

## Factors Influencing the Anxiety of Nursing Students in Clinical Practice during the COVID-19 Pandemic

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**Objectives:** Due to the prolonged COVID-19, the current society is experiencing increased anxiety and confusion about health care. In spite of this pandemic situation, nursing students are participated in practical training in the medical field to complete the curriculum. The purpose of this study was to determine the influencing factors of nursing students' anxiety in participating in clinical practices during the COVID-19 pandemic. **Methods:** This was a cross-sectional study. A total of 172 nursing students participated in the online self-questionnaire. The collected data were analyzed by descriptive statistics, Pearson's correlation coefficient, independent t-test, and multiple linear regression analysis using the SPSS software version 28.0. **Results:** There were significant differences in only anxiety according to gender ( $t = -4.42, p < 0.001$ ). Also, Anxiety showed a statistically significant negative correlation with attitude ( $r = -0.16, p = 0.037$ ) and preventive practice ( $r = -0.16, p = 0.036$ ). Results of regression analysis, gender ( $\beta = 0.33, p < 0.001$ ) and attitude ( $\beta = 0.18, p = 0.026$ ) were significant factors for the anxiety, and explanatory power was 16% ( $F = 4.45, p < 0.001$ ). **Conclusions:** The results of this study can be used to develop nursing interventions that reduce anxiety and promote preventive practice for COVID-19 among nursing students.

**Key words:** COVID-19, Knowledge, Attitude, Health behavior, Anxiety

### INTRODUCTION

In March 2020, after the first Coronavirus disease 2019 (COVID-19) outbreak in China in December 2019, the World Health Organization declared a pandemic. Since January 2020, when the first confirmed case was reported, 17,237,878 cumulative confirmed cases had occurred in South Korea by April 30, 2022 [1]. Although vaccine development, national social distancing recommendations, and quarantine guidelines had been applied [2], COVID-19 continued to spread worldwide due to easily transmitted virus mutations. Prolonged COVID-19 infections pose a significant threat to society as a whole. When a new infectious disease such as COVID-19 occurs, people use various online media to obtain related knowledge and preventive action information [3]. However, COVID-19 infections are prolonged, and related news is continuously

reported; moreover, false and uncertain information has emerged that increases people's anxiety [4,5]. A previous study showed unclear information and negative attitudes toward infectious diseases such as COVID-19, leading to distress and panic [6].

Although college students in early adulthood are still forming healthy habits [7], there is a lack of interest owing to their relatively good health from the point of view of preventive medicine [8]. However, college students also experience depression and anxiety from COVID-19 [9]. Nursing students are particularly interested in public health through clinical practice in hospitals and communities [10], but they are also in their early 20s. The knowledge and optimistic attitude about COVID-19 lead to good preventive practices [6], therefore, it is necessary to understand their knowledge, attitudes, preventive behavior, and anxiety regarding COVID-19.

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The COVID-19 outbreak changed our lives, especially in education. Many colleges and universities need help maintaining face-to-face teaching. This situation has made them innovate and implement alternative educational strategies [11]. Besides this unprecedented educational crisis, faculty members have tried to provide learning opportunities like before COVID-19. So they have developed lots of E-learning classes [12,13]. Of course, nursing students and faculty members did their best in their school and clinical site circumstances. However, despite these efforts, due to COVID-19 and fewer learning opportunities at the clinical site, nursing students felt lost in their way.

