19 | | 11.66 (3.11) | 0~16 |
| Resilience | | 62.01 (11.42) | 0~100 |
| Coping behaviour | | | |
| Problem focused | | 2.98 (0.53) | 1~4 |
| Wishful thinking | | 2.62 (0.79) | 1~4 |
| Detachment | | 2.60 (0.71) | 1~4 |
| Seeking social support | | 2.82 (0.80) | 1~4 |
| Focusing on the positives | | 2.88 (0.61) | 1~4 |
| Tension reduction | | 2.49 (0.91) | 1~4 |

Abbreviations: ICU, intensive care unit; N/A, not available; SD, standard deviation.

[a]Variable of $N < 300$ owing to missing values.

Depersonalization significantly differed according to age ($F = 9.834, p < 0.0001$), marital status ($t = 2.46, p = 0.014$), educational level ($F = 4.143, p = 0.017$), clinical experience ($F = 6.377, p = 0.002$), experience in the current department ($F = 3.25, p = 0.04$), overtime ($F = 3.076, p = 0.01$) and type of shift ($F = 6.131, p = 0.002$). Identifying differences using the Scheffé test revealed that depersonalization scores were higher in nurses in their 20s and 30s' than in those in their 40s. Nurses with bachelor's degrees had higher depersonalization scores than those with graduate degrees. Nurses with less than 5 years of clinical experience had higher depersonalization scores than those with more than 10 years of clinical experience. Nurses with 5–10 years of experience at their current workplace had higher scores on depersonalization than those with more than 10 years of experience. On average, nurses who worked overtime during the past month for more than 30 min had higher depersonalization scores than those who did not work overtime. There was no significant difference in depersonalization based on gender, religion, position, hospital size, working department and overtime.

Personal accomplishment significantly differed according to marital status ($t = -2.127, p = 0.034$), position ($F = -2.975, p = 0.003$), hospital size ($F = 4.167, p = 0.016$), clinical experience ($F = 4.478, p = 0.012$) and department ($F = 4.082, p = 0.007$). As a result of identifying differences using the Scheffé test, nurses working in hospitals with more than 500 beds had higher personal accomplishment scores than those working in hospitals with fewer than 100 beds. Nurses with more than 10 years of clinical experience had higher personal accomplishment scores than those between 5 and 10 years of experience. Nurses in outpatient, clinical or administration departments had higher personal accomplishment scores than those in general wards. There were no significant differences in personal accomplishments according to gender, age, religion, education level, experience in the current department and type of shift.

## 5.3 | Correlations among study variables

Correlations among the study variables are shown in Figure 1. In the figure, the red line indicates a positive correlation, whereas the blue line indicates a negative correlation. The pale red and blue lines represent weaker partial correlations. Analyses indicated a

