

Feelings and Thoughts of Infected Nursing Undergraduates with COVID-19 in China: A Qualitative Study

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Abstract

Background: COVID-19 had become much less virulent but still infectious, and China had loosened controls on its prevention after three years of zero-COVID policy. Nursing students were faced with infection. However, the symptoms of the vast majority of them were not serious. **Objectives:** To understand the feelings and thoughts of nursing undergraduates first infected with COVID-19 after implementing the policy of loosening controls on COVID-19 prevention in China. **Methods:** A semi-structured in-depth interview was adopted to collect data from 19 nursing undergraduates in a nursing school in China in January 2023, which were then analyzed using the Colaizzi analysis method. **Results:** Two main themes and seven sub-themes were induced: feelings after the diagnosis of being infected (feeling calm by professional confidence, feeling afraid of the consequences of being infected, feeling depressed, feeling relieved/lucky/happy), and thoughts brought by COVID-19 infection (becoming more active in learning, committed to a nursing career, and feeling shaken about becoming a nurse). **Conclusions:** Schools and hospitals should pay attention to infected nursing students' mental reactions and changes in study motivation and professional intention. Targeted measures, such as education for epidemic prevention and education for cultivating the professional spirit, should be taken to promote their mental health and reserve their talents for nursing.

Keywords

COVID-19, Nursing Undergraduates, Feelings, Thoughts, Qualitative Study

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1. Background

COVID-19 is a new type of acute infectious disease with high incidence and strong infectivity, which spread widely around the world and could cause death [1]. With the evolution of COVID-19, Omicron has become a major variant of novel coronavirus infection circulating globally. It is highly infectious and associated with a high reinfection rate [2]. On December 26, 2022, the Chinese government changed the name “novel coronavirus pneumonia” to “novel coronavirus infection”. Since January 8, 2023, novel coronavirus infection has been categorized as “Class-B infectious disease” [3]. China is facing a new situation of novel coronavirus infection, and the national epidemic prevention and control has entered a new stage, with the number of infected people in the country reaching a peak, whereas the symptoms of the vast majority of whom were not serious [4].

Nursing undergraduates are builders and successors of healthcare and are reserve forces to cope with novel coronavirus infection. Although they have not obtained the nurse practicing certificate for the time being, they play a special role in preventing and controlling novel coronavirus infection [5] [6]. They have learned pharmacology, nursing basics, and other courses in nursing and have mastered more knowledge of drug use and epidemic prevention and control compared with other non-medical students [7]. In particular, nursing undergraduates infected with the novel coronavirus have an intuitive feeling and experience of the psychological reactions, coping strategies, and changes brought about by COVID-19 infection. Therefore, this study aims to understand the feelings and thoughts of nursing students after their first infection with the novel coronavirus through qualitative interviews so as to provide a reference for the development of measures to prevent the secondary infection of this group and the training of nursing undergraduates under the background of the post-epidemic era.

2. Objectives

This study aimed to understand the experience of nursing undergraduates first infected with COVID-19 after implementing the policy of loosening controls on COVID-19 prevention in China.

3. Methods

3.1. Design

This study was qualitative and was conducted from a phenomenological perspective.

3.2. Participants

We used the purposive sampling method to recruit 19 undergraduate nursing students from Hangzhou Normal University in January 2023.

Inclusion criteria: 1) with an initial diagnosis of COVID-19 (positive results on antigen test or nucleic acid mono-tube test) [3]; 2) undergraduate nursing students

or post-secondary nursing students; 3) was in a stable condition; 4) was conscious; 5) communicated well; 6) being informed consent. Exclusion criteria: 1) was hospitalized with severe COVID-19 infection; 2) was with serious diseases, such as severe arrhythmia, myocardial infarction, etc.; 3) suffered from mental illness or cognitive dysfunction, etc.

