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Factors influencing knowledge, awareness, and compliance with standard precautions among psychiatric nurses

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ABSTRACT

This study aimed to assess the level of knowledge, awareness, and compliance with standard precautions and to examine individual factors related to compliance with standard precautions among psychiatric nurses. Data were collected from September 2020 to March 2021. A total of 160 questionnaires were distributed, and a total sample of 134 valid questionnaires was analyzed. Compliance with standard precautions was significantly correlated with knowledge and awareness. Awareness ($\beta = 0.547, p < .001$) was a significant factor of compliance with a total explanatory power of 35.0% ($F = 7.27, p < .001$). Thus, the current coronavirus disease pandemic has significantly influenced the mental health infection system. These findings highlighted that psychiatric nurse must continue their efforts to improve compliance with infection prevention to prepare for an uncertain future with potential pandemics.

Introduction

Nosocomial infection is considered a serious problem because it occurs frequently in hospital workers (Dhedhi et al., 2021). Nurses have a higher risk of infection and are often exposed to more infections than other health care workers (Ayed et al., 2015). Globally, the occupation with the highest novel coronavirus disease (COVID-19) infection rate among health care workers is nursing (Kumar et al., 2020), indicating a need to pay attention to this issue.

Many countries use standard precautions, which are basic guidelines for protecting and preventing health care workers from infectious diseases, to prevent hospital infection (Dhedhi et al., 2021). The standard precautions, proposed by the United States Centers for Disease Control and Prevention (CDC), are guidelines for reducing the risk of transmission of various pathogens and recommend practices for infection control at health care institutions (CDC, 2012). Standard precautions include hand washing according to exposure; using gloves; wearing a gown, safety glasses, and a face shield; respiratory etiquette; safe injection practice; and infection control of the lumbar puncture procedure. South Korea also complies with these standard precaution guidelines (Korea Disease Control and Prevention Agency, 2017).

In 2020, COVID-19 patients were reported in long-term care facilities and closed wards, and negative pressure wards were installed in national

and public psychiatric mental health hospitals in South Korea (Lee, 2021). Additionally, to prevent and manage infection in psychiatric hospitals, the “Guidelines for Response to Corona Virus Infectious Disease-19 in Mental Medical Institutions Closed Wards” were distributed by the Ministry of Health and Welfare of South Korea (Ministry of Health and Welfare, 2020).

Closed wards—such as psychiatric hospitals—where long-term inpatients live in closed spaces, can cause frequent nosocomial diseases (Montoya et al., 2016). These wards have a high probability of infection spread and cluster outbreaks (Avcı et al., 2012). Apart from the prevalence of HIV (Human Immunodeficiency Virus), patients with mental disorders were identified as having a high prevalence of contracting hepatitis viruses B and C compared to the general population (Rosenberg et al., 2005). Therefore, the extent to which infection prevention guidelines are performed by psychiatric nurses working in closed units should be evaluated in the COVID-19 context.

Many infection studies on nurses focusing on standard precautions have been actively conducted. However, today, standard precautions studies have focused on intensive care units where the infection rate is three times higher than in general wards, emergency rooms, general surgery wards, and wards wherein patients receive invasive treatments (Hammoud et al., 2021; Rosenthal et al., 2010). By country, standard precautions-based research has been conducted in developing countries

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because of the high prevalence of HIV, AIDS, and hepatitis B and C (Bekele et al., 2020; Beyamo et al., 2019; Khubrani et al., 2018; Mukherjee et al., 2013). Although standard precautions studies have been conducted on clinical nurses and across countries (Ayed et al., 2015; Batran et al., 2018; Gawad, 2017), few studies have been conducted with psychiatric nurses or psychiatry healthcare workers (Pai-Morais et al., 2015; Rovers et al., 2020). This may be because there are fewer lumbar punctures or invasive treatments in psychiatric closed wards than in general wards. However, in a pandemic where vast medical resources are being directed into preventing the spread of infectious diseases, psychiatric nurses will also need to improve the extent to which they adhere to standard precautions.