**TABLE 2** Differences in burnout according to demographic and work-related variables.

| Variables | Categories | Emotional exhaustion Mean (SD) | t/F | p | Scheffé test | Depersonalization Mean (SD) | t/F | p | Scheffé test | Personal accomplishment Mean (SD) | t/F | p | Scheffé test |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | Female | 30.64 (10.92) | 0.668 | 0.505 | | 13.27 (6.53) | -1.114 | 0.266 | | 29.73 (8.45) | 0.366 | 0.715 | |
| | Male | 28.50 (10.00) | | | | 15.42 (6.67) | | | | 28.83 (5.57) | | | |
| Age (years) | 20~29 (a) | 33.56 (9.75) | 6.166 | 0.002** | a > b, c | 14.90 (5.49) | 9.834 | <0.0001*** | a, b > c | 28.92 (7.69) | 2.908 | 0.056 | |
| | 30~39 (b) | 29.78 (11.01) | | | | 13.42 (6.77) | | | | 29.71 (8.30) | | | |
| | ≥40 (c) | 27.13 (11.08) | | | | 9.54 (6.33) | | | | 32.72 (9.83) | | | |
| Marital status | Married (a) | 29.08 (11.03) | 2.132 | 0.034* | | 12.30 (6.69) | 2.460 | 0.014* | | 31.10 (8.84) | -2.127 | 0.034* | |
| | Single (b) | 31.77 (10.57) | | | | 14.17 (6.32) | | | | 29.03 (7.93) | | | |
| Religion | Yes | 29.97 (10.73) | 0.920 | 0.358 | | 12.90 (6.71) | 1.145 | 0.253 | | 30.64 (8.38) | -1.460 | 0.145 | |
| | No | 31.13 (10.91) | | | | 13.76 (6.37) | | | | 29.22 (8.36) | | | |
| Education level | Diploma (a) | 32.58 (9.73) | 3.670 | 0.027* | b > c | 11.69 (6.76) | 4.143 | 0.017* | b > c | 32.46 (9.43) | 1.589 | 0.206 | |
| | Bachelor's degree (b) | 31.32 (10.63) | | | | 14.08 (6.26) | | | | 29.43 (8.02) | | | |
| | Graduate degree (c) | 27.45 (11.43) | | | | 11.75 (6.98) | | | | 30.20 (9.02) | | | |
| Job position | Staff nurse (a) | 30.67 (10.55) | 0.205 | 0.838 | | 13.56 (6.38) | 1.004 | 0.316 | | 29.15 (8.36) | -2.975 | 0.003** | |
| | Charge nurse/Head nurse/Team leader (b) | 30.35 (11.98) | | | | 12.62 (7.11) | | | | 32.70 (7.94) | | | |
| Hospital size (beds)[a] | ≤100 (a) | 28.97 (8.45) | 2.669 | 0.071 | | 11.34 (6.73) | 1.584 | 0.207 | | 31.00 (9.00) | 4.167 | 0.016* | b < c |
| | 101~500 (b) | 28.10 (10.72) | | | | 13.82 (5.49) | | | | 27.11 (8.48) | | | |
| | ≥500 (c) | 31.46 (10.97) | | | | 13.50 (6.76) | | | | 30.47 (8.15) | | | |
| Clinical experience (years)[a] | <5 (a) | 33.20 (9.50) | 3.859 | 0.022* | a > c | 15.01 (5.69) | 6.377 | 0.002** | a > c | 29.10 (7.23) | 4.478 | 0.012* | b < c |
| | 5~10 (b) | 30.48 (10.64) | | | | 13.74 (6.80) | | | | 28.85 (8.57) | | | |
| | >10 (c) | 28.62 (11.92) | | | | 11.57 (6.47) | | | | 32.07 (8.67) | | | |
| Experience at current department (years)[a] | <5 (a) | 31.15 (10.09) | 2.397 | 0.093 | | 13.53 (6.10) | 3.250 | 0.040* | b > c | 29.37 (7.84) | 1.270 | 0.282 | |
| | 5~10 (b) | 31.10 (11.67) | | | | 14.10 (7.16) | | | | 30.62 (9.23) | | | |
| | >10 (c) | 26.27 (12.99) | | | | 10.42 (6.91) | | | | 31.69 (9.35) | | | |
| Working department | General ward (a) | 31.24 (11.39) | 0.446 | 0.720 | | 13.92 (5.99) | 2.348 | 0.073 | | 28.82 (8.88) | 4.082 | 0.007* | a < d |
| | ICU (b) | 30.82 (8.92) | | | | 13.93 (5.94) | | | | 29.30 (6.43) | | | |
| | Special units (c) | 31.15 (12.68) | | | | 14.49 (7.78) | | | | 28.46 (7.48) | | | |
| | Outpatient/clinic/administration (d) | 29.51 (9.81) | | | | 11.79 (6.85) | | | | 32.63 (8.44) | | | |

**TABLE 3** (Continued)

| Variables | Categories | Emotional exhaustion | | | | Depersonalization | | | | Personal accomplishment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean (SD) | t/F | p | Scheffé test | Mean (SD) | t/F | p | Scheffé test | Mean (SD) | t/F | p | Scheffé test |
| Overtime on average during the past month (hours)[a] | None (a) | 25.84 (10.31) | 2.752 | 0.019* | | 10.18 (7.18) | 3.076 | 0.010* | a < b | 31.29 (10.13) | 0.921 | 0.468 | |
| | ≤0.5 (b) | 30.19 (9.77) | | | | 14.20 (6.52) | | | | 29.94 (8.21) | | | |
| | ≤1 (c) | 31.58 (10.54) | | | | 13.43 (5.91) | | | | 29.82 (8.14) | | | |
| | ≤1.5 (d) | 33.27 (11.27) | | | | 15.05 (5.82) | | | | 26.86 (6.10) | | | |
| | ≤2 (e) | 32.50 (13.18) | | | | 13.43 (6.47) | | | | 29.87 | | | |
| | >2 (f) | 32.82 (10.71) | | | | 14.24 (6.38) | | | | 31.18 (8.29) | | | |
| Type of shift | Fixed (a) | 28.33 (10.59) | 5.544 | 0.004** | a < b | 11.80 (6.68) | 6.131 | 0.002** | a < b | 30.09 (9.37) | 0.645 | 0.525 | |
| | 8-h shift (b) | 32.54 (10.60) | | | | 14.53 (6.24) | | | | 29.61 (7.77) | | | |
| | 12-h shift (c) | 29.00 (10.93) | | | | 13.22 (6.37) | | | | 31.89 (5.29) | | | |