The KAP (Knowledge, attitude, and practice) model suggests that individual knowledge changes attitudes and ultimately affects preventive practice under any infectious disease [14]. Individual compliance with preventive behaviors is mainly affected by their KAP toward COVID-19 under KAP theory [15]. Previous studies applying the KAP model to infectious diseases have been attempted in Middle East Respiratory Syndrome (MERS) [16], Ebola [17], and COVID-19 [6]. A review study of KAP among healthcare workers, medical students, and nursing students during the COVID-19 pandemic suggested that a high level of knowledge, positive attitudes, and good preventive practices are held [6]. However, anxiety and fear of COVID-19 levels were high among nursing students in Turkey [17]. It shows that anxiety of nursing students about COVID-19 pandemic is affected from the social mood. So it needs more studying about anxiety of nursing students after pandemic in South Korea. With the resumption of clinical practice, suspended at a time when there were still many COVID-19 patients, nursing students fear participating in clinical practice. However, influencing factors associated with nursing students' anxiety exposure in clinical settings are relatively lacking. Therefore, This study attempted to investigate the relationship between knowledge, attitudes, preventive practices, and the anxiety of nursing students in clinical practice during the COVID-19 pandemic.

## METHODS

### Study design

This is a cross-sectional, descriptive study to determine the influencing factors of nursing students' anxiety in participating in clinical practices during the COVID-19 pandemic.

### Setting and samples

A total of 203 junior and senior nursing students participating in clinical practice education at three universities in Daegu city, South Korea, responded to an online survey. The reason why the subjects of the study were limited to nursing students in Daegu was that it was one of the cities with the largest number of COVID-19 patients in 2020, and the clinical practice began to resume in the second semester of 2020 partially. In addition, among nursing universities in Daegu, nursing students from universities that resumed clinical practice were selected as subjects of the study. Therefore, data were collected from March to April 2021. Among them, 172 questionnaires were analyzed for this study after 31 with missing data were excluded.

### Instruments

#### Knowledge

The knowledge refer to information on what is known by a specific population [6], and it was measured using a questionnaire developed by Jang et al. [18]. This instrument consisted of 10 items, scoring one point for correct answers about disease onset (i.e., COVID-19 is a respiratory infectious disease caused by a coronavirus), four items about symptoms (e.g., fever, cough, sore throat, muscle pain, and shortness of breath are possible symptoms), three items on disease transmission (e.g., using face masks can help prevent disease transmission), and two items about prevention (e.g., if soap and water are not available, use a hand sanitizer that contains at least 60% alcohol). The maximum possible score was 10 points; the higher the score, the higher the level of knowledge.

#### Attitude

Attitude refer to information on what is believed by a specific population [6]. Attitudes toward the COVID-19 pandemic were measured using a scale also developed by Jang et al. [18]. It consisted of two items for beliefs about overcoming a COVID-19 infection (e.g., confidence in winning the battle against COVID-19), two items on the importance of following directions (e.g., carefully reading and following instructions from the government), and one item (Do you agree that COVID-19 is a very dangerous contagious disease?) on the perceived severity of the infection. Each item was rated on a five-point Likert scale ranging from 1 (Not at All) to 5 (Absolutely). The Cronbach's  $\alpha$  coefficient was 0.72 in a previous study [18], and in this study, Cronbach's  $\alpha$  was 0.53.

### Preventive practices

Practice refer to information on what is done by a specific population [6]. Preventive practices was measured using scale developed by Jang et al. [18], based on Centers for Disease Control and Prevention guidelines. It measured COVID-19 preventive behavior during the previous two weeks by ten items. Each item was rated on a four-point Likert scale from 0 (Not performed) to 3 (Performed all the time). Reliability based on Cronbach's  $\alpha$  coefficient was 0.86 at the time of development [18], and Cronbach's  $\alpha$  was 0.77 in this study.

### Anxiety

Anxiety is an emotion such as worry, tension [19], and it was measured using the Hospital Anxiety Depression Scale for Anxiety (HADS-A) which was developed by Zigmond and Snaith [20]. The HADS-A consists of seven items, each item ranging from 0 to 3. A total score of more than eight points out of 21 (the maximum possible) indicates considerable anxiety. The mean Cronbach's  $\alpha$  coefficient was 0.83 in 747 literature reviews [21], and Cronbach's  $\alpha$  was 0.69 in this study.

### Data collection

Data were collected with an online survey through the nursing departments of three universities in South Korea, which was conducted from March 29 to April 12, 2021. A link to the questionnaire was presented, along with a notice about the study's purpose and an explanation of the recruitment of students participating in clinical practice. It took about 15 minutes to complete the questionnaire.

