

## The nursing students' experience of COVID-19 confirmation



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### ABSTRACT

This study was conducted to prepare the basic data for the development of practical nursing intervention programs for nursing college students who have been confirmed with COVID-19 since its outbreak in Korea. The subjects of this study were 70 nursing students at the University of Nursing located in Seoul, Gangwon-do, and Gyeonggi-do, Chungcheongnam-do. The data were collected from April 1<sup>st</sup> through April 30<sup>th</sup>, 2022, and analyzed it using the content analysis method. The experience of the nursing students infected with COVID-19 was classified and analyzed to draw a total of 187 significant statements and 36 categories. When establishing an infectious disease prevention program for nursing students and developing a practical nursing intervention program, it is necessary to focus on the preventive activities that emphasize personal aspects such as infection control, health management, and self-management, and to strengthen social support systems and improve quality of life.

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### 1. Introduction

On March 11, 2020, the World Health Organization (WHO) declared that the coronavirus (COVID-19) is a global pandemic situation. To prevent individuals, groups, and regional infections in the context of the corona pandemic, Korea classifies the step-by-step standards of social distancing from stage 1 to stage 3 and adjusts each stage according to the infection situation, such as social distancing and vaccination, etc. While measures are taken and a response system is prepared for COVID-19, COVID-19 is protracted due to repeated mutations. Despite the initial response, preventive management, and quarantine measures through various steps, the spread of infectious COVID-19 is rapidly progressing due to group infection in the local community and the spread of infection from patients coming from abroad (Ha and Kim, 2021). As an additional measure to counter and manage these confirmed cases, public hospitals have been expanded and revitalized as dedicated hospitals, and infectious disease management and

intensive treatment are conducted centering on these institutions. Public hospitals, which are currently operating as infectious disease hospitals for COVID-19 patients, currently have a total of 8,622 beds, and 5,394 beds, or 37.5% of the country, are operated for the treatment and management of infectious diseases.

Nurses who take care of subjects whose lives are in jeopardy due to infectious diseases and who can spread infection experience various fears and confusion in the continuum of fear and anxiety (Liu et al., 2020). Such psychological anxiety causes nurses to conflicts between their responsibilities as a profession and a safe environment, resulting in physical and psychological problems, which not only lower the level of professional nursing but also lead to professional conflict and turnover (Ha and Kim, 2021; Jeong et al., 2015). For the nursing students who are learning and practicing to become nurses, the COVID-19 spread is an opportunity to experience various problems of infectious disease patients nursing students will face, but it is not possible to provide an environment where they can practice actual infection control activities. Face-to-face education has difficulties in encouraging differences in learning ability and continuous learning motivation (Lee et al., 2021). Furthermore, the experience of being diagnosed with the infectious disease of COVID-19 will require nursing students to have anxiety and coping abilities about infectious diseases. Accordingly, the need for education and

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systematic programs to increase the knowledge level of new infectious diseases and preventive health behaviors for nursing students is further increased.

Those who have been diagnosed with COVID-19 have psychological anxiety and a sense of guilt as the perpetrator, and in particular, the isolation measures they experienced can cause various psychological and emotional problems such as feelings of isolation, guilt, anger, depression, loneliness, fear, stigma, and sadness (Li et al., 2020). Furthermore, they are abruptly separated from the world and have to endure an isolated life, and their personal information may be undesirably exposed during the epidemiological investigation process, which may lead to criticism and discrimination (Kola et al., 2021).

Recently, in order to recognize these problems and find solutions, various studies for medical staff who operate COVID-19 such as 'COVID-19: Community Prevention and Management Measures' and 'COVID-19 Handling Guidelines' have been conducted overseas (Güner et al., 2020). While comprehensive research is conducted in Korea, such as by Choi et al. (2021a; 2021b), most of them are limited to studies on quarantine and prevention methods. In particular, it is important for nursing students to meaningfully consider and explore their experiences as they directly experience COVID-19 as future nurses. Furthermore, the experience of confirming nursing students in the COVID-19 pandemic situation may be used to prepare an appropriate support strategy. In this regard, this study aims to develop a practical nursing intervention program that can help with the confirmed cases of COVID-19 nursing students through in-depth exploration of the COVID-19 confirmation experiences experienced by nursing students at the present time when the COVID-19 epidemic continues for a long time.