Abbreviations: ICU, intensive care unit; N/A, not available; SD, standard deviation.

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

[a]Variable of $N < 300$ owing to missing values.

strong positive correlation between resilience and focusing on coping behaviour ($r = 0.59$, $p < 0.01$), emotional labour and job stress ($r = 0.52$, $p < 0.01$), resilience and problem-focused coping behaviour ($r = 0.5$, $p < 0.01$), problem-focused coping behaviour and focusing on positive coping behaviour ($r = 0.5$, $p < 0.01$), wishful thinking coping behaviour and detachment coping behaviour ($r = 0.46$, $p < 0.01$) and depression and Tae-wom ($r = 0.46$, $p < 0.01$). There was a strong negative correlation between resilience and depression ($r = -0.45$, $p < 0.01$).

## 5.4 | Factors influencing burnout dimensions

We tested our regression models for multicollinearity; the variance inflation factors for our regression models were less than 10 (range: 1.189–4.428), and the tolerance was less than 0.10 (range: 0.230–0.841). The details of the multiple linear regressions are listed in Table 3.

Our regression model for emotional exhaustion explained 55.8% of the variance ($F = 8.142$, $p < 0.0001$). Nurses with more than 10 years of work experience in their current department were less likely to experience emotional exhaustion than those with less than 5 years of work experience ($B = -4.904$, $p = 0.021$). Nurses who worked overtime for longer than 2 h on average compared to those who did not work overtime ($B = 6.665$, $p = 0.019$), working 8-h shifts compared to fixed shifts ($B = 3.598$, $p = 0.37$), and experienced emotional labour ($B = 0.55$, $p < 0.0001$), perceived job stress ($B = 0.127$, $p = 0.003$) and depressive symptoms ($B = 0.239$, $p < 0.0001$) were more likely to experience emotional exhaustion.

The regression model for depersonalization explained 45.8% of the variance ($F = 448$, $p < 0.0001$). Male nurses ($B = 3.976$, $p = 0.039$) working at large hospitals (101–500 beds: $B = 3.553$, $p = 0.019$; >500 beds: $B = 3.679$, $p = 0.007$) working in outpatient or administrative departments versus the general ward ($B = 2.798$, $p = 0.035$), working overtime compared to those who did not work overtime (<30 min: $B = 3.392$, $p = 0.003$; >2 h: $B = 4.070$, $p = 0.033$), and experienced emotional labour ($B = 0.332$, $p < 0.0001$), had depressive symptoms ($B = 0.141$, $p = 0.001$), and utilized detachment coping strategies ($B = 2.969$, $p = 0.008$) were more likely to experience depersonalization.

The regression model for personal accomplishment explained 34.3% of the variance ($F = 3.375$, $p < 0.0001$). Nurses with 5–10 years of clinical experience were less likely to experience personal accomplishment than those with less than 5 years of clinical experience ($B = -3.302$, $p = 0.039$). Nurses who worked 12-h shifts compared with fixed shifts ($B = 5.014$, $p = 0.02$) perceived a more significant threat of COVID-19 ($B = 0.343$, $p = 0.048$) and had more resilience ($B = 0.25$, $p < 0.0001$) were more likely to experience personal accomplishment.