### Data analysis

The final 172 responses were analyzed using SPSS 28.0 (IBM Corp., Armonk, NY, USA), with statistical significance ( $p$ -value) at less than 0.05. First, descriptive statistics of the general characteristics and variables represented frequency as a percentage and the mean with standard deviation. Preventive practices and anxiety according to the general characteristics were analyzed via Pearson's correlation coefficient and independent t-test. Pearson's correlation coefficient was used to determine correlations among knowledge, attitudes, preventive practices, and anxiety. Finally, to determine influences on anxiety, a multiple linear regression analysis was conducted. There were no autocorrelations among the variables, with the Durbin-Watson statistic ranging from 1.92 to 2.04, and there was no problem over multicollinearity, with a variance inflation

factor ranging from 1.02 to 1.44.

### Ethical considerations

This study gained the approval of the Institutional Review Board (IRB) of University of Ulsan in South Korea (IRB No.: 1040968-A-2020-011), which verified ethical processes and the protection of respondents' rights. All data collection was conducted after approval, and only subjects who voluntarily wanted to participate in the study responded to the survey through the link. Before starting the online survey, the purpose, method, and assurances of confidentiality in the research were described. In addition, participants were informed that they could withdraw any time they wanted without consequence. After checking 'I agreed' if the subject agreed to participate in the study, they proceeded to the questionnaire. The study subjects did not include minors.

## RESULTS

### Anxiety according to general characteristics

There were no statistically significant differences in anxiety according to age ( $r = -0.06, p = 0.460$ ), grade ( $t = 1.07, p = 0.288$ ), isolation experience ( $t = -0.71, p = 0.479$ ) except gender ( $t = -4.42, p < 0.001$ ) (Table 1).

### Levels of knowledge, attitudes, preventive practices and anxiety

The average total score for knowledge was  $8.21 \pm 1.10$  out of 10 points. The mean attitude score was  $4.22 \pm 0.36$  out of 5, the preventive practice was  $2.28 \pm 0.41$  out of 3, and anxiety was  $7.67 \pm 3.20$  out of 21 (Table 2).

### Correlations among knowledge, attitudes, preventive practices, and anxiety

Anxiety showed statistically significant negative correlations with attitude ( $r = -0.16, p = 0.037$ ) and preventive practices ( $r = -0.16, p = 0.036$ ), but not with knowledge ( $r = 0.08, p = 0.330$ ) (Table 3).

### Factors influencing anxiety

As a result of analyzing the effects on anxiety of nursing students, gender ( $\beta = 0.33, p < 0.001$ ) and attitude ( $\beta = -0.18, p = 0.026$ ) were significant variables. The regression model was significant with explanatory power at 16% ( $F = 4.45, p < 0.001$ ) (Table 4).

**Table 1.** Preventive practice and anxiety according to the general characteristics (n=172)

Variables	Categories	Mean ± SD or n (%)	Anxiety		
			Mean ± SD	r or t	p
Age (y)			22.02 ± 3.32	-0.06	0.460
Gender	Female	152 (88.4)	8.05 ± 3.06	-4.42	< 0.001
	Male	20 (11.6)	4.85 ± 2.91		
Grade	Junior	59 (34.3)	8.03 ± 3.06	1.07	0.288
	Senior	113 (65.7)	7.49 ± 3.27		
Isolation experience	Yes	38 (22.1)	8.00 ± 3.02	-0.71	0.479
	No	134 (77.9)	7.58 ± 3.25		

SD, standard deviation.

**Table 2.** Levels of knowledge, attitude, preventive practice, and anxiety for COVID-19 (n=172)

Variables	Mean ± SD	Min	Max
Knowledge	8.21 ± 1.10	5	10
Attitude	4.22 ± 0.36	3.2	5
Preventive practice	2.28 ± 0.41	1.2	3
Anxiety	7.67 ± 3.20	0	16

SD, standard deviation.