This study was approved by the Ethics Committee of the School of Nursing, Hangzhou Normal University (approval number: 2023001). All study subjects voluntarily participated.

3.3. Developing Interview Outline

This study adopted qualitative research methods from a phenomenological perspective. Semi-structured in-depth interviews were conducted to obtain research data [8]. The proposed interview questions were as follows: 1) How did you feel after you were infected by COVID-19? 2) How did you cope with COVID-19 infection? 3) What effects in daily life do you think the infection brought to you? 4) What thoughts did the infection bring to you about your study and your nursing career? 5) What other suggestions do you have for this interview?

3.4. Data Collection

Before formal interviews, all interviewers were trained on the content and interviewing techniques related to qualitative research. Three undergraduate nursing students were pre-interviewed. The researchers confirmed the study subjects' willingness to participate by telephone, introduced the purpose, significance, and time required, and committed harmlessness and confidentiality to the subjects. They also confirmed the interview time with them. After that, researchers interviewed participants by WeChat or voice call. Researchers made sure that they were in a quiet, private and comfortable environment and that there were no other people besides them. Then, researchers collected general information about the interview subjects.

During the interview, the researcher encouraged the interviewees to express their thoughts and feelings. To better explore the interviewees' experiences, researchers listened carefully to their responses and observed their facial expressions and mannerisms. This study conducted 27 interviews, and the average interview time was 40 minutes.

3.5. Data Analysis

The audio recordings were converted into text word by word within 24 hours after each interview. The interview content was analyzed using the Colaizzi method [8]: 1) the researcher repeatedly listened to the recordings, read the interview transcripts, and then marked out significant words and phrases; 2) coded the recurring ideas; 3) assembled the coded ideas to form the prototype of the themes and described each theme in detail; 4) summarized the similar themes; 5) returning to the interviewees for clarifying any questionable or unclear points about the interview

content. Throughout the process of data collection and analysis, shorthand memos were used to record and preserve data analyzed. Basic information about interviewees is shown in **Table 1**.

Table 1. Basic information of undergraduate nursing students interviewed.

Number	Years old	Gender	Educational background	Grade	The number of days after being infected (days)
S1	21	Female	Undergraduate student	Third grade	12
S2	19	Male	Undergraduate student	First grade	7
S3	19	Female	Undergraduate student	First grade	9
S4	24	Male	Upgrading from junior college student to university student	Second grade	21
S5	21	Male	Undergraduate student	Third grade	20
S6	21	Female	Undergraduate student	Third grade	10
S7	24	Female	Upgrading from junior college student to university student	Second grade	20
S8	23	Male	Upgrading from junior college student to university student	Second grade	25
S9	19	Female	Undergraduate student	First grade	20
S10	21	Female	Undergraduate student	Third grade	25
S11	20	Female	Undergraduate student	Second grade	30
S12	20	Male	Undergraduate student	Second grade	15
S13	20	Female	Undergraduate student	Second grade	13
S14	22	Female	Undergraduate student	Fourth grade	30
S15	22	Female	Undergraduate student	Fourth grade	15
S16	22	Male	Undergraduate student	Fourth grade	20
S17	20	Female	Upgrading from junior college student to university student	Second grade	19
S18	20	Female	Upgrading from junior college student to university student	Second grade	20
S19	20	Female	Upgrading from junior college student to university student	Second grade	8

4. Results

4.1. Feelings after the Diagnosis of Being Infected

4.1.1. Feeling Calm by Professional Confidence

Eight nursing students mentioned that they had a good understanding of COVID-19 and were able to identify and deal with the symptoms the first time. Therefore, they could keep calm during the pandemic and have a positive impact on people around them.

“I will keep calm. Some people may think this virus is very scary and will cause a lot of terrible symptoms. Other people guess that they may have pneumonia, so they are very afraid. For us medical students, we can read books about some

special symptoms, and we can also use our own knowledge, (so that we will) not be so afraid.”