For nurses, knowledge, awareness, and compliance with standard precautions are important factors in reducing secondary infection. Among these, knowledge refers to the degree to which they know the infection guidelines presented by the CDC (2012). However, the knowledge of health care professionals on standard precautions is not high; in intensive care units where infection rates are high, nurses' knowledge was low (Dhedhi et al., 2021; Labeau et al., 2009). Therefore, it is necessary to evaluate the knowledge of psychiatric nurses on standard precautions.

Awareness refers to the understanding that observing standard precaution guidelines is important for preventing infection with blood or body fluids, and compliance level refers to the extent to which standard precaution guidelines are implemented (CDC, 2012). Having an awareness of standard precautions and practicing them is vital in preventing infection and reducing the risk of succumbing to hospital-acquired infections (Acharya et al., 2013; Kulkarni et al., 2016).

Despite the awareness of the importance of standard precautions in reducing the transmission of infectious agents in the workplace, low compliance rates among health care personnel have been reported worldwide (Al-Faouria et al., 2021). Generally, factors affecting standard precaution compliance include continuous education and training (Zeb & Ali, 2021). Currently, psychiatric nurses are involved in the treatment of COVID-19 patients and follow infection guidelines (Ward-Miller et al., 2021). Therefore, psychiatric nurses in the pandemic era should be prepared with a high level of compliance.

Thus, this study aimed to assess the level of knowledge, awareness, and compliance with standard precautions and to examine individual factors related to compliance with standard precautions among psychiatric nurses in South Korea. The objective was to provide basic data for establishing strategies as well as supporting data for effective infection control for psychiatric closed ward nurses.

Methods

Design

This was a descriptive and cross-sectional design whereby a survey was used to collect data.

Participants

The minimum sample size was determined using G*Power v. 3.1 (Heinrich Heine University, Dusseldorf, Germany). The minimum sample size required for a multiple linear regression analysis was 119, with a power of 0.85, a level of significance of $p = .05$, and an effect size of 0.15. Participants included psychiatric nurses who worked in closed wards of six mental health psychiatric hospitals located in three provinces of South Korea. After dropouts were considered, a total of 160 questionnaires were distributed. Overall, the final sample included 134 participants, which was an appropriate sample size as determined by G*Power.

Ethical considerations

This study was approved by the institutional review board of the Wonkwang University (IRB No. WKIRB-202008-SB-035). All participants were fully informed about the study and that their participation was voluntary. Informed consent was obtained from each participant, and all collected data were kept confidential and anonymous.

Measurements

Knowledge

A questionnaire was drafted based on the standard precautions' guidelines of the CDC (2007) and included 29 questions related to the knowledge of standard precautions. This scale consisted of seven sub-categories, namely the concept of standard precautions, hand hygiene, personal protective equipment, respiratory etiquette, patient care equipment, care of the environment and linen, and safe injection practice. The response options were "yes" or "no." "Yes" was scored 1 point and "no," 0 points. The total score was 29, and a higher score indicated higher level of knowledge regarding standard precautions. In this study, Kuder-Richardson 20 (KR-20) was 0.65.

Awareness

The awareness questionnaire was determined using the translated version of the standard precautions guidelines of the CDC (2007), which were translated into Korean by Jung (2008). This scale consisted of hand hygiene, personal protective equipment, respiratory etiquette, patient care equipment, care of the environment and linen, safe injection practice, and worker safety. Furthermore, the scale had 36 items with a 5-point Likert scale ranging from 1 (never) to 5 (always); total scores ranged from 36 to 180. A higher score indicated higher awareness of standard precautions. The Cronbach's α was 0.96 in this study.

