Association of Communication Competence and Nursing Professionalism with Burnout Among Nurses Working at Coronavirus Residential Treatment Centers

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Abstract

**Background**: Owing to the increasing number of cases of the coronavirus disease, treatment facilities and nursing services were diversifying, necessitating appropriate hiring and operating guidelines. The purpose of this study was to identify the association of communication skills and nursing professionalism with burnout among nurses who have worked at coronavirus residential treatment centers since March 2020.

**Methods**: This study followed a cross-sectional design. An online survey was conducted in November 2021 using a self-report questionnaire covering sociodemographic characteristics, communication competence, nursing professionalism, and burnout.

**Results**: The data of 145 nurses were analyzed. The average scores for communication competence, nursing professionalism, and burnout were 3.70, 3.25, and 2.98, respectively. Nursing professionalism was positively correlated with communication competence and negatively correlated with burnout. Factors associated with burnout were the length of residential treatment center service, prior experience in responding to infectious diseases, and nursing professionalism, with an explanatory power of 24.0%.

**Conclusions**: Higher nursing professionalism, greater experience in responding to infectious diseases, and longer residential treatment center service period were associated with lower burnout. This study provides evidence to frame guidelines for hiring priorities and working conditions in an unfamiliar clinical nursing setting in the context of future infectious disease outbreaks to reduce nurses’ burnout.

Background

The World Health Organization [1] declared the coronavirus disease (COVID-19) outbreak as a pandemic on March 11, 2020, and the spread of mutations of the SARS-CoV-2 virus causing COVID-19 is still ongoing. Since then, South Korea has created a new word, K-Quarantine (Korea Quarantine), and has improved its infectious-disease management throughout the health and medical fields [2]. The Korean Center for Disease Control and Prevention [3] has achieved great success in the early stage of the epidemic using the so-called K-quarantine measure, which enforces local quarantine around confirmed patients rather than implementing a global lockdown.

In South Korea, since the first confirmed case in January 2020, despite strong quarantine policies, the spread of COVID-19 continued through several waves, and the demand for hospital beds exceeded the supply [4]. As of 2021, 67 hospitals dedicated to COVID-19 were designated as cohort hospitals in South Korea, operating a total of 8,680 beds with 1,030 medical personnel carrying out treatment, support for testing, and classification of the severity of confirmed patient cases [5]. Severely increasing number of COVID-19 patients, the South Korean government stipulated that treatment facilities be classified according to the severity of confirmed cases, and the first residential treatment center (RTC) was opened in Daegu on March 2, 2020 [4].

Nurses have been acknowledged as the protagonists of the pandemic story, the people most likely to shape the outcome of the pandemic. However, in an environment at the forefront of COVID-19 prevention and control, nurses who provide intensive treatment for patients with severe or severe infections and address the needs of patients experience psychological stress and exhaustion of physical strength due to high work intensity [6, 7].

Doctors and nurses for RTCs are dispatched from public hospitals or employed on a temporary basis. Unlike those at general hospitals, the main tasks of nurses working at RTCs include monitoring patients twice a day through questionnaires, phone calls, video calls, software applications, and face-to-face methods, in addition to administering medication and managing electronic medical records [8]. Nurses work in 3 or 2 shifts at the RTC. In addition, tasks such as confirmation of high-risk groups, patient transfer measures, as well as the prescription and dispensing of necessary medication were also performed [8].

Nurses, who make up most of the healthcare workforce, experience burnout due to accumulated stress, as well as fear of contracting the infection from prolonged COVID-19 exposure [9, 10], which may cause a high turnover [11, 12]. Burnout is a state in which human values, dignity, and will are eroded, and refers to a state of emotional exhaustion and feeling ineffective at work [13]. Previous studies on factors influencing burnout among nurses responding to COVID-19 have reported that younger age and fewer years of previous clinical experience [14], work at COVID-19 cohort wards [15, 16], excessive workload and insufficient protection [9, 17], and lower individual resilience [11, 16] negatively affect burnout.