The purpose of this study is to present a nursing intervention plan to efficiently and effectively recognize and manage infectious diseases among nursing students through the analysis of the student's experiences of COVID-19 confirmation. Furthermore, based on this, it is intended to provide the basic data for the development of educational programs for nursing students on COVID-19.

## 2. Method

This study is an exploratory study in which the data collected through direct interviews with study subjects were analyzed using the content analysis method in order to understand the experience of COVID-19 confirmation by the nursing students.

The content analysis method is a method intended to provide understanding and knowledge of the research subject by converting various data on variables or phenomena of interest into texts and then applying objective, systematic, quantitative, and qualitative analysis methods, providing practical applicability, prospects and validity of the study (Downe-Wamboldt, 1992). Hence, in this study, the

content analysis method was used as it was considered appropriate to qualitatively and quantitatively grasp the specific details of the COVID-19 confirmation experience of the nursing students.

The research participants are currently enrolled as nursing students in Seoul, Gangwon-do, Gyeonggi-do, and Chungcheongnam-do, and as for their method of participation, the study used the snowball extraction method, met directly with nursing students currently enrolled at the researcher's university, explained the purpose of the study, and then introduced other participants and connect with them. The subjects were each individually contacted, and a total of 70 persons participated in the study.

For the ethical consideration of the research participants, the researcher individually met the introduced nursing students and explained the identity of the researcher, the purpose and procedure of the research, the recording of the interview, and the time required. After explaining that the participants' anonymity was guaranteed and the interview contents would not be used for any purpose other than the purpose of the study, they agreed to participate in the study, and as a sign of consent, they were selected as the study participants who personally completed the questionnaire on general characteristics. Furthermore, it was explained that participants can refuse to participate in the study at any time even during data collection, and the data collection process was explained in detail. The study participants were rewarded after the interview as a token of appreciation.

For this study, the researchers took the course on qualitative research methodology, participated in qualitative research workshops and thesis presentations, and performed several studies using the content analysis method. Furthermore, the researchers are the ones who have been trained in the method of extracting data and categories from the interview contents in the content analysis research method and writing the thesis.

The data collection was conducted from April 1, 2022, through April 30, 2022, and semi-structured and open-ended questions were asked to nursing students with COVID-19 confirmation experience who agreed to participate in the study, thereby allowing participants to talk about their experiences. The questions to obtain content suitable for the purpose of this study included, among others, 'How did your body react when you were confirmed with COVID-19?', 'What was your emotional response when you were confirmed with COVID-19?' 'How was it?', 'What were your lifestyle, difficulties, and feelings during self-isolation with COVID-19?' and 'What do you want others to know and what do you want to do to prevent the spread of COVID-19?'

The number of face-to-face interviews was once per person, and the interview ran for about 1 hour. To prevent any omission of interview data, consent was obtained from the participants in advance, then all interview contents were recorded. The recorded contents were transcribed as soon as they were

collected, and the missing parts were supplemented by phone or email.

### 3. Analysis of data

#### 3.1. Analytical method

The interview transcripts of nursing students who experienced COVID-19 confirmation were analyzed according to the content analysis method presented by [Downe-Wamboldt \(1992\)](#). The unit of analysis was determined as phrases and sentences from the personal interview data. After the recorded interview was transcribed, while reading the sentences stated by the participants repeatedly, the lines were drawn in meaningful phrases and sentences related to the area set as the analytical content. The final 70 phrases and sentences were selected as the main statements by repeating the process of integrating them.

Through the above-related literature, a category schema was first derived for categorization according to the area of analytical content, and the phrases and sentences were classified according to the firstly developed category schema while repeatedly reading the selected 70 main statements. According to the revised secondary category scheme, the selected phrases and sentences were re-applied and classified.