Compliance

To assess the level of compliance with standard precautions, the questionnaire from the standard precautions guidelines of the CDC (2007), translated into Korean by Jung (2008), were used. The scale comprised the same questions on standard precautions as the awareness scale. Further, it comprised 36 items with a 5-point Likert scale ranging from 1 (never) to 5 (always); total scores ranged from 36 to 180. The higher the score, the better a nurse was in standard precautions compliance. Cronbach's α was 0.95 in this study.

Data collection

The data collection period was from September 2020 to March 2021.

Data analysis

All data were analyzed using IBM SPSS Statistics for Windows v. 24.0 (IBM Corporation, Armonk, NY, USA). The procedure of the analyses was as follows:

1. The general characteristics of the participants were calculated as numbers and percentages.
2. Differences in the general characteristics of knowledge, awareness, and compliance with standard precautions were examined using independent *t*-tests and one-way analysis of variance; Scheffé test was applied for post-hoc analysis.
3. Pearson's correlation coefficients were calculated to examine the relationships among knowledge, awareness, and compliance with standard precautions.
4. Multiple linear regression analysis was conducted to determine the predictive value of the variables on compliance with standard precautions.

Results

Demographic characteristics

Of the 134 psychiatric nurses who participated, responses from 28 men (60.9%) and 106 women (79.1%) were analyzed. Participants between the ages of 20 and 29 were the highest at 41.0%, with an average age of 35.9 years. The highest level of education for most participants was a bachelor's degree (94.8%). Regarding the career period, 46 (34.3%) nurses reported being employed between 1 and 30 months, followed by 30 (22.4%) being employed for more than 141 months; the career average was 84.2 months. Regarding work position, general nurses accounted for the most at 105 (78.4%), followed by charge nurses at 16 (11.9%), and head nurses at 13 (9.7%). Additionally, 81 (60.4%) nurses reported having experiences of needle-prick injury and 53 (39.6%) had never had these experiences. The participants' general characteristics are provided in [Table 1](#).

Level of knowledge on standard precautions

The average of the total correct knowledge score was 86.0%. Knowledge regarding the use of care of the environment and linen, safe injection practice, worker safety, and personal protective equipment was shown by 95%, 94%, 94%, and 89% participants, respectively. Knowledge on respiratory etiquette was the lowest at 82%. The rate of knowledge regarding standard precautions is summarized in [Table 2](#).

Level of awareness and compliance with standard precautions

The overall average for awareness was 4.52 ± 0.38 out of 5. Concerning awareness, patient care equipment had the highest score with 4.77 ± 0.37 , followed by safe injection practice with 4.75 ± 0.39 , and respiratory etiquette with 4.71 ± 0.42 points. The lowest score was 4.57 ± 0.47 points for hand hygiene.

The overall average for compliance was 4.58 ± 0.40 points out of 5. Among the items, 4.84 ± 0.37 was the highest for safe injection practice, followed by 4.83 ± 0.37 for worker safety. The lowest score was hand hygiene with 4.46 ± 0.50 points. [Table 3](#) shows the level of awareness and compliance with standard precautions.

Differences in knowledge, awareness, and compliance with standard precautions by general characteristics

An examination of the knowledge scores according to general characteristics showed significant differences for education ($t = -2.54, p =$

Table 1
Characteristics of study participants.
(N = 134)

Characteristics	Categories	n (%)
Gender	Male	28(20.9)
	Female	106(79.1)
Age (years)	20 – 29	55(41.0)
	30 – 39	39(29.1)
	40–49	26(19.4)
	>50	14(10.4)
	Bachelor's	127(94.8)
Education	Master's	7(5.2)
	1–30	46(34.3)
Career period (months)	31–60	29(21.6)
	61–90	11(8.2)
	91–140	18(13.4)
	> 141	30(22.4)
	Staff nurse	105(78.4)
Work Position	Charge nurse	16(11.9)
	Head nurse	13(9.7)
	Yes	81(60.4)
Experiences of needle-prick injury	No	53(39.6)