RTCs accommodate patients with mild cases of COVID-19; however, being a new type of treatment facility, they entail job demands such as dealing with unfamiliar colleagues, shift duty (which workers experience for the first time), threats of contracting the infection, and excessive workload, which cause exhaustion if prolonged [9, 18]. Owing to concerns about the infection, treatment is provided through monitoring and non-face-to-face counseling over intercom. If communication between the medical staff and patients is not smooth, the patients’ satisfaction decreases [19]. Moreover, an RTC is a temporary organization, and effective communication between personnel is limited as they are dispatched from different public hospitals or because they are on short-term contracts. The pressure of performing new tasks acts as a stressor, and if the effort needed to adapt is prolonged, eventually nurses’ energy may be depleted and they may become exhausted [18].
The stress of poor communication among nurses reduces their work efficiency and productivity and may cause burnout [20]. Communication regarding self-efficacy and positive perception of the working environment among nurses were found to buffer emotional exhaustion and promote self-realization [21].

Nursing professionalism refers to the value an individual attributes to nursing and can be evaluated by the standards of nursing behavior, as well as the beliefs and attitudes that influence behavior [22]. Positive nursing professionalism enables nurses to make the best decisions in clinical practice, improving the quality of patient care. Conversely, the lower the nursing professionalism, the higher the burnout rate [23].

What affects burnout among nurses working at RTCs, which are unlike usual hospitals? In South Korea, many studies have dealt with the emotional changes and stress of nurses at cohort hospitals responding to COVID-19 [24, 25]. However, relevant overseas research on RTCs is scarce; there are few studies dealing with nurse burnout resulting from the new environment and nursing method of COVID-19 RTCs. Therefore, in this study, we aimed to identify whether the communication competence and professionalism of nurses working at COVID-19 RTCs are associated with their burnout.

**Methods**

**Design**

A cross-sectional descriptive design was employed.

**Participants**

Participants were purposively sampled. The selection criteria were—nurses dispatched from public hospitals and temporarily contracted to work at RTCs for more than one month since March 2020. The sample size was calculated by the G*Power 3.1 program set for multiple regression analysis, with an effect size of .20, a significance level of .05, and power of .95; thus, the estimated sample size was 141. When the number of participants in the online survey reached 149, we checked whether they met the selection criteria.

**Measurements**

**Sociodemographic Characteristics**

Sociodemographic characteristics included 12 items: age, gender, educational background, marital status, religion, clinical experience, length of time working at RTCs, previous experience of responding to infectious diseases, shift work type, employment type, nursing delivery method, and intention of responding to infectious diseases.

**Communication Competence**

The Global Interpersonal Communication Competence Scale was used to measure communication competence after obtaining permission from the original author, Hur [26]. The tool consists of 15 items measured on a five-point scale ranging from 1 to 5, where a higher score indicates a higher degree of communication competence. Regarding reliability, Cronbach’s α were .72 in Hur’s [26] study and .83 in the present study.

**Nursing Professionalism**

The tool developed by Yeun et al. [27] was used to measure nursing professionalism after obtaining permission from the original author. It consists of 29 items classified into five sub-factors: self-concept of the profession, social recognition, professionalism of nursing, role of nursing service, and independence of nursing. Each item is rated on a five-point scale. Regarding reliability, Cronbach’s α were .92 and .91 in Yeun et al.’s [27] study and the current study, respectively.

**Burnout**

We used the burnout assessment tool developed by Pines et al. [28] and translated into Korean by Moon and Han [29]. It consists of 20 items under three sub-factors: physical, mental, and emotional burnout. Each item is measured on a five-point scale, where a higher score indicates a higher degree of burnout. Regarding reliability, Cronbach’s α in Moon and Han’s [29] study and the current study were .85 and .90, respectively.

**Data Collection**

Data were collected via an online survey from November 9 to 18, 2021, from nurses who had worked for more than one month from March 2020 to November 2021 at any of the COVID-19 RTCs nationwide. The questionnaire was shared using Google Forms, and included an explanation and a clickable consent icon; it was posted on the RTC nurses’ online community and invited voluntary participation.