**Table 3.** Correlation among variables (n=172)

Variables	Knowledge	Attitude	Preventive practices
Knowledge			
Attitude	0.15 (0.840)		
Preventive practices	0.07 (0.370)	0.34 (< 0.001)	
Anxiety	0.08 (0.330)	-0.16 (0.037)	-0.16 (0.036)

## DISCUSSION

This study attempted to understand the anxiety of nursing college students participating in clinical practice during the pandemic of infectious diseases. Clinical practice is essential in the education curriculum for nursing students because they are future healthcare workers. However, nursing students are at greater risk of infection in clinical practice, just like hospital staff. Therefore, this study attempted to assess knowledge, attitudes, preventive practices, and psychological anxiety about COVID-19 to provide appropriate education and support and ensure safe clinical practices.

As a result of this study, the average score for anxiety was  $7.67 \pm 3.20$ , and 24 subjects (15.0%) showed moderate to severe anxiety. That was lower than the 55.9% from the seven-item Generalized Anxiety Disorder scale (GAD-7) in nursing students in Israel [22] and higher than the 5.5%

**Table 4.** Factors influencing anxiety (n=172)

Variables	Anxiety			
	SE	$\beta$	t	p
(Constant)	3.50		2.93	0.004
Age	0.07	0.05	0.63	0.533
Gender (ref: male)	0.73	0.33	4.54	< 0.001
Grade (ref: junior)	0.51	-0.05	-0.59	0.554
Isolation experience (ref: yes)	0.57	0.07	0.88	0.382
Knowledge	0.21	0.07	0.97	0.334
Attitude	0.14	-0.18	-2.24	0.026
Preventive practice	0.06	-0.09	-1.20	0.232
$R^2 = 0.16, F = 4.45, p < 0.001$				

SE, standard error; ref, reference.

from the Beck Anxiety Inventory (BAI) of midwifery students in Turkey [23]. In general, the anxiety level of nursing students is reportedly higher than college students in other departments [23]. In particular, nursing students experience more significant anxiety in clinical practice than during lectures [24,25]. Although there is no study on the relationship between anxiety and nursing intention, in previous studies during the MERS epidemic, high stress lowered future intentions to care for patients with infectious diseases [23]. Therefore, anxiety, negative emotion in nursing students, should be carefully monitored, and it was found to be a significant, influential factor.

Gender significantly affected anxiety. Anxiety was exceptionally high in female nursing students compared to male students, similar to previous studies [17,23,26]. Women were also an important predictor of fear of COVID-19 [17,27]. However, the results of this study should be interpreted carefully because there were only 20 males (11.6%). Nursing students face anxiety for various reasons, such as economic uncertainty, fear of infection, and difficulties in education [23,28]. In this study, concerns about COVID-19 infection are believed to have played a major role

in anxiety because the subjects are nursing students participating in clinical practice during the COVID-19 pandemic. Therefore, nursing educators should continuously contact, encourage, and support students, suggesting various coping strategies.

In this study, knowledge was not a significant factor affecting anxiety. The average knowledge score was  $8.21 \pm 1.10$  out of 10, similar to the results of studies of nursing students in Saudi Arabia (82.1%) and Australia (82.9%) [29]. It is thought that most of the subjects in this study had a high level of knowledge owing to access to related information through various resources, such as social networks and guidelines. In addition, this study found that a higher anxiety level was significantly associated with negative attitudes toward COVID-19 and lower preventive behaviors, but it did not correlate with knowledge. This was a result in contrast to the a high level of knowledge is significantly correlated with positive attitudes and practices [30]. In the KAP model, it was suggested that the person's knowledge of infectious disease positively affected on attitude and preventive practices [6]. However, despite the fact that nursing students have high knowledge of infectious in this study does not positively affect attitudes. It is thought that the fear of infection due to participation in clinical practice influenced the results.