Table 2
Knowledge level of standard precautions.
(N = 134)

Items	Correct answer rate (%)
Concept of standard precautions	94.0
Hand hygiene	86.0
Personal protective equipment	89.0
Respiratory etiquette	82.0
Patient care equipment	85.0
Care of the environment and linen	95.0
Safe injection practice	94.0
Average of total score 86.0	

Table 3
The level of awareness and compliance with standard precautions.
(N = 134)

Variable	Items	Min	Max	Mean ± SD
Awareness	Hand hygiene	1.60	5.00	4.57 ± 0.47
	Personal protective equipment	2.30	5.00	4.64 ± 0.46
	Respiratory etiquette	3.50	5.00	4.71 ± 0.42
	Patient care equipment	4.00	5.00	4.77 ± 0.37
	Care of the environment and linen	3.00	5.00	4.68 ± 0.48
	Safe injection practice	3.40	5.00	4.75 ± 0.39
	Worker safety	2.67	5.00	4.71 ± 0.49
	Total	3.16	4.87	4.52 ± 0.38
	Hand hygiene	3.10	5.00	4.46 ± 0.50
	Personal protective equipment	2.20	5.00	4.49 ± 0.63
Compliance	Respiratory etiquette	3.75	5.00	4.67 ± 0.38
	Patient care equipment	2.00	5.00	4.68 ± 0.57
	Care of the environment and linen	2.33	5.00	4.62 ± 0.54
	Safe injection practice	3.40	5.00	4.84 ± 0.37
	Worker safety	3.67	5.00	4.83 ± 0.37
	Total	3.29	5.00	4.58 ± 0.40

$.035)$ and experiences of needle-prick injury ($t = 2.11, p = .039$). Regarding awareness, only career period showed significant differences ($F = 3.00, p = .021$). Scheffé post-hoc test revealed that awareness was the highest among nurses with a career period of 91 to 140 months and the lowest for the career period of 61 to 90 months. Comparatively, no statistically significant difference was found for compliance. Further details regarding the differences according to general characteristics are presented in [Table 4](#).

Correlations among knowledge, awareness, and compliance with standard precautions

Knowledge scores were significantly correlated with awareness scores ($r = 0.32, p < .001$), and knowledge scores showed a significant relationship with compliance scores ($r = 0.16, p < .001$). Additionally, scores on awareness were highly correlated with those on compliance ($r = 0.56, p < .001$). The correlations are shown in [Table 5](#).

Factors influencing compliance with standard precautions

To identify the variables affecting compliance, multiple linear regression was conducted. The general characteristics variables of education, career period, and experiences of needle-prick injury were recoded as dichotomous variables.

To examine autocorrelations, the Durbin-Watson statistic was used, which was 1.83, close to 2. Tolerance ranged from 0.45 to 0.79, and the variance inflation factor ranged from 1.056 to 4.043, which were less than 10. This indicated no concerns regarding multicollinearity.

Education ($\beta = 0.026, p = .725$), career period ($\beta = 0.042, p = .579$), experiences of needle-prick injury ($\beta = -0.070, p = .359$), and knowledge ($\beta = 0.130, p = .089$) were not significant factors influencing compliance. However, awareness ($\beta = 0.547, p < .001$) was a significant factor and had a total explanatory power of 35.0% ($F = 7.27, p < .001$). The model of compliance is shown in [Table 6](#).