(S11)

“After all, our major is medicine. (This makes us) able to fight COVID-19 with more calmness, less panic, and to give some strength to people around you.”

(S10)

4.1.2. Feeling Afraid of the Consequences of Being Infected

Fear is a common psychological reaction of respondents infected with COVID-19, including fear of symptoms, fear of infecting others, and fear of reinfection.

“I was afraid I would die of fever at night, because only I myself in the room. I was afraid I would die of fever at night.”

(S1)

“I was worried about infecting children and older adults in my family, who could easily die if they were infected.”

(S4)

“During the Spring Festival, I thought there was a high probability that there would be a second infection, and I heard that the strain of second infection might be different.

It could be more severe or milder. I was definitely worried about reinfection.”

(S1)

4.1.3. Feeling Depressed

Some interviewees said they felt depressed after being infected.

“I felt I did not want to live anymore. It's true. That was the feeling at that time.”

(S13)

“I felt depressed. Because I had to take the postgraduate entrance exam soon.”

(S12)

4.1.4. Feeling Relieved, Feeling Lucky or Happy

Some infected participants felt relieved when they were diagnosed with COVID-19 infection because they thought that being infected was inevitable and that being infected was not a big thing.

“It was a bit of a relief. Because we thought that everyone was going to get infected.

Since my family had been diagnosed, it's finally my turn. It relieved me to stop worrying.”

(S2)

Some interviewees said they felt lucky because the infection happened to be staggered with the postgraduate entrance examination, as infection was unavoidable.

“At that time, we had finished the postgraduate entrance examination, and all the important things had been finished. We were infected when we rest at home, so we felt quite lucky.”

(S14)

4.2. Thoughts Brought by COVID-19 Infection

4.2.1. Becoming More Active in Learning

Some respondents said that during the epidemic period, they realized the importance of medical or nursing knowledge and became more active in learning.

“I feel that relying on the temporary question bank can not solve the practical problem, and I will make a fool of myself when I really want to use the knowledge...I must rely on the accumulation at ordinary times to use the knowledge correctly when I need it. This epidemic made me truly feel the importance of medical knowledge in life, and it has also increased the enthusiasm of my learning intentionally or unintentionally.”

(S12)

“(I need to) learn more skills, learn a variety of nursing knowledge.”

(S17)

4.2.2. Committed to Nursing Career

One of the respondents indicated that she would like to continue their postgraduate studies in nursing and engage in research related to pulmonary rehabilitation. Two respondents also said that because of the positive role played by nurses in the epidemic, they are more determined to engage in the nursing area.

“It has no impact on my future study and employment...it (the COVID-19 infection) makes me more determined to be a nurse.”

(S13)

“When I was quarantinable at home, I saw by chance on TikTok that many nurses had died in the early days of COVID-19 pandemic. Their spirit moved me very much. If possible, I would like to be one of them (to help people).”

(S2)

4.2.3. Feeling Shaken about Becoming a Nurse

More respondents had doubts about their future careers in nursing or related nursing fields due to the high risk of infection among nursing staff, especially those in the respiratory department.

“In terms of employment, I may need to slightly consider the employment situation of relevant departments, such as the respiratory department, where the nurses are prone to infection...I may need to observe during the internship...and other ways to judge whether I can be qualified for this post.”

(S11)

“I am concerned about and interested in such public health emergencies...I have the intention of becoming a public health nurse. In addition, I admire front-line clinical nurses more and hope that I can become one of them in the future, but I also worry that professional exposure is too painful, and I don't want to exchange the so-called “angel in white” title at the cost of my health, so my heart in clinical nursing is shaken.”

(S16)

“I feel that nursing is a big responsibility, and I will doubt whether I can do it.”

(S18)

5. Discussion

This study indicated that almost half the nursing students kept calm while being infected by COVID-19. The main reason was that the virus had become much less virulent, and nursing students themselves considered that they could handle the infection. This fully demonstrated the important role of medical/nursing knowledge in fighting the epidemic. Schools can provide students with professional honor education, strengthen their professional identity and confidence, and stabilize the nursing profession.