## 6 | DISCUSSION

This study investigated the factors influencing three dimensions of burnout among clinical nurses in South Korea. Different factors
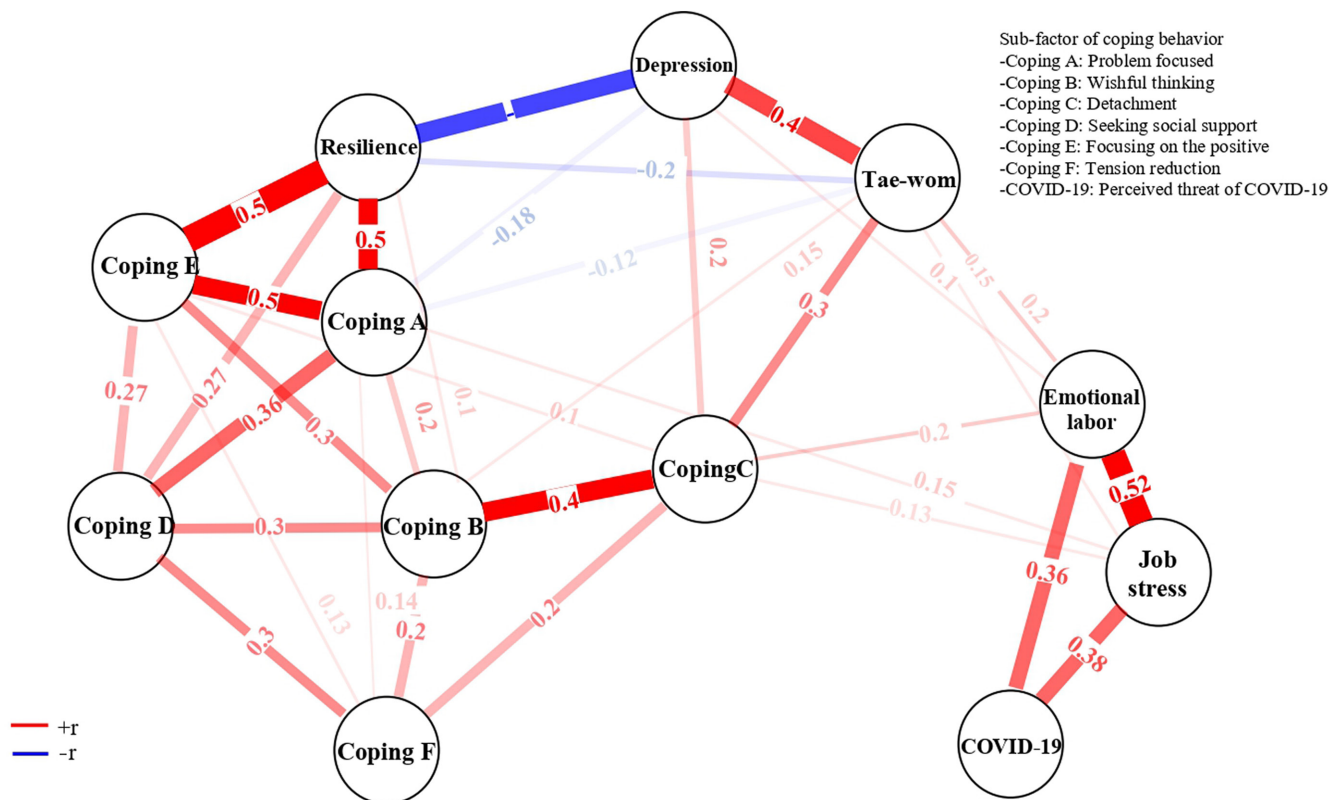
**FIGURE 1** Correlation-based network generation for study variables.

influence emotional exhaustion, depersonalization and personal accomplishment.

Notably, for emotional exhaustion, most of the highly influential variables were work-related, such as experience in the current department, working overtime, and shift type. While the impact of psychological factors combined with emotional exhaustion (e.g. emotional labour, job stress and depression) was also significant, the magnitude of the effects of work-related factors on emotional exhaustion was much more robust. This finding is supported by qualitative studies describing clinical nurses' work environments. Clinical nurses in South Korea have reported not being able to have meals during their working hours (Kim & Kim, 2019) or not being able to take care of their health (Kim & Cha, 2021). This highlights the need to assess the work environments contributing to emotional exhaustion.