**Ethical Considerations**
This study was conducted with the approval of the Institutional Review Board of Chung-Ang University (No. 1041078-202109-HR-295-01) and conducted in accordance with the accepted national and international standards. When the respondents voluntarily agreed to participate, having understood the purpose of the study and the method of participation, they clicked on the consent box to start responding to the questionnaire. When participants submitted their questionnaires, they could choose to receive a reward by providing their phone numbers; however, all personal information were deleted immediately after sending the gift.

**Data Analysis**

Data were analyzed using SPSS Statistics 24.0 (IBM Corp., Armonk, NY, USA). To test differences and relationships among variables, the t-test, one-way analysis of variance, Scheffe's ad hoc test, Pearson's correlation coefficients, and linear multiple regression were used. The level of significance was set at < .05.

**Results**

**Sociodemographic Characteristics**

After excluding four ineligible responses due to missing answers, the data of 145 participants were analyzed. There were more women (89.0%) than men (11.0%), and the majority were in their 30s (45.5%) or 20s (42.1%). Most of them had bachelor's degrees (80.0%). The majority's marital status was single (82.8%), and more than half performed no religious activities (75.9%). The average duration of the clinical career in years was 5.66±5.29; the most common duration was 5–10 years (30.3%), followed by less than three years (27.6%), 3–5 years (27.6%), and more than 10 years (14.5%). The average number of months working at RTCs was 4.52±3.17; the most common duration was 2–3 months (30.3%), followed by 4–6 months (29.7%), seven months (22.8%), and less than two months (17.2%). More than half of the nurses (67.6%) had no experience in responding to infectious diseases before working at RTCs. Three-shift work (71.0%) was more common than half-shift work (23.4%); others included full-time and 2–3 shifts. Most of the participants were temporary contract workers (95.2%). In the nursing delivery method, mixed type with non-face-to-face and face-to-face care (64.1%) was more common than non-face-to-face care (35.9%). The majority (97.2%) intended to respond to similar infectious diseases.

**Descriptive Statistics of Variables**

Communication competence averaged 3.70±0.41 points; among its constituent items, “I use respectful and semi-respectful language appropriately” scored highest (4.19±0.87), followed by “I understand that nodding while talking makes the message easier to understand” (4.04±0.73). “I speak logically” (3.35±0.75) had a lower score followed by “I feel comfortable in various social situations” (3.34±0.77) which scored the lowest (Table 1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>M±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication competence</td>
<td>3.70±0.41</td>
</tr>
<tr>
<td>Nursing professionalism</td>
<td>3.25±0.46</td>
</tr>
<tr>
<td>Self-concept of the profession</td>
<td>3.37±0.55</td>
</tr>
<tr>
<td>Social recognition</td>
<td>2.79±0.60</td>
</tr>
<tr>
<td>Professionalism of nursing</td>
<td>3.53±0.56</td>
</tr>
<tr>
<td>Role of nursing service</td>
<td>3.52±0.62</td>
</tr>
<tr>
<td>Originality of nursing</td>
<td>3.29±0.58</td>
</tr>
<tr>
<td>Burnout</td>
<td>2.98±0.61</td>
</tr>
</tbody>
</table>

M: mean, SD: standard deviation

The average nursing professionalism score was 3.25±0.46 points. Individual scores by the sub-factors were professionalism of nursing (3.53±0.56), nursing office responsibilities (3.52±0.62), professional self-concept (3.37±0.55), nursing independence (3.29±0.58), and social perception (2.79±0.60). Among the five sub-factors, under nursing independence, "Nursing is recognized as an independent field within the medical system (2.31±0.89)" had a lower score followed by the item "Nursing is a professional occupation that is recognized within the organization and receives psychological rewards and adequate treatment through encouragement (2.28±1.01)" under social recognition with the lowest score.
The average burnout score was 2.98±0.61 out of 5. Individually, the items “I am tired” (3.79±0.82) had the highest score followed by “I am tired after work” (3.74±0.91), whereas “I have no motivation to continue working” (2.37±1.07) and “I am anxious” (2.37±1.21) had the lowest scores.

