



Cyberbullying, student nurses' ethical awareness and the Covid-19 pandemic

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Abstract

Background: The global COVID-19 pandemic has increased cyber communication, causing nursing students' clinical practice to be held in cyberspace. Thus, it is essential to ensure that nursing students develop comprehensive cyber ethics awareness. Moreover, cyberbullying is becoming more widespread and is an increasingly relevant new concept.

Objectives: This study aimed to assess the experiences of cyberbullying among nursing students during clinical practice and determine the effects of cyberbullying victimization and cyber environments on their cyber ethics awareness.

Research design: Data for this descriptive cross-sectional study were collected in July 2020 using a self-reported questionnaire and analyzed using hierarchical regression.

Participants and research context: The study included data from 291 nursing students with more than 6 months of clinical experience who were enrolled in two nursing universities in two cities in South Korea.

Ethical considerations: This study was conducted after obtaining approval from the Institutional Review Board of G University. Written, informed consent was obtained from all participants.

Results: Cyberbullying victimization experiences during clinical practice were few. The most common cyberbullies of work- and person-related cyberbullying were nurses and classmates, respectively.

Discussion: Cyber ethics awareness was affected by cyber anonymity and the perceived seriousness of cyberbullying; cyberbullying related to clinical practices was a new factor that significantly affected cyber ethics awareness.

Conclusions: Hospitals and nursing universities should develop a multi-dimensional, comprehensive, and effective nursing intervention education program to be integrated into the nursing curriculum to enhance cyber ethics awareness and reduce cyberbullying of nursing students.

Keywords

Cyberbullying, ethics, nursing student

Introduction

Clinical practice is essential for nursing students to decide whether they can work as nurses in hospitals.¹ Hospitals serve not only as an educational space to learn the roles of a nurse but also as a workplace where

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healthcare professionals including doctors, patients, caregivers, and other nursing students participate in patient care.² Traditionally, bullying has been more frequently observed in hospitals than in other environments. Therefore, both nurses and nursing students are experiencing bullying, and this is a problem that nursing students in particular must endure to be educated in clinical practice.^{2,3} Because of the COVID-19 pandemic, clinical practice in hospitals has been limited or clinical experiences have been refused because of the risk of exposure to infection. Many nursing educational programs are struggling to find ways for students to gain clinical experiences. Recently, alternative clinical practices have been performed via cyber or virtual environments.^{4,5} The main training methods in cyber environments in nursing, such as computer-assisted, online, or Web-based learning, are called e-learning.⁶ Globally, e-learning for nursing students has been introduced to Western countries including Australia, Canada, Greece, Ireland, New Zealand, the United Kingdom, and the United States, as well as in South Korea and Taiwan.^{6,7} In nursing, e-learning has been applied to various topics and methods depending on the country, and its effectiveness is being evaluated.⁶ Consequently, cyberbullying, in addition to traditional face-to-face bullying, has become a new paradigm facing nursing students as they are increasingly being exposed to cyber environments.^{4,6,8}

Background

Workplace cyberbullying refers to repeated experiences of perceived negative acts through technology related to work (e.g. phone, email, websites, and social media). Examples of negative acts in nursing workplaces are the unfair assignment of blame or criticism in relation to work as well as private criticism or the spreading of negative rumors about personal situations. Victims are unable to resist these acts of harassment.⁸ Cyberbullying has been found to negatively affect nurses' behavior, manifesting in several ways, such as somatization, panic, anxiety, and depression.⁹ It is more serious than traditional bullying because the victims can suffer 24 h a day, regardless of the location.^{10,11} Recognizing the seriousness of cyberbullying, legal systems have been established globally to combat it, and research on and interest in the topic, which have previously been focused on adolescents, have expanded to adults, including college students, the general public, and office workers.⁸ However, research on cyberbullying at the workplaces of nursing students as well as nurses is new, with no previous studies being reported. Electronic communication using computers or smartphones is variously employed in nursing; thus, workplace cyberbullying is not a problem that can be overlooked, especially because various clinical practices are now being provided in cyber environments.⁷