Table 4
Differences of knowledge, awareness, and compliance with standard precautions according to general characteristics.
(N = 134)

Variable	Categories	Knowledge		Awareness		Compliance	
		t or F (p)		t or F (p)		M ± SD	
Gender	Male	21.71 ± 1.96	1.88	4.53 ± 0.40	0.15	4.65 ± 0.34	1.12
	Female	24.90 ± 2.33	(0.065)	4.52 ± 0.37	(0.898)	4.56 ± 0.41	(0.265)
Age(yrs)	20–29	25.33 ± 2.21		4.48 ± 0.41		4.48 ± 0.41	
	30–39	24.85 ± 2.10	0.44	4.57 ± 0.33	1.13	4.57 ± 0.33	0.59
	40–49	24.85 ± 2.75	(0.727)	4.52 ± 0.38	(0.313)	4.52 ± 0.38	(0.618)
Education	>50	25.07 ± 2.28		4.58 ± 0.39		4.58 ± 0.39	
	Bachelor	24.99 ± 2.30	–2.54	4.52 ± 0.38	–0.24	4.58 ± 0.40	0.19
	Master	26.46 ± 1.40	(0.035)	4.56 ± 0.42	(0.816)	4.55 ± 0.47	(0.854)
Career period (months)	1–30 ^a	25.15 ± 2.02		4.47 ± 0.39		4.47 ± 0.39	
	31 ~ 60 ^b	25.62 ± 1.93		4.61 ± 0.36		4.61 ± 0.36	
	61 ~ 90 ^c	24.55 ± 2.21	0.89	4.24 ± 0.37	3.00	4.24 ± 0.37	2.32
	91 ~ 140 ^d	24.50 ± 2.62	(0.472)	4.66 ± 0.26	(0.021)	4.66 ± 0.26	(0.060)
Work Position	>141 ^e	24.93 ± 2.74		4.54 ± 0.39		4.54 ± 0.38	
	Staff nurse	25.17 ± 2.13		4.51 ± 0.39		4.56 ± 0.41	
	Charge nurse	25.16 ± 2.25	1.16	4.67 ± 0.17	0.45	4.79 ± 0.16	2.54
Experiences of needle-prick injury	Head nurse	24.15 ± 3.29	(0.316)	4.46 ± 0.46	(0.239)	4.52 ± 0.48	(0.083)
	Yes	25.44 ± 1.45	2.11	4.52 ± 0.37	0.35	4.55 ± 0.41	–1.22
	No	24.49 ± 3.08	(0.039)	4.52 ± 0.39	(0.972)	4.63 ± 0.39	(0.224)

The superscript letters mean the Sheffe test of awareness (c < a < e, b, d).

Table 5
Correlations among knowledge, awareness, and compliance with standard precautions.
(N = 134)

Variables	Knowledge	Awareness
	r(p)	r(p)
Awareness	0.32 (p < .001)	
Compliance	0.16 (p < .001)	0.56 (p < .001)

Table 6
Factors influencing compliance with standard precautions.
(N = 134)

Variables	B	SE	β	t	p
(constant)	1.65	0.541		3.05	0.003
Education ^a (Bachelor)	0.024	0.068	0.026	0.352	0.725
Employment period (months) ^a (1–30)	0.070	0.126	0.042	0.556	0.579
Experiences of needle-prick injury ^a (Yes)	–0.054	0.059	–0.070	–0.920	0.359
Knowledge	0.715	0.417	0.130	1.71	0.089
Awareness	0.510	0.069	0.547	7.35	<0.001

R² = 0.35 Adj R² = 0.30 F = 7.27 p < .000

^a Dummy variables.

Discussion

This study evaluated the knowledge, awareness, and compliance with standard precautions among nurses in closed wards of psychiatric hospitals in South Korea.

The knowledge rate of the study participants was 86.6%, which is low compared to the knowledge rate of 90.0% or more among general ward nurses (Batan et al., 2018; Vaz et al., 2010). Although these studies did not directly study nurses, in a standard precautions knowledge study targeting health care professionals in eight departments including psychiatry, internal medicine, surgery, intensive care units, and hemodialysis, psychiatry showed the lowest correct answer rate (Atif et al., 2013).