#### 3.2. Reliability and relevance of the study

In the process of classifying phrases and sentences according to the categorical scheme developed first to ensure the reliability of the analysis of this research data, three researchers independently classified sentences and phrases according to the categorical scheme. As for the phrases and sentences not included in the category, thoughts on categories were shared, phrases and sentences belonging to each category were compared, expressions that caused confusion in meaning were deleted, and new categories were proposed and categorized. In particular, the agreement was low in the analysis area of practical experience, and hence, the statements were reviewed and divided into sub-areas and the categorical schema was revised. As a result of re-classifying them by re-applying the selected phrases and sentences by three researchers according to the revised secondary category scheme, when the opinions of three researchers agreed on categories and statements with a degree of agreement between appraisers of 2/3 (67%) or less, by undertaking the process of continuously exchanging opinions and making corrections, the reliability was increased thereby. Validity in the content analysis method depends on facial validity and content validity because the extracted categories are identified in the original data and related to the theory. Hence, the judgment of experts in this field and the validity of the extracted categories were secured by receiving

support from previous related studies and literature ([Downe-Wamboldt, 1992](#)). The validity of the final category of this study was confirmed by two nursing professors experienced in qualitative research in related fields.

### 4. Results

#### 4.1. General characteristics of the research subjects

There were a total of 70 subjects for this study, and as for the gender of the subjects, there were 16 male students (23%) and 54 female students (77%), meaning that there were more females. It was examined that 2<sup>nd</sup> years were 11 students (16%), 3<sup>rd</sup> years were 25 (36%), and 4<sup>th</sup> years were 24 (34%). The age of the subjects was 56 (80.0%) students aged 20 to 25, the largest number of respondents, 12 (17.0%) aged 26 to 30, and 2 (3.0%) were aged over 30. As for whether vaccinated, all 70 patients were vaccinated, and the number of vaccinations was the highest with 36 people (51.0%) in the 2<sup>nd</sup> phase, 23 people (33.0%) in the 3<sup>rd</sup> phase, and 11 people (16.0%) in the 1<sup>st</sup> phase. The confirmed date of COVID-19 was 34 people in 2021 (49.0%), 28 in 2022 (40.0%), and 8 in 2020 (11.0%), 8 were delta (11.0%), and non-response were 4 people (6.0%).

#### 4.2. Experiences of physical changes

When COVID-19 was confirmed, a total of 7 categories, 45 statements excluding duplicate responses, were derived from the responses to the body response, and the analyzed categories were 'sore throat symptoms' 27.0% (19), 'general weakness and muscle Pain' 23.0% (16 items), 'Fever, headache, and vomiting symptoms' 19.0% (13 items), 'sputum and cough, nasal congestion symptoms' 13.0% (9 items), 'urticaria symptoms' 11.0% (8 items), 'symptoms of loss of smell and loss of appetite' 4.0% (3 items) and 'diarrhea symptoms' 3.0% (2 items) ([Table 1](#)). The representative statements presented in order of frequency by category were 'sore throat,' 'general weakness,' 'dyspnea,' 'cough and sputum were the main symptoms,' 'a feeling of phlegm in the throat,' and 'diarrhea' ([Table 1](#)).

#### 4.3. Experiences in emotional changes

When COVID-19 was confirmed, a total of 9 categories and 35 statements excluding duplicate responses were derived from the responses to emotional experiences. The analyzed categories turned out to be 'worry about harm to others' 24.0% (17 items), 'embarrassed and crying' 21.0% (15 items), 'blame and upset' 17.0% (12 items), 'acceptance' 13.0% (9), 'headache' 7.0% (5 items), 'fear' 6.0% (4 items), 'surprise' 4.0% (3 items), 'sleep disorder' 4.0% (3 items), and 'worry and anxiety' 3.0% (2 items) ([Table 2](#)).