Differences in Variables by Participants’ Sociodemographic Characteristics

Communication competence showed a significant difference according to the length of RTC service (F=2.75, \( p=0.045 \)). The post-test showed it to be significantly higher when the working period was seven months or more, compared with when it was 2–3 months (Table 2).

Table 2. Differences in Variables by Participants’ Sociodemographic Characteristics
<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>n (%)</th>
<th>Communication competence</th>
<th>Nursing professionalism</th>
<th>Burnout</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>M±SD</td>
<td>t/F</td>
<td>p</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Scheffé)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Men</td>
<td>16 (11.0)</td>
<td>3.70±0.37</td>
<td>0.01</td>
<td>.994</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>129 (89.0)</td>
<td>3.70±0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>20s&lt;sup&gt;a&lt;/sup&gt;</td>
<td>61 (42.1)</td>
<td>3.69±0.45</td>
<td>0.27</td>
<td>.764</td>
</tr>
<tr>
<td></td>
<td>30s&lt;sup&gt;b&lt;/sup&gt;</td>
<td>66 (45.5)</td>
<td>3.69±0.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥40s&lt;sup&gt;c&lt;/sup&gt;</td>
<td>18 (12.4)</td>
<td>3.77±0.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>College</td>
<td>24 (16.6)</td>
<td>3.66±0.35</td>
<td>0.12</td>
<td>.891</td>
</tr>
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<td></td>
<td>University</td>
<td>116 (80.0)</td>
<td>3.71±0.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graduate university</td>
<td>5 (3.4)</td>
<td>3.73±0.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>120 (82.8)</td>
<td>3.69±0.42</td>
<td>-0.49</td>
<td>.627</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>25 (17.2)</td>
<td>3.74±0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>No</td>
<td>110 (75.9)</td>
<td>3.70±0.43</td>
<td>-0.21</td>
<td>.831</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>35 (24.1)</td>
<td>3.71±0.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total clinical career (years)</td>
<td>&lt;3</td>
<td>40 (27.6)</td>
<td>3.77±0.42</td>
<td>0.54</td>
<td>.657</td>
</tr>
<tr>
<td></td>
<td>3-5</td>
<td>40 (27.6)</td>
<td>3.69±0.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-10</td>
<td>44 (30.3)</td>
<td>3.65±0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥10</td>
<td>21 (14.5)</td>
<td>3.70±0.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration of working at center (months)</td>
<td>&lt;2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25 (17.2)</td>
<td>3.67±0.41</td>
<td>2.75</td>
<td>.045</td>
</tr>
<tr>
<td></td>
<td>2-3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>44 (30.4)</td>
<td>3.62±0.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4-6&lt;sup&gt;c&lt;/sup&gt;</td>
<td>43 (29.6)</td>
<td>3.66±0.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥7&lt;sup&gt;d&lt;/sup&gt;</td>
<td>33 (22.8)</td>
<td>3.87±0.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience of responding to infectious diseases</td>
<td>No</td>
<td>98 (67.6)</td>
<td>3.71±0.40</td>
<td>0.29</td>
<td>.776</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>47 (32.4)</td>
<td>3.69±0.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of work shift</td>
<td>12-hour shift&lt;sup&gt;a&lt;/sup&gt;</td>
<td>34 (23.5)</td>
<td>3.74±0.34</td>
<td>0.23</td>
<td>.798</td>
</tr>
<tr>
<td></td>
<td>8-hour shift&lt;sup&gt;b&lt;/sup&gt;</td>
<td>103 (71.0)</td>
<td>3.69±0.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other&lt;sup&gt;c&lt;/sup&gt;</td>
<td>8 (5.5)</td>
<td>3.69±0.32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Employment type