Negative attitude toward COVID-19 was an influencing factor in increasing anxiety. In addition, the significant relationship between anxiety and attitude toward COVID-19 is similar to that of Alrubaiee [31]. Higher perceived susceptibility and severity affected anxiety [32], but a positive perception and attitude toward the disease can act as a factor that decreases anxiety. Therefore, organizing knowledge and focusing on positive attitudes toward preventive practices is more effective when training nursing students in clinical situations. It is also necessary to provide education that can reduce anxiety.

This study has some limitations. First, it is limited to generalize results because the data in this study were collected from three different universities in one specific region. Second, there is a possibility that the responses were incorrect (compared with face-to-face surveys) because the data were collected online. Third, verifying reliability and validity through repeated studies is necessary because of the tool developed for use.

## CONCLUSION

This study attempted to determine the effects of knowledge, attitudes, and preventive practices on anxiety in nursing students in clinical prac-

tice during the current pandemic. As a result, attitudes, preventive practices, and anxiety were found to be significantly correlated, regardless of knowledge levels. In addition, gender and attitude were found to be significant influencing factors in anxiety. Despite vaccinations, COVID-19 continues to spread due to its many variants. When COVID-19 infection is still prolonged, the results of this study can be used to develop nursing interventions that reduce anxiety among nursing students.

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## REFERENCES

1. Ministry of Health and Welfare. Coronavirus (COVID-19). Available at [http://ncov.mohw.go.kr/bdBoardList\\_Real.do?brdId=1&brdGubun=11&ncvContSeq=&contSeq=&board\\_id=&gubun=](http://ncov.mohw.go.kr/bdBoardList_Real.do?brdId=1&brdGubun=11&ncvContSeq=&contSeq=&board_id=&gubun=) [accessed on April 30, 2022].
2. Kim YS, Kim MA. Factors influencing nurses' performance of care in COVID-19 Wards. *J Korean Acad Nurs* 2021;51(6):678-688 (Korean). DOI: 10.4040/jkan.21131
3. Park WJ, Son HW, Byun CY, Son HL, Lee SH. Influencing factors of infection anxiety, impulsivity, decision making type on health information seeking behavior on the internet among college students in COVID-19. *J Kyungpook Nurs Sci* 2021;25(1):13-24 (Korean). DOI: 10.38083/JKNS.25.1.202102.013
4. Lee DH, Kim YJ, Lee DH, Hwang HH, Nam SK, Kim JY. The influence of public fear, and psycho-social experiences during the Coronavirus disease 2019 (COVID-19) pandemic on depression and anxiety in South Korea. *Korean J Counsel Psychotherapy* 2020;32(4):2119-2156 (Korean).
5. Jung AR, Hong EJ. A study on anxiety, knowledge, infection possibility, preventive possibility and preventive behavior level of COVID-19 in general public. *J Converg Inform Technol* 2020;10(8):87-98 (Korean). DOI: 10.22156/CS4SMB.2020.10.08.087
6. Puspitasari IM, Yusuf L, Sinuraya RK, Abdulah R, Koyama H. Knowledge, attitudes and practices during the COVID-19 pandemic: a review. *J Multidiscip Healthc* 2020;13:727-733. DOI: 10.2147/JMDH.S265527