**Table 1:** Experiences of physical changes when confirmed with COVID-19(N=70)

Category	Significant statements	N	(%)
Pharyngodynia	Pharyngodynia,	19	27.0
	Cough		
	Headache		
	Sputum		
	Muscle pain		
	Hoarseness		
	It hurts every time I swallowed saliva		
	Cold hands and feet		
	Your voice changes		
	Chill		
General weakness, muscle pain	Dizziness	16	23.0
	Fever		
	Body aches		
	General prostration		
	Neck pain		
	Vomiting		
	Fatigue		
	Pyrexia		
	Stuffy nose		
	Feeling tired and coughing a lot		
Pyrexia, headache, throw up	Nasal discharge	13	19.0
	Apathy		
	Transplanting injury		
	Respiration		
	Chills		
Sputum, cough, clogged nose	The whole body was lethargic	9	13.0
	Abdominal pain		
	High fever		
	Sputum		
	Congestión nasal		
Hives	Sputum was the main symptom	8	11.0
	Sneezing		
Loss of smell and loss of appetite	Cough	3	4.0
	Nasal discharge		
Diarrhea	Transplanting injury	2	3.0

**Table 2:** Emotional change-related experiences when confirmed with COVID-19 (N=70)

Category	Significant statements	N	(%)
Worrying about harm to others	Concerns about moving and causing damage to family members	17	24.0
	I was very sorry for the damage to my family and friends		
	Worried about moving it to family or friends		
	Feeling worried and thinking about what to do if you harm others		
	Squatting and drowsy in fear of avoiding others		
Embarrassment and crying	First of all, I was embarrassed and went to the physician without hesitation	15	21.0
	The first feeling is embarrassment		
	I was afraid of quarantine for 7 days		
	Embarrassed and upset		
	I was surprised		
Annoyance of criticism	I was so startled that I cried	12	17.0
	I cried in embarrassment at the thought that I am now an infected person		
	Criticism around for corona infection		
	People around me were infected and I was also infected		
	I feel upset because people around me seem to be criticizing me		
Accept	I was isolated and upset by myself	9	13.0
	Don't take it seriously		
	After the infection, a question arose		
Headache	I felt reassured about my recovery	5	7.0
	Now I am confirmed		
	Confirmation of confirmed cases		
Fear	I have a very hard time with a headache	4	6.0
	Headache arises and it is painful to function properly		
	Worried about what to do if there are a lot of aftereffects		
Surprised	Willingness for sequelae	3	4.0
	Fear of what to do if the aftereffects are severe		
Sleep disorder	Very amazing	3	4.0
	I was a little surprised and very depressed.		
Worry and anxiety	Pain	2	3.0
	I have trouble sleeping because of fear		

**4.4. COVID-19's infection route**

A total of 8 categories and 24 statements excluding duplicate responses were derived from the response to the route of COVID-19 infection, and the analyzed categories were 'family' 21.0% (15 items), 'training hospital' 17.0% (12 items), 'dormitory' 17.0% (12 items), 'unclear' 16.0% (11 items), 'friend' 11.0% (8 items), 'public place' 6.0% (4 items), 'public transportation' 6.0% (4 items) and 'in-school practical classes' 4.0% (3 items) (Table 3).

The representative statements, presented in order of frequency from each category, are 'My mother in the family was confirmed positive,' 'Infection during hospital practice,' 'Infection due to living in a dormitory,' and 'I do not know where the infection came from,' 'close contact with a confirmed

friend,' 'public place (restaurant),' 'infection due to public transport use,' and 'infection during basic nursing practice'(Table 3).

**4.5. Changes in daily life during self-isolation**

A total of 6 categories, 44 statements excluding duplicate responses, were derived from the responses to changes in daily life during self-isolation due to COVID-19, and the analyzed categories turned out to be 'contactless prescription' 35.0% (24 items), 'over-the-counter medication' 31.0% (22 items), 'rest' 13.0% (9 items), 'water' 10.0% (7 items), 'self-treatment' 8.0% (6 items) and 'hospital prescription' 3.0% (2 items) (Table 4).