<table>
<thead>
<tr>
<th>Employment type</th>
<th>Temporary</th>
<th>(\text{M}=138) (95.2)</th>
<th>3.71±0.41</th>
<th>1.34</th>
<th>.182</th>
<th>3.26±0.44</th>
<th>0.65</th>
<th>.540</th>
<th>3.01±0.60</th>
<th>2.26</th>
<th>.026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>7 (4.8)</td>
<td>3.50±0.39</td>
<td></td>
<td></td>
<td></td>
<td>3.05±0.85</td>
<td></td>
<td></td>
<td>2.49±0.56</td>
<td></td>
<td></td>
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</tbody>
</table>

Nursing delivery method

<table>
<thead>
<tr>
<th>Nursing delivery method</th>
<th>Non-face-to-face</th>
<th>(\text{M}=52) (35.9)</th>
<th>3.76±0.43</th>
<th>1.42</th>
<th>.159</th>
<th>3.39±0.42</th>
<th>2.76</th>
<th>.007</th>
<th>2.88±0.60</th>
<th>-1.56</th>
<th>.120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>93 (64.1)</td>
<td>3.66±0.40</td>
<td></td>
<td></td>
<td></td>
<td>3.17±0.47</td>
<td></td>
<td></td>
<td>3.04±0.61</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Willing to respond to infectious diseases

<table>
<thead>
<tr>
<th>Willing to respond to infectious diseases</th>
<th>No</th>
<th>4 (2.8)</th>
<th>3.43±0.44</th>
<th>-1.31</th>
<th>.193</th>
<th>3.11±0.35</th>
<th>-0.60</th>
<th>.548</th>
<th>2.78±0.17</th>
<th>-2.16</th>
<th>.077</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>141 (97.2)</td>
<td>3.71±0.41</td>
<td></td>
<td></td>
<td></td>
<td>3.25±0.47</td>
<td></td>
<td></td>
<td>2.99±0.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

M: mean; SD: standard deviation

Nursing professionalism showed significant differences by religion (\(t=2.54, p=.012\)), duration of RTC service (\(F=4.06, p=.008\)), and nursing delivery method (\(t=2.76, p=.007\)). However, the post-test did not provide evidence of differences according to religious activity and nursing delivery methods. In RTC service, those who had worked for more than seven months had significantly higher scores than those who had worked for less than three months.

Burnout differed by age (\(F=8.54, p<.001\)), marital status (\(t=3.12, p=.002\)), religion (\(t=2.66, p=.009\)), total clinical experience (\(F=4.28, p=.006\)), length of RTC service (\(F=5.08, p=.002\)), previous experience of responding to infectious diseases (\(t=2.54, p=.012\)), duty shift (\(F=3.34, p=.038\)), and type of employment (\(t=2.26, p=.026\)). The results of the post-test showed that the burnout level of those in their 20s and 30s was significantly higher than that of those in their 40s or older. The score was higher for those with clinical careers spanning less than five years than for those with it spanning 10 years or more; furthermore, it was higher when the length of RTC service was more than seven months compared with when it was less than two months.

**Correlations Among Variables**

The correlation between communication competence and burnout was insignificant, but nursing professionalism showed a significant positive correlation with communication competence (\(r=.37, p<.001\)) (Table 3). There was a negative correlation between nursing professionalism and burnout (\(r=-.32, p<.001\)). Among the sub-factors of nursing professionalism, a negative correlation was shown for professional self-concept (\(r=-.25, p=.003\)) and social recognition with burnout (\(r=-.50, p<.001\)).

**Table 3. Correlations among Variables**
Effects of Variables on Burnout

The fit of the regression model was statistically significant (F=5.13, p<.001), and the variance inflation factors were all less than 10, indicating that there was no multi-collinearity. The Durbin-Watson statistic was 1.969, which is close to 2, satisfying the assumption of independence of the residuals (Table 4).

Communication competence was not significantly associated with burnout, and nursing professionalism was significantly negatively associated with burnout (β=-.24, p=.004). Among the sociodemographic variables, the length of RTC service (β=-.21, p=.007) and experience in responding to infectious diseases (β=-.18, p=.022) were significantly negatively associated with burnout. The explanatory power was 24.0%.