Moreover, this study found that workers in long-term stay institutions in closed wards had less knowledge on standard precautions. In a study targeting physicians, psychiatry had the lowest knowledge on infection compared to other fields, and it was expressed as a negative

phenomenon (Pokorná et al., 2020). These studies and our study may highlight the reality of the knowledge of infection among psychiatric health care professionals. To increase knowledge on standard precautions, education and training are strongly recommended (Ayed et al., 2015). Thus, such interventions should be continuously provided to psychiatric health care professionals.

Respiratory etiquette had the lowest correct answer rate regarding knowledge, which reflects the psychiatric characteristics of relatively fewer respiratory patients compared to intensive care units, emergency rooms, and internal and external medicine wards. However, as COVID-19, a respiratory disease, is a disease that also occurs in psychiatric patients, the acquisition rate of relevant knowledge should be increased. Additionally, COVID-19 has increased the risk of recurrence due to difficulties in using hospitals, the lack of facilities for patients with mental disorders (Yao et al., 2020), and methodologic changes of mental health nursing care, such as home visits and digital care (Columb et al., 2020; Williams et al., 2021). Therefore, the expertise of psychiatric nurses on infection knowledge must be strengthened.

The item with the lowest score in standard precautions awareness and compliance was hand hygiene. This is problematic for psychiatric nurses, as 73.9% of clinical nurses perform injections without washing their hands (Al-Rawajfah & Tubaishat, 2017). Numerous factors such as skin irritation, heavy workload, and insufficient time for hand hygiene is predicted as the reasons for nurses' poor hand hygiene. However, among all the standard precautions, hand hygiene is the most important because common pathogens may easily be transmitted through health care workers' hands (Gichuhi, A., et al., 2015).

Although compliance with hand hygiene practice of health care providers was reportedly less than 40% (Khubrani et al., 2018), these were pre-COVID-19 studies; it is an essential compliance factor that need to be emphasized during the pandemic (Kumar et al., 2020). Even in the Center for Disease Control and Prevention (2020) and World Health Organization (2020) guidelines, hand hygiene was the main recommendation in the fight against COVID-19. As our study was conducted when COVID-19 infections were severe in South Korea, these results were interpreted with even more seriousness. To this end, increased awareness, and education on the importance of hand hygiene will be effective to improve compliance.

Lee et al. (2017)) used the same scales as this study and applied them to third and fourth grade nursing students in South Korea; they found that awareness and compliance were 4.77, respectively. Contrastingly, this study found lower awareness and compliance scores of 4.52 and 4.58, respectively. This result of lower scores among psychiatric nurses

than nursing students was notable. However, it is an opportunity to reflect on infection management in psychiatric departments.

Significant differences in general characteristics were found in knowledge and awareness, but not in compliance. We found that the higher the education level, the higher is the knowledge, which supports previous research targeting general ward nurses (Hammoud et al., 2021). However, even though this study was conducted in six psychiatric hospitals located in three provinces in South Korea, there were few nurses with a master's degree or higher. Therefore, it is necessary to collect data from more diverse sample in future studies.

A previous study found that the higher the career period, the higher is the level of awareness (Abdulraheem et al., 2012). In this study, nurses who had worked from 60 to 91 months had the highest awareness levels; thus, differences in the levels of experience and awareness were evident. Participants with more than 141 months of being employed had low awareness; however, as only psychiatric nurses were targeted presently, future studies should verify whether the results were different from those of clinical nurses.

Regarding awareness and compliance, safe injection practice showed high scores, which supports the results of previous studies (Pokorná et al., 2020). Further, knowledge was found to be higher in those who had experienced a needle-prick injury. According to the CDC, injections were reported to be dangerous for both patients and health care workers (Zeb & Ali, 2021). Therefore, safe handling of needle sticks is an important measure to prevent hepatitis B and C or outbreaks of infectious diseases (Abdulraheem et al., 2012). Although this study focused on nurses in psychiatric wards, a needle-prick injury is a threat for nurses, and caution should be taken in practice.