7. Yi HN, Jeong HN, Kim JS. Correlations among knowledge, attitude, and compliance with preventive behaviors of COVID-19 among college students: a three-group (nursing, other health sciences, and non-health sciences) comparative study. *Nurs Health Issues* 2021;26(1):39-52 (Korean). DOI: 10.33527/nhi2021.26.1.39
8. Kang JH, Bak AR, Han ST. A phenomenological study of the lifestyle change experiences of undergraduate due to COVID-19. *J Korea Entertainment Industry Assoc* 2020;14(5):289-297 (Korean). DOI: 10.21184/jkeia.2020.7.14.5.289
9. Shin YL, Jeong CY, Yoon SH, Choi EJ, Hwang JY, Kim MS. The relationship between stress and subjective well-being in college students in Corona-19 situation: mediating effects of family flexibility, cohesion and anxiety control. *CNU J Educ Stud* 2021;42(2):5-33 (Korean). DOI: 10.18612/cnujes.2021.42.2.5
10. Zahner SJ, Henriques JB. Interest in public health careers among undergraduate student nurses. *J Public Health Manag Pract* 2013;19(1):62-69. DOI: 10.1097/PHH.0b013e31824c60b7
11. Dhawan S. Online learning: a panacea in the time of COVID-19 crises. *J Educ Technol* 2020;49(1):5-22. DOI: 10.1177/0047239520934018
12. Pokhrel S, Chhetri R. A literature review on impact of COVID-19 pandemic on teaching and learning. *High Educ Future* 2021;8(1):133-141. DOI: 10.1177/2347631120983481
13. Ulenaers D, Grosemans J, Schrooten W, Bergs J. Clinical placement experience of nursing students during the COVID-19 pandemic: a cross-sectional study. *Nurs Educ Today* 2021;99:104746. DOI: 10.1016/j.nedt.2021.104746
14. United States Agency for International Development. The KAP Survey model (knowledge, attitudes, and practices). Available at <https://www.spring-nutrition.org/publications/tool-summaries/kap-survey-model-knowledge-attitudes-and-practices> [accessed on November 1, 2022].
15. Ajilore K, Atakiti L, Onyenankye K. College students' knowledge, attitudes, and adherence to public service announcements on Ebola in Nigeria: suggestions for improving future Ebola prevention education programmes. *Health Edu J* 2017;76(6):648-660. DOI: 10.1177/0017896917710969
16. Choi JS, Kim JS. Factors influencing preventive behavior against Middle East Respiratory Syndrome-Coronavirus among nursing students in South Korea. *Nurse Educ Today* 2016;40:168-172. DOI: 10.1016/j.nedt.2016.03.006
17. Alici NK, Copur EO. Anxiety and fear of COVID-19 among nursing students during the COVID-19 pandemic: a descriptive correlation study. *Perspect Psychiatr Care* 2022;58:141-148. DOI: 10.1111/ppc.12851
18. Jang GJ, Jang G, Ko S. Factors influencing the preventive practice of international students in South Korea against COVID-19 during the pandemic. *Int J Environ Res Public Health* 2021;18(5):2259. DOI: 10.3390/ijerph18052259
19. American Psychological Association. Anxiety. Available at [https://dictionary.apa.org/anxiety?\\_ga=2.57706403.862663872.1670826140-381643939.1670826140](https://dictionary.apa.org/anxiety?_ga=2.57706403.862663872.1670826140-381643939.1670826140) [accessed on November 10, 2022].
20. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983;67(6):361-370. DOI: 10.1111/j.1600-0447.1983.tb09716.x
21. Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the hospital anxiety and depression scale. An updated literature review. *J Psychosom Res* 2002;52(2):69-77. DOI: 10.1016/S0022-3999(01)00296-3
22. Sögüt S, Dolu İ, Cangöl E. The relationship between COVID-19 knowledge levels and anxiety states of midwifery students during the outbreak: a cross-sectional web-based survey. *Perspect Psychiatr Care* 2021;57(1):246-252. DOI: 10.1111/ppc.12555
23. Savitsky B, Findling Y, Erel A, Hendel T. Anxiety and coping strategies among nursing students during the covid-19 pandemic. *Nurse Educ Pract* 2020;46:102809. DOI: 10.1016/j.nepr.2020.102809
24. Labrague LJ. Stress, stressors, and stress responses of student nurses in a government nursing school. *Health Sci J* 2013;7(4):424-435.
25. John B, Al-Sawad M. Perceived stress in clinical areas and emotional intelligence among baccalaureate nursing students. *J Indian Acad Appl Psychol* 2015;41(3):75-84.
26. Huang L, Lei W, Xu F, Liu H, Yu L. Emotional responses and coping strategies in nurses and nursing students during Covid-19 outbreak: a comparative study. *PLoS One* 2020;15(8):e0237303. DOI: 10.1371/journal.pone.0237303
27. Broche-Pérez Y, Fernández-Fleites Z, Jiménez-Puig E, Fernández-Castillo E, Rodríguez-Martin BC. Gender and Fear of COVID-19 in a Cuban Population Sample. *Int J Ment Health Addict* 2020;20(1):1-9. DOI: 10.1007/s11469-020-00343-8
28. Kochuvilayil T, Fernandez RS, Moxham LJ, Lord H, Alomari A, Hunt L, et al. COVID-19: Knowledge, anxiety, academic concerns and preventative behaviours among Australian and Indian undergraduate nursing students: a cross-sectional study. *J Clin Nurs* 2021;30:882-891. DOI:

- 10.1111/jocn.15634
29. Albaqawi HM, Alquwez N, Balay-Odao E, Bajet JB, Alabdulaziz H, Alsolami F et al. Nursing students' perceptions, knowledge, and preventive behaviors toward COVID-19: a multi-university study. *Front Public Health* 2020;8:573390. DOI: 10.3389/fpubh.2020.573390
30. Reuben RC, Danladi MMA, Saleh DA, Ejembi PE. Knowledge, attitudes and practices towards COVID-19: an epidemiological survey in North-Central Nigeria. *J Community Health* 2021;46(3):457-470. DOI: 10.1007/s10900-020-00881-1
31. Alrubaiee GG, Al-Qalah TAH, Al-Aawar MSA. Knowledge, attitudes, anxiety, and preventive behaviours towards COVID-19 among health care providers in Yemen: an online cross-sectional survey. *BMC Public Health* 2020;20(1):1541. DOI: 10.1186/s12889-020-09644-y
32. Lin Y, Hu Z, Alias H, Wong LP. Knowledge, attitudes, impact, and anxiety regarding COVID-19 infection among the public in China. *Front Public Health* 2020;8:236. DOI: 10.3389/fpubh.2020.00236

## 국문초록

코로나바이러스감염증-19 대유행 중 임상실습에 참여하는 간호대학생의 불안에 미치는 영향요인

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**목적:** 코로나바이러스감염증-19 (COVID-19)의 장기화로 인하여 건강관리에 대한 불안과 혼란이 지속되고 있다. 이러한 대유행 상황에도 불구하고, 간호대학생들은 교육을 위하여 의료현장에서의 실습에 참여하고 있다. 따라서 본 연구의 목적은 COVID-19 대유행 상황에서 임상실습에 참여하는 간호대학생의 지식, 태도, 예방행위가 불안에 미치는 영향을 알아보는 것이다.

**방법:** 본 연구는 COVID-19에 대한 지식, 태도, 예방행위가 불안에 미치는 영향을 파악하기 위한 횡단면 서술적 조사연구이며, 172명의 간호대학생을 대상으로 온라인 설문조사를 실시하였다. 수집된 자료는 SPSS 28.0 프로그램을 사용하여 기술통계, 상관분석, 독립 t-검정 및 선형회귀분석을 실시하였다.

**결과:** 불안은 태도( $r = -0.16, p = 0.037$ ) 및 예방행위( $r = -0.16, p = 0.036$ )와 유의미한 상관관계가 있었으며, 지식과는 상관관계가 나타나지 않았다( $r = 0.08, p = 0.330$ ). 불안에 영향을 미치는 요인을 분석하기 위하여 회귀분석을 실시한 결과, 성별( $\beta = 0.33, p < 0.001$ )과 태도( $\beta = -0.18, p = 0.026$ )가 유의미한 영향요인으로 나타났으며, 설명력은 16%이었다( $F = 4.45, p < 0.001$ ).

**결론:** 본 연구결과를 토대로 임상실습에 참여하는 간호대학생들의 불안을 줄이고, 예방행위를 증진시키는 중재 개발이 필요하다.

**주제어:** COVID-19, 지식, 태도, 예방행위, 불안