In our study, gender was not significant in the univariate analysis but was effective in the multivariate analysis for depersonalization. Gender and statistically significant independent variables were included in the multiple regression analysis because burnout and gender have been associated in previous research (Borges et al., 2021; Zhang et al., 2022). Although evidence on gender and burnout has been inconsistent, a meta-analysis showed that men are slightly more likely to experience depersonalization (Purvanova & Muros, 2010). In our regression model, male nurses were 3.98 times more likely to experience depersonalization. The role of gender in depersonalization is controversial in other countries (Gómez-Urquiza, Vargas, et al., 2017; Maccacaro et al., 2011). A

female-dominant nursing culture should be considered when evaluating the role of gender in depersonalization. In South Korea, 95.7% of the nursing workforce consists of women (Korean Nurses Association, 2021), which may have contributed to the depersonalization of male nurses. Furthermore, working at large hospitals and in outpatient, clinical or administrative departments also increased the risk of depersonalization in our regression model. Working at large hospitals and in outpatient, clinical or administrative departments might reduce the chances of interacting with colleagues or being in charge of direct patient care, increasing depersonalization. Regarding working overtime, two extremes—overtime for less than 0.5 h or more than 2 h on average during the past month—contributed to an increased risk of depersonalization. In the literature, working overtime for over 2 h per day, on average, is associated with increased depersonalization (Sumi et al., 2018). Among the psychological variables, emotional labour and depression were associated with depersonalization, supported by previous studies (Kim & Yang, 2015; Molina-Praena et al., 2018).

In our regression analysis of personal accomplishment, nurses with 5–10 years of work experience were less likely to experience a sense of personal accomplishment than those with less than 5 years of experience. However, there are reports that less clinical experience (Rudman et al., 2020) and extensive clinical experience are associated with reduced feelings of personal accomplishment, the latter being due to the burden of one's position and performance (Luan et al., 2017). Possible reasons for the differences between the previous study and our findings can be understood by considering the

**TABLE 3** Factors that influenced burnout dimensions.

| Variable | Emotional exhaustion | | | | Depersonalization | | | | Personal accomplishment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | β | t | p | B | β | t | p | B | β | t | p |
| Gender (Female)[b] | | | | | | | | | | | | |
| Male | 2.146 | 0.036 | 0.775 | 0.451 | 3.976 | 0.111 | 2.076 | 0.039* | 1.993 | 0.045 | 0.758 | 0.449 |
| Age (years) (20~29)[b] | | | | | | | | | | | | |
| 30~39 | -1.116 | -0.052 | -0.716 | 0.475 | -0.070 | -0.005 | -0.066 | 0.947 | 0.280 | 0.017 | 0.194 | 0.847 |
| ≥40 | -0.184 | -0.006 | -0.076 | 0.940 | -1.758 | -0.089 | -1.072 | 0.285 | 2.829 | 0.115 | 1.256 | 0.210 |
| Marital status (Single)[b] | | | | | | | | | | | | |
| Married | -1.992 | -0.092 | -1.736 | 0.084 | -0.732 | -0.056 | -0.954 | 0.341 | 0.738 | 0.045 | 0.695 | 0.488 |
| Religion (No) | | | | | | | | | | | | |
| Yes | 1.100 | 0.051 | 1.032 | 0.303 | 0.581 | 0.044 | 0.809 | 0.419 | -0.617 | -0.038 | -0.625 | 0.533 |
| Education level (Diploma)[b] | | | | | | | | | | | | |
| Bachelor's degree | -2.511 | -0.104 | -1.235 | 0.218 | -0.484 | -0.033 | -0.354 | 0.724 | -1.044 | -0.057 | -0.555 | 0.580 |
| Graduate degree | -0.124 | -0.005 | -0.053 | 0.958 | 0.608 | 0.037 | 0.382 | 0.703 | -0.389 | -0.019 | -0.178 | 0.859 |
| Job position (Staff nurse)[b] | | | | | | | | | | | | |
| Charge nurse/Head nurse/Team leader | 2.042 | 0.077 | 1.463 | 0.145 | 1.523 | 0.094 | 1.620 | 0.107 | 0.883 | 0.044 | 0.684 | 0.495 |
| Hospital size (beds)[a] (≤100)[b] | | | | | | | | | | | | |
| 101~500 | -1.709 | -0.063 | -0.763 | 0.446 | 3.553 | 0.214 | 2.354 | 0.019* | -1.948 | -0.094 | -0.940 | 0.348 |
| ≥500 | 2.850 | 0.118 | 1.425 | 0.155 | 3.679 | 0.250 | 2.731 | 0.007** | -1.622 | -0.088 | -0.877 | 0.382 |
| Clinical experience (years)[a] (<5)[b] | | | | | | | | | | | | |
| 5~10 | 0.795 | 0.037 | 0.462 | 0.645 | -0.097 | -0.007 | -0.084 | 0.933 | -3.302 | -0.200 | -2.073 | 0.039* |
| >10 | -1.284 | -0.055 | -0.590 | 0.556 | -1.175 | -0.083 | -0.801 | 0.424 | -1.354 | -0.076 | -0.672 | 0.502 |
| Experience at current department (years)[a] (<5)[b] | | | | | | | | | | | | |
| 5~10 | -0.770 | -0.032 | -0.586 | 0.558 | 0.940 | 0.064 | 1.063 | 0.289 | 1.159 | 0.063 | 0.955 | 0.341 |
| >10 | -4.904 | -0.127 | -2.327 | 0.021* | -1.718 | -0.073 | -1.211 | 0.227 | -0.374 | -0.013 | -0.192 | 0.848 |
| Working department (General ward)[b] | | | | | | | | | | | | |
| ICUt | -0.906 | -0.031 | -0.576 | 0.565 | -0.121 | -0.007 | -0.114 | 0.909 | 0.445 | 0.020 | 0.305 | 0.760 |
| Special units | 3.388 | 0.110 | 1.971 | 0.05 | 2.098 | 0.112 | 1.812 | 0.071 | 1.757 | 0.075 | 1.105 | 0.270 |
| Outpatient/clinic/administration | 3.841 | 0.159 | 1.959 | 0.051 | 2.798 | 0.191 | 2.119 | 0.035* | 3.083 | 0.168 | 1.700 | 0.091 |
| Overtime on average during the past month (hours)[a] (None)[b] | | | | | | | | | | | | |
| ≤0.5 | 2.090 | 0.088 | 1.228 | 0.221 | 3.392 | 0.235 | 2.960 | 0.003** | -0.241 | -0.013 | -0.153 | 0.878 |