**Table 3: COVID-19 infection route (N=70)**

Category	Significant statements	N	(%)
Family	A mother in the family was diagnosed with the virus	15	21.0
	My younger brother was infected while attending school		
	Infected 4 days after mother met her friend		
Practice hospital	Infection through family members	13	19.0
	Infection during hospital training		
	Infection in the ward during practice		
	Infected by hospital caregivers		
Dormitory	Confirmed during hospital practice	12	17.0
	Dormitory roommates		
Obscurity	Infected by a friend in the dormitory	11	16.0
	Infection due to living in a dormitory		
Friend	unknown	8	11.0
	I don't know where the infection came from		
Public places	Infected by a friend	4	6.0
	Close contact with a confirmed friend		
	Presumed to be infected at a bowling alley		
Public transport	public restaurant	4	6.0
	Public places (restaurants)		
	Part-time job		
In-school practice class	Presumed to be infected by public transportation	3	4.0
	Speculation of infection caused by using public transportation		
	Infected by a friend during nursing practice		
	What happens naturally		

**4.6. Prevention against COVID-19 infection**

A total of 6 categories and 39 statements excluding duplicate responses were derived from the responses to measures to prevent COVID-19 infection, while the analyzed categories turned out to be 'infection control' 26.0% (18 items), 'health care' 25.0% (17 items), 'self-management' 13.0% (9 items), 'public facility user system' 13.0% (9 items), 'prevention' 11.0% (8 items), and 'ventilation' 4.0% (3 items) (Table 5).

**5. Discussion**

This study was conducted to prepare the basic data for the development of a practical nursing intervention program for nursing students who have experienced COVID-19 since the outbreak of COVID-19 in Korea. Individual interviews were conducted for the students who were confirmed with COVID-19, and the data were collected and analyzed across the 5 areas of physical response, emotional response, infection route, experience during self-isolation, and efforts to prevent infection, and it is intended to discuss based on the following research results.

First, when the nursing students experienced the COVID-19 confirmation, the physical reactions turned out to be [sore throat symptoms], [general weakness and muscle pain], [fever and headache, vomiting symptoms], [sputum and cough, nasal congestion symptoms], [urticaria symptoms], [loss of smell, loss of appetite], and [diarrhea], which were confirmed in the study of Wang and Du (2020), while the main symptoms were fever, dry cough, loss of taste, muscle pain, sore throat, and headache, which were confirmed to resemble the results of this study. Regardless of the number of vaccinations, it has been confirmed that they have experienced what is known as the common symptoms of COVID-19. Furthermore, it may be interpreted as reflecting the findings of the study that COVID-19 may be more dangerous for people with underlying medical conditions and are even more likely to progress to severe diseases (Workowski, 2015). Second, emotional experiences turned out to be [worry about harm to others], [embarrassed and crying], [blaming and upset], [acceptance], [headache], [fear], [surprise], [sleep disorder], [worry and anxiety], and it was also confirmed that they generally experienced negative thoughts and emotions.

**Table 4:** Changes in daily life during self-isolation due to COVID-19 (N=70)

Category	Significant statements	N	(%)
Contactless prescription	After contactless treatment with a physician, I received a prescription and took medication and drank enough water	24	35.0
	For phone counseling, I called the treatment hospital and got a prescription, and my parents came and brought me medicine		
	I received treatment through contactless treatment over the phone, prescribed medication, and then took medication		
	I went to the hospital for contactless treatment, received medication, and continued to eat		
	Taking the prescribed drug after receiving treatment I took the prescribed drug from the hospital and ate about 10 tablets		
	Seeing medical treatment over a contactless phone, receiving medicine by delivery and starting to take it		
	I received the prescribed medication through contactless treatment and take it until it is released		
	For contactless and prescription information. I continued to sleep because of my thirst		
	I received a prescription from a local hospital for contactless treatment, and I drank a lot of warm water to relieve the neck pain		
	I took the prescribed medications		
Taking over-the-counter medications	I received a prescription for contactless treatment, and I used a humidifier due to dry cough and sputum	22	31.0
	I took over-the-counter medicines		
	While taking general cold medicine, I isolate and proceed with daily life treatment		
	Tylenol, ibuprofen, cold medicine, etc		
	In case of self-quarantine, I treat myself at home and drink cold syrup and water in your room		
	While self-isolating, taking Tylenol and resting in bed		
	While taking oral vitamins and Tylenol (acetaminophen), I managed to keep my fever from rising, I ate adequate nutrition, drank a lot of warm water to relieve a sore throat, and got enough rest and sleep		
	During self-quarantine, I take medicine from a pharmacy and drink a lot of honey water because honey water is helpful for sore throat		
	Taking Tylenol, lemon tea, and cold syrup, disinfecting and ventilating the entire room with an antiseptic		
	I take medications containing acetaminophen regularly, drink plenty of water, wash hands frequently, disinfect used items, and open windows twice a day to ventilate		
Rest	I took medicine for a cold or phlegm and ate a lot of warm food	9	13.0
	I rest at home		
Water intake	I seek popular remedies	7	10.0
	There is no significant pain, so no treatment		
Self-treatment	I have a little sore throat, so I drink a lot of hot water	6	8.0
	I drink warm water frequently		
Hospital prescription	I measure body temperature, pulse, and oxygen saturation at set times through the home treatment	2	3.0
	When using the bathroom, I do not go outside and ventilate regularly. I always wear a mask when using the bathroom or bringing food into the room		