Table 4. Effects of Variables on Burnout
Variables | B | SE | β | t | p | VIF
--- | --- | --- | --- | --- | --- | ---
(Constant) | 4.571 | .524 | 8.723 | <.001 | 

Sociodemographic characteristics

Age (years) | 0.088 | .098 | .073 | .905 | .367 | 1.216
Marital status | -0.123 | .136 | -.077 | -0.908 | .365 | 1.357
Religion | -0.072 | .113 | -.051 | -0.638 | .524 | 1.205
Total clinical career (years) | -0.201 | .105 | -.165 | -1.901 | .059 | 1.418
Duration of working at center (months) | -0.253 | .093 | -.208 | -2.727 | .007 | 1.106
Experience of responding to infectious diseases | -0.226 | .097 | -.175 | -2.324 | .222 | 1.071
12-hour shift | 0.164 | .237 | .115 | 0.690 | .491 | 5.216
8-hour shift | 0.124 | .222 | .093 | 0.558 | .578 | 5.237
Employment type | -0.336 | .237 | -.119 | -1.419 | .158 | 1.332
Communication competence | -0.101 | .118 | -.069 | -0.859 | .392 | 1.209
Nursing professionalism | -0.316 | .108 | -.240 | -2.930 | .004 | 1.273

F=5.13 (p<.001), R²=.298, Adjusted R²=.240, Durbin-Watson=1.969

Dummy variables:  
a Less than 30s,  
b Single,  
c No religion,  
d Less than 5 years,  
e Less than 4 months,  
f No experience,  
g Miscellaneous,  
h Temporary position

SE: standard error; VIF: variance inflation factor

Discussion

In this study, we focused on burnout among nurses working at RTCs. Among the 145 participants, the average length of working at RTCs was 4.52 months. The government guidelines, which set the total hiring period for RTCs at six months to protect nurses from exhaustion, were undergoing changes, and those who worked for seven months or more accounted for 22.0% of the participants. The most common employment type was temporary contract, but since an RTC is a temporary organization, this is inevitable.

The average score for communication competence was 3.70 out of 5, which differs from the scores of 3.37 for intensive care unit nurses found by Son et al. [20] and 3.92 for home visiting nurses found by Jeong and Han [30]. Communication competence was significantly higher among those who worked for seven months or longer at RTCs than those who worked for two to three months, similar to previous studies [20]. The operational guidelines for RTCs have restricted the contract period to protect nurses from physical exhaustion; however, based on our findings that longer working days are associated with lower burnout, the 6-month limited work guidelines should be reconsidered.

The average score for nursing professionalism was 3.25 out of 5, lower than that of tertiary hospital nurses (3.4) reported by Yoon et al. [31]. In this study, social recognition scored the lowest among the sub-factors (2.79 out of 5), whereas Yoon et al. [31] reported lower scores for self-concept of the profession (2.58) and the role of nursing (2.63). This contradiction can be explained by the fact that most participants (95.2%) were temporary contract nurses. Burnout scored 2.98 out of 5, similar to 2.9 out of 5 in a study that used a different tool and investigated nurses in a screening clinic and a COVID-19 ward [24]. Burnout showed a significant difference according to age, marital status, religion, total clinical experience, RTC service period, work experience related to infectious diseases, work type within RTCs, and employment type. Principally, the burnout score was higher among nurses with less than five years of clinical experience than among those with more than 10 years of experience. This is similar to previous studies associating younger age and fewer years of nursing careers with burnout or psychosocial stress [10]. Nurses with more clinical experience spend increased time in the field and can adapt better to their working environment as they have acquired additional coping skills relating to the stressors that affect burnout [32]. In addition, it is believed that family support, including spousal support, has a positive effect on burnout. Most of the nurses working at RTC are short-term contractors, and the high burnout level experienced by these nurses suggest that employment conditions need to be improved. Therefore, recruiting more experienced nurses as additional personnel to respond to infectious diseases is recommended.
There was no significant correlation between communication competence and burnout, which differs from the findings of Son et al. [20]. However, in terms of communication self-efficacy and a positive working environment that could buffer the occurrence of emotional exhaustion [21], repeated studies with the working environment as a variable are needed. There was a significant negative correlation between nursing professionalism and burnout, consistent with the results of a previous study on oncology ward nurses [23]. Among the sub-factors, self-concept of the profession and social recognition had a significant negative correlation with burnout, which is inconsistent with the results of a previous study showing a negative correlation with nursing professionalism [23].