(Continues)

**TABLE 3** (Continued)

| Variable | Emotional exhaustion | | | | Depersonalization | | | | Personal accomplishment | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | B | β | t | p | B | β | t | p | B | β | t | p |
| ≤1 | 3.257 | 0.142 | 1.906 | 0.058 | 1.601 | 0.115 | 1.391 | 0.166 | 1.063 | 0.061 | 0.672 | 0.502 |
| ≤1.5 | 1.406 | 0.036 | 0.588 | 0.557 | 1.599 | 0.068 | 0.993 | 0.322 | 0.114 | 0.004 | 0.052 | 0.959 |
| ≤2 | 1.805 | 0.049 | 0.809 | 0.419 | 1.023 | 0.046 | 0.681 | 0.497 | 0.146 | 0.005 | 0.071 | 0.944 |
| >2 | 6.665 | 0.130 | 2.368 | 0.019* | 4.070 | 0.130 | 2.146 | 0.033* | 3.069 | 0.079 | 1.179 | 0.240 |
| Type of shift (Fixed)[b] | | | | | | | | | | | | |
| 8-h shift | 3.598 | 0.167 | 2.100 | 0.037* | 1.933 | 0.147 | 1.675 | 0.095 | 2.805 | 0.171 | 1.770 | 0.078 |
| 12-h shift | 2.947 | 0.069 | 1.273 | 0.204 | 2.514 | 0.097 | 1.612 | 0.108 | 5.014 | 0.156 | 2.341 | 0.020* |
| Emotional labour | 0.550 | 0.313 | 5.186 | <0.0001*** | 0.332 | 0.310 | 4.641 | <0.0001*** | 0.047 | 0.035 | 0.482 | 0.630 |
| Depression | 0.239 | 0.232 | 3.918 | <0.0001*** | 0.141 | 0.224 | 3.425 | 0.001** | 0.001 | 0.002 | 0.027 | 0.979 |
| Job stress | 0.127 | 0.179 | 2.975 | 0.003** | 0.026 | 0.061 | 0.910 | 0.364 | 0.057 | 0.106 | 1.444 | 0.150 |
| Tae-wom | 0.064 | 0.084 | 1.525 | 0.129 | 0.044 | 0.095 | 1.553 | 0.122 | -0.071 | -0.123 | -1.830 | 0.069 |
| Perceived threat of COVID-19 | 0.272 | 0.080 | 1.462 | 0.145 | -0.051 | -0.025 | -0.407 | 0.684 | 0.343 | 0.132 | 1.987 | 0.048* |
| Resilience | -0.090 | -0.093 | -1.366 | 0.173 | -0.020 | -0.035 | -0.456 | 0.649 | 0.250 | 0.341 | 4.101 | <0.0001*** |
| Coping behaviour | | | | | | | | | | | | |
| Problem focused | 2.767 | 0.071 | 1.178 | 0.240 | -1.561 | -0.066 | -0.987 | 0.325 | 2.637 | 0.089 | 1.214 | 0.226 |
| Wishful thinking | -0.133 | -0.005 | -0.083 | 0.934 | 1.191 | 0.071 | 1.100 | 0.272 | -2.053 | -0.098 | -1.381 | 0.169 |
| Detachment | 3.042 | 0.105 | 1.854 | 0.065 | 2.969 | 0.169 | 2.686 | 0.008** | -1.853 | -0.084 | -1.220 | 0.224 |
| Seeking social support | -1.589 | -0.051 | -0.950 | 0.343 | -0.016 | -0.001 | -0.014 | 0.989 | -1.766 | -0.075 | -1.142 | 0.255 |
| Focusing on the positives | -1.436 | -0.051 | -0.782 | 0.435 | -1.512 | -0.088 | -1.221 | 0.223 | 1.687 | 0.079 | 0.992 | 0.322 |
| $R^2$/F (p) | 0.558/8.142 (<0.0001***) | | | | 0.458/448 (<0.0001***) | | | | 0.343/3.375 (<0.0001***) | | | |