The epidemic of infectious diseases causes maladaptive emotional problems such as anxiety, fear, helplessness, and post-traumatic stress symptoms (Li et al., 2020). Furthermore, according to a study by Lee et al. (2016), it was confirmed that even during the outbreak of the MERS virus, people, directly and indirectly, experienced the fear of MERS virus infection and emotional distress (negative emotions), and 90% of the study subjects were women. who reported that they or their family members feared that they might become infected with the MERS virus. A study on nursing students at Chinese universities also confirmed that the psychological stress caused by the virus was the greatest (Zhi et al., 2020).

Among the analyzed categories, [worry about harm to others], [sadness of criticism], and [embarrassment and crying] are interpreted as concerns about social stigma. When they were confirmed with COVID-19, they perceived the fear of criticism from people around them to be very high

(Al-Hanawi et al., 2020). This phenomenon may also be linked to a social stigma that attempts to attribute the responsibility for infection to individuals or specific groups (Xiao et al., 2022). Social stigma means creating a negative social atmosphere for a specific disease or behavior and making it a social norm to avoid it (Kim et al., 2018). It may be predicted that such social stigma might negatively affect the quality of life of the subject even after recovery, and finding protective factors to overcome this is essential for interventions for them. Among them, social support can operate as a protective factor. Social support is known to be correlated with the reduction of psychological distress and psychopathology, and acts as a protective factor, especially in situations where adaptation is necessary due to changes in life (Serafini et al., 2020). It is necessary to pay attention to social support for the development of practical nursing intervention programs for nursing students who have been diagnosed with COVID-19.

**Table 5:** Prevention measures for COVID-19 infection (N= 70)

Category	Significant statements	N	(%)
Infection control	It is most important to wear a mask well, and hand hygiene is important	18	26.0
	Disinfect hands frequently and wear a mask		
	As a basic precaution, the wearing of a mask and thorough hand hygiene was performed		
	Wash your hands often and wear a KF-94 mask		
Healthcare	I realized that wearing a mask, ventilation, disinfection, and hand washing are very important	17	25.0
	Continue to wear the KF -94 mask. wash your hands frequently		
	I will treat my curiosity and make an ascetic effort on KF-94		
	• Isolation in the room, wearing a KF-94 mask and disinfecting hands.		
Self-management	I ate enough food, vitamins and water	15	21.0
	Increase immunity through regular exercise.		
	Build immunity through a healthy lifestyle, wear a mask in public places lead a regular life		
	Minimize going out and thoroughly manage hygiene even when you go out		
Refrain from using public facilities	Avoid going to places prone to infection	9	13.0
	I think the fundamental prevention method is not to go out		
	Pay attention to personal hygiene after going out		
	Try to avoid direct contact with objects, appliances touched by multiple people, such as subway handles		
Prevention	Refrain from talking during meals and avoiding public facilities used by as many people as possible	8	11.0
	Social distancing, ventilation, avoiding public places		
	Minimize contact with people		
	When eating, do not use the same tableware, and instead of sharing, eat more personalized meals		
Ventilation	Refrain from visiting public places, wear a mask, do not move designated magnets	3	4.0
	Sanitize your hands with hand sanitizer whenever you use multiple facilities and always wear a KF-94 mask		
	Keep a distance even if the person with symptoms is close to you		
	If you have any doubts, don't think it's a cold and get tested		
	Avoid meeting with friends with suspicious symptoms		
	Prevention is important		
	ventilation, unconditional ventilation		
	Mask, ventilation, hand washing		
	Frequent ventilation		