Although not significant in this study, it is noteworthy that the awareness and compliance levels of head nurses were low. This is contrary to the results of studies on clinical nurses, excluding psychiatry, wherein experienced nurses' or head nurses' compliance was high (Al-Faouria et al., 2021; Ayed et al., 2015). Positive organizational culture improves compliance of standard precautions and affects the frequency of infections; moreover, the supervisor's attitude also affects compliance (Quan et al., 2015; Zeb & Ali, 2021). Therefore, the organizational culture and knowledge of the ward managers, such as head nurses, may have influenced the results obtained in the present study. This highlights the need to review the psychiatric organizational culture and to raise awareness and compliance through continuous infection education and training for ward managers.

A significant correlation between knowledge and compliance supports the results of previous studies (Al-Faouria et al., 2021; Zeb & Ali, 2021). There was a moderate correlation between knowledge and awareness; however, awareness and compliance showed a high correlation. The high correlation between awareness and compliance was inconsistent with previous studies (Zeb & Ali, 2021) which showed a high correlation between knowledge and compliance.

Regarding the factors affecting compliance, awareness showed a high level of explanatory power. In studies on clinical nurses, knowledge influenced compliance (Al-Faouria et al., 2021; Zeb & Ali, 2021); however, this influence was not significant in the present study. Education, career period, and experience with needle-prick injuries did not affect compliance. Overall, the results of this study indicated a different pattern compared to those in the clinical nurse's study. Therefore, it will be important to reconfirm these unusual findings through further research; however, the focus should be to increase the compliance with standard precautions among psychiatric nurses.

As knowledge alone does not ensure compliance (Cabana et al., 1999), it should be increased through various interventions. Awareness and compliance should be improved through educational programs (Vaz et al., 2010). Training is a powerful way to increase the infection compliance of nurses (Luo et al., 2010) and has showed a significant effect in experimental studies (Galal et al., 2014; Li et al., 2014). However, it should be kept in mind that psychiatric infection education should not apply the infection principle of general wards. Education or

training programs should reflect the specificity and expertise of psychiatry, and the characteristics of patients with mental illness in the highly infectious group should be reflected.

Nurses working in resource-limited settings had difficulties in practicing standard precautions owing to limited resources, maintenance issues for inadequate ventilation, lack of information, and overcrowding (Zeb & Ali, 2021). In addition, the COVID-19 pandemic has highlighted the problems of the mental health infection system, and efforts to find active countermeasures for these problems are still underway (Rovers et al., 2020; Xiang et al., 2020). As psychiatric nurses were suddenly assigned to a ward to care for COVID-19 patients, or a manpower shortage occurred (Kumar et al., 2020; Ward-Miller et al., 2021), a “paradigm shift” in the form of work may be underway at psychiatric wards. Therefore, future psychiatric nurses must also demonstrate infection control skills outside the ward.

Conclusions

Nurses globally are struggling to minimize the risk of infection to patients and themselves. By ensuring that effective interventions are implemented to address nurses' awareness, knowledge, and compliance with standard precautions, nurses will be better prepared to handle future situations such as COVID-19. This will improve the health care and minimize the spread of infectious diseases. There is a Korean proverb that states, “When you think that you are late, you are the fastest.” In a situation where we do not know what new infectious diseases might appear in the future, it is best to prepare at present is. Although this study highlighted important findings, its limitations should also be presented. That is, the number of participants was small, and the research was conducted in only six hospitals of South Korea. Therefore, it might be difficult to generalize the results.

CRedit authorship contribution statement

Park did participate in the study's design, acquisition of the data, statistical analysis, and interpretation of the data; Yang did help statistical analysis, and managed data collecting process. Song supervised all the process as the corresponding author, the participating in the study's design, and writing the manuscript. All authors read and approved the final manuscript.

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Declaration of competing interest

The authors declared no potential conflict of interest with respect to the research, authorship, and/or publication of this study.

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