Abbreviations: B, unstandardized coefficients; β, standardized coefficient; ICU, intensive care unit.

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

[a]Variable of $N < 300$ owing to missing values.

[b]Dummy coded variable.

demographic characteristics. For example, the mean age of nurses in Korea is 28.7 years (Ministry of Health and Welfare, 2020), whereas it is 43.5 years in the United States (Statista, 2019). As personal accomplishments might vary according to the stage of life, age differences might have played a role in the study results. Further studies are needed to investigate the relationship between clinical experience and personal accomplishment. Nurses working 12-h shifts had a greater sense of personal accomplishment than those working fixed shifts. Although 12-h shifts are common in the nursing workforce in some countries, only 2.49% of nurses in Korea work 12-h shifts (Ministry of Health and Welfare, 2020). Adopting flexible shifts may allow nurses to choose their shifts and more opportunities to pursue personal accomplishments. The positive correlation between the perceived threat of COVID-19 and personal accomplishments suggests that clinical nurses pursuing personal accomplishments are more aware of the risk of COVID-19. This implies that, during the pandemic, clinical nurses may need systematic support to fulfil their personal accomplishments. The higher the resilience, the higher their accomplishment, consistent with previous studies (Guo et al., 2018; Jackson et al., 2018).

## 6.1 | Strengths and limitations of the work

Work-related factors primarily influence emotional exhaustion among clinical nurses. Manipulating work-related factors that negatively influence nurses' emotional exhaustion, such as working overtime and shift types, should be a priority for reducing nurse burnout. Nurse managers should work with nursing organizations and government bodies to develop policies for a safe and healthy working environment to alleviate emotional exhaustion among nurses. In this study, we did not use the three items related to tension reduction from the coping behaviour scale because of the risk of low reliability. This contradicts previous findings that helpful coping strategies reduce burnout (Ha & Sung, 2018). This could imply that systematic support is needed for Korean nurses, in addition to manipulating work-related factors, to reduce burnout.

## 6.2 | Recommendations for further research

Gender influences the level of depersonalization. Considering the female-dominated culture of the Korean nursing workforce, male nurses' unique needs and difficulties should be assessed as those of minorities. For non-modifiable factors related to depersonalization, such as working at large hospitals and in outpatient, clinical or administration departments, providing tailored programs, such as communication skills training (Darban et al., 2016), would be an effective approach for reducing depersonalization.

Working a 12-h shift was the most influential factor in personal accomplishments. Considering that most nurses work 8-h shifts in Korea, flexible shifts may be a way to aid personal accomplishments. Furthermore, a support program for those with 5–10 years of experience would help increase their sense of personal achievement. As

the coping strategies adopted by the nurses were not influential in reducing the dimensions of burnout in this study, providing a coaching program for nurses to cope with burnout effectively would be helpful.

## 7 | CONCLUSION

Different factors influenced each dimension of burnout among clinical nurses. Nursing managers should identify and understand the factors influencing the three dimensions of burnout to provide tailored support programs to reduce nurse burnout.

### CONFLICT OF INTEREST STATEMENT

None.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

### ETHICS STATEMENT

This study was approved by Ewha Womans University Institutional Review Board (No. ewha-202106-0005-02).

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