Third, the route of infection was confirmed to be [family], [training hospital], [dormitory], [unclear], [friend], [public place], [public transportation], and [in school practice class]. Among them, it was confirmed that most infections were transmitted through [family], [training hospital], and [dormitory], which may be interpreted as having a stronger transmission power than general people in the route of infection.

Major infection routes, such as workplaces, restaurants and cafes, homes, and sports facilities, were consistent with the results of this study. COVID-19 is transmitted through close contact and may be interpreted as a result of confirming that the influence of nearby acquaintances is greater than that of unspecified people due to the nature of the COVID-19 virus, which has such a strong contagious power. Furthermore, the patients who were abruptly isolated due to COVID-19 turned out to have complained about their anxiety and worry, financial loss, and stress caused by social stigma (Rahman et al., 2020). In particular, the quality of life is significantly low in cases of confirmed family infection (Carfi et al., 2020), requiring social attention and management of their quality of life. Furthermore, it turned out that they experience major changes and crises in various areas of life, such as various aftereffects, social and economic changes such as leave or unemployment, and decreased income (Li et al., 2020). Such presents that interventions are needed to improve the quality of life even after recovery.

Fourth, the experience during self-isolation treatment turned out to be [contactless prescription], [taking over-the-counter medicine], [rest], [water intake], [self-treatment], and [hospital prescription]. It also turned out that contactless prescriptions were used the most when confirmed with COVID-19, and as the students enrolled in their nursing school, they responded appropriately to their reality during self-isolation following their infection.

Fifth, the efforts for infection prevention turned out to be [infection control], [health management], [self-management], [don't know], [public facility user system], [prevention], and [ventilation]. It was also confirmed that infection control and health management were important in the personal aspect of preventing the COVID-19 virus, and it was further confirmed that the public facility user system was necessary for the social aspect. In the study by Wang and Du (2020), the results of this study are consistent with the results of hand washing, wearing a mask, and reducing face-to-face activities as the main preventive actions. It was also confirmed that the nursing students who have been confirmed with COVID-19 place such a more significant weight on their individual preventive actions in preventing infectious diseases. The more active the group to which one belongs is in disease prevention, the higher the individual's disease prevention behavior in that group (Weinstein and Lyon, 1999). It may be predicted that it will be effective to focus on prevention activities that emphasize personal

aspects such as infection control, health management, and self-management when establishing an infectious disease prevention plan for nursing students in the future.

## 6. Conclusion

This study is an exploratory study in which the data collected through direct interviews with the study subjects were analyzed by using the content analysis method in order to examine and understand the experiences of COVID-19 confirmation by the nursing students. The contents of the COVID-19 confirmation experience derived from this study were further classified into the 5 areas of physical response, emotional response, infection route, self-isolation experience, and infection prevention, and were also identified as 36 categories and 187 meaningful statements. The nursing students were confirmed to have experienced symptoms known as the common symptoms of COVID-19, regardless of the number of vaccinations given their physical response. Emotional experience was confirmed as experiencing negative thoughts and emotions. It may be interpreted that the transmission route of the infection is stronger than that of people in general. The experience of self-isolation treatment turned out that contactless prescription was used the most, and as the students enrolled in nursing school, they responded appropriately to their realities during self-isolation following their infection. The efforts to prevent infection were confirmed to place a larger weight on individual prevention actions. Hence, when establishing an infectious disease prevention plan for nursing students and developing a practical nursing intervention program, it would be necessary to focus on the prevention activities that emphasize personal aspects such as infection control, health management, and self-management, and strengthen the social support system by intervening with negative emotions and improve the quality of life. Accordingly, it is considered necessary to develop a practical nursing intervention program for nursing students.

## Compliance with ethical standards

## Conflict of interest

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