Burnout is prevalent in the nursing profession due to the high levels of stress experienced by nurses. This is due to the nature of their work and the need for a high level of work performance as they have to communicate continuously with patients with various health needs [33, 34]. Based on a study that found that nursing professionalism, job satisfaction, job performance, and career are related to burnout, it is necessary to identify and improve factors such as working period, infection-related working experience, and working conditions [35]. The results of our study, where we found that work environment can affect burnout, may be utilized in order to enhance nursing professionalism of RTC workers. There was a positive correlation between communication competence and nursing professionalism. This is consistent with the results of previous studies indicating that the higher the communication competence, the higher the nursing professionalism [30]. Proper communication by nurses promotes the effective performance of the organization and enhances nursing professionalism by resolving conflicts and encouraging cooperation among members, thus increasing the efficiency of nursing work [36]. Since RTC nursing work includes many non-face-to-face tasks such as telephone counseling, it is necessary to maintain positive nursing professionalism by strengthening communication competence through an orientation program.

Among the factors that correlated with RTC nurses’ burnout, communication competence was not significant, while nursing professionalism, RTC service period, and infectious disease work experience had significant negative associations. According to government guidelines, public hospitals dispatch medical staff for four-week stretches, while temporary contracts are limited to a total of six months, which is a conflicting approach. Therefore, it is necessary to confirm whether burnout decreases as nurses become accustomed to working in an unfamiliar environment. Meanwhile, resilience should be strengthened to prevent burnout [16]; in contrast, exhaustion can lower resilience [11]. Thus repeated future studies with individual resilience as a variable should be conducted. The development of various support and management programs is required to strengthen the professionalism of nurses working at RTCs. It is necessary to improve the working conditions and environment of RTCs considering the length of RTC service and work experience related to infectious diseases.

**Limitations**

This study is meaningful in that it extends the scope of response to infectious diseases by identifying factors associated with burnout among nurses who are dispatched to new and temporary facilities such as RTCs. However, while the spread of COVID-19 continues, the data were collected from nurses who worked for a short period; this limits the generalizability of the results.

**Conclusions**

This study investigated the burnout among nurses working at temporary treatment centers for patients with mild COVID-19. The results indicated that communication competence differed based on the length of RTC service, and nursing professionalism differed according to religious activity, working period, and nursing work method. Burnout differed based on age, marital status, religious activity, employment type, and shift type. Among the variables, communication competence and nursing professionalism had a positive correlation, whereas nursing professionalism and burnout were negatively correlated. Factors associated with burnout were the length of RTC service, past experience in responding to infectious diseases, and nursing professionalism, with an explanatory power of 24.0%.

In conclusion, higher nursing professionalism, greater past experience in responding to infectious diseases, and longer RTC service periods led to lower burnout rates. Based on the results, it is recommended that further comparative studies on burnout among nurses across various COVID-19 treatment settings are conducted to produce evidence that can help frame guidelines for hiring priorities and working conditions for future infectious disease outbreaks.

**Abbreviations**

COVID-19 – coronavirus disease 2019
RTC – residential treatment center

**Declarations**
Ethics Approval and Consent to Participate: This study was conducted in accordance with the principles of the Declaration of Helsinki and the study plan and process were approved by the Institutional Review Board (IRB NO: 1041078-202109-HR-295-01) of Chung-Ang University. The participants were assured that their information would be kept strictly confidential and used only for research purposes. The ability to exit the study at any time has been ensured. Informed consent obtained from all the participants included in the study. All methods were carried out in accordance with relevant guidelines and regulations.

Consent for Publication: Not applicable

Availability of Data and Materials: The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Data collection: HM

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