This study found that some infected nursing students had adverse emotional reactions such as fear and depression, which is in line with the results of multiple studies [9] [10]. Major public health events could affect the psychological status of the public to some extent [11] [12]. The provision of scientific and timely information and timely distribution of materials for epidemic prevention can effectively alleviate the fear and anxiety of nursing students about the infection of COVID-19 [13]. Schools can release information on prevention through public accounts to reduce nursing students' sense of being unaware of the disease. Moreover, a psychological counseling hotline is suggested to be provided to offer psychological counseling for nursing students with serious negative emotions to reduce their anxiety and depression and relieve psychological pressure. If necessary, psychological intervention programs could be launched to address the situation of nursing students.

Our study also found that some nursing students felt relieved, lucky, or even happy. The reasons were: 1) with the policy of loosening control of COVID-19, being infected was inevitable; 2) the virulence of COVID-19 had decreased extensively, and being infected resulted in non-serious consequences; 3) the infection happened to be staggered with important events, for example, the postgraduate entrance examination during that time. This finding was inconsistent with previous studies [9] [10] in which nursing students suffered from negative emotions after being infected by COVID-19. The inconsistency lies in the different virulence of COVID-19 from different periods.

This study found that some infected nursing students realized the prominent role of nursing knowledge and skills in preventing and controlling COVID-19. This reinforced their recognition of the value of nursing and strengthened their commitment to nursing careers. However, some nursing students said that the risk of being infected by COVID-19 increased, which affected their professional identity. College days are a key stage for the formation and promotion of nursing students' professional identity [14], whereas internships are a key stage for nursing students to transform theoretical knowledge into practical knowledge [15]. Nursing students with outstanding performance during the pandemic should be commended to increase students' professional identity and sense of achievement. Most nursing students had never participated in systematic training on the prevention and control of major public health events, and they lacked experience in coping with disasters and emergent infectious diseases [16]. Schools should

consider that nursing students are not rich in knowledge and skills, and they could suspend the front-line internship of nursing students when necessary. For nursing students still interning in hospitals, the training hospital should reasonably arrange for internship matters, reschedule the working hours and intensity of nursing students, and provide appropriate internship security and living security to reduce the incidence of infection. Hospitals and schools could carry out education for dedicated professional spirit among nursing students to consolidate their professional identity.

6. Limitation

The limitation of the study was that we only recruited nursing undergraduates, the symptoms of whom were not very serious. Therefore, it is necessary to explore the interviewees with severe symptoms of infection further.

7. Conclusion

This study explored how nursing undergraduates felt and experienced after being infected by COVID-19. The results showed that the psychological reactions of infected nursing undergraduates were diverse. It is necessary for schools and society to play a positive role in safeguarding the mental health of nursing undergraduates and guiding their career planning.

Authors' Contribution

JY.Z.: Interviewing, data curation, formal analysis, writing-original draft.

C.Z.: Interviewing, data curation, formal analysis, writing-original draft.

XT.C.: Data curation, formal analysis, writing-original draft.

XZ.Q.: Data curation, formal analysis, writing-original draft.

CF.Z.: Resources, formal analysis, writing review & editing.

DQ.H.: Resources, project administration, formal analysis, writing review & editing.

YX.T.: Conceptualization, methodology, writing review & editing.

Data Availability Statement

The dataset presented in the study is available on request from the corresponding author during submission or after its publication. The data are not publicly available due to the protection of the interviewees' privacy.

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Ethics Approval Statement

This study was approved under the ethical approval code of 2023001 by the Ethical

Committee of the School of Nursing, Hangzhou Normal University.

Patient Consent Statement

As a result of the online interview, the interviewees gave oral and recorded consent statements.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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