Cyber ethics is a system of standards that defines morality and immorality in cyberspace, signifying the preservation of freedom of expression, intellectual property, and privacy.¹² Cyber ethics awareness refers to the degree to which we recognize right from wrong, good from bad, and ethical from unethical behaviors in cyberspace and the importance of behaving ethically.^{13,14} To induce positive perceptions of cyberspace and resolve dysfunctions, it is necessary to understand the ethical attitudes of cyberspace users and establish appropriate cyber ethics.¹⁵ In previous studies related to cyber verbal violence, anonymity has been studied extensively. Anonymity in cyberspace, which helps hide the identities and names of individuals, is a factor that influences cybercrime.^{16,17} Studies have reported that cyber ethics are affected by internal factors—such as cyberspace anonymity, the perception of the seriousness of cyberbullying, cyber self-control, and self-esteem—as well as external characteristics, including cyber security, punishment, and cyber ethics education.^{13,14,16–19} In addition, thus far, research on cyber ethics awareness has found that it has a negative effect on cyberspace anonymity^{16,17} and a positive relationship with the perception of the seriousness of cyberbullying.¹⁸ However, the experience of cyberbullying victims can intensify in times when personal contact is limited, such as during the COVID-19 pandemic, and there is a lack of previous studies on how these experiences may affect existing cyber ethics. Thus, the influencing factors of cyber ethics awareness

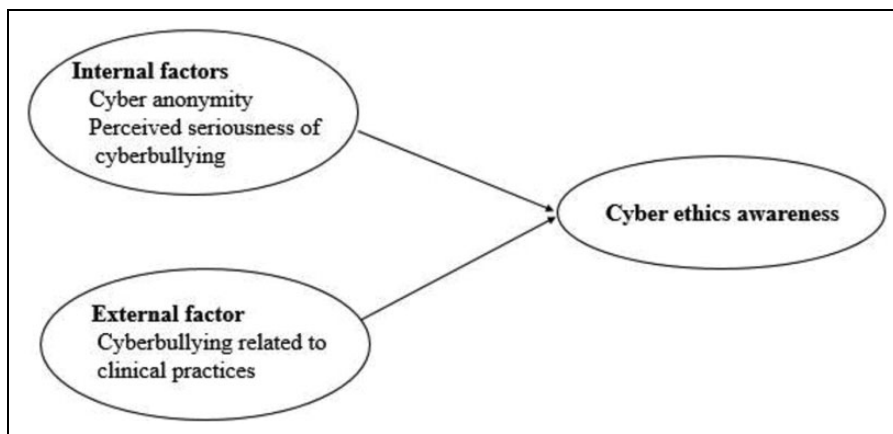


Figure 1. Theoretical framework: predictors of cyber ethics awareness.

need to be investigated by adding cyberbullying related to clinical practices along with cyberspace anonymity and perception of the seriousness of cyberbullying revealed through previous studies.^{16–18}

Therefore, the purpose of this study was to assess the experiences of cyberbullying victims among nursing students during clinical practice and determine the effects of such experiences on appropriate cyber ethics awareness (Figure 1).

Methods

Research design

This study employed a descriptive research design to not only assess the experiences of nursing students who were victims of cyberbullying during clinical practice but also determine the effects of such experiences on appropriate cyber ethics awareness.

Research subjects and data collection

The subjects of this study were junior and senior nursing students enrolled in two nursing universities located in two cities in Korea, selected through convenience sampling. The selection criteria were as follows: the subjects had to (1) be enrolled in nursing universities, (2) use means of cyber communication such as phones, email, websites, and social media, and (3) have experience of clinical practice in hospitals for more than 6 months in the preceding year. The number of subjects required for this study was calculated using the G*Power 3.1.9.2 program.²⁰ A total of 166 subjects were required using nine predictors (gender, grade, age in years, type of hospital for clinical practice, having prior education on cyberbullying in a university, having prior education on cyber ethics in a university, cyber anonymity, perceived seriousness of cyberbullying, and cyberbullying related to clinical practices), a significance level of .05, medium effect size (.15), and power of .95. Considering the recovery and drop-out rates, a total of 300 questionnaires were distributed to participants, and 298 questionnaires were collected. Among them, 291 questionnaires were used for the final analysis after excluding incomplete questionnaires.

Data were collected from 1 to 30 July 2020, after receiving approval of the Institutional Review Board from G University to proceed with the study. The data were collected by a researcher who did not engage in clinical practice. At the end of the semester, after clinical practice, the background and purpose of this study

were explained to the subjects. Written consent for participation was given by the subjects and a confidentiality agreement and self-reported questionnaire were completed. Approximately 10 min was required to complete the questionnaire, which was collected by the researcher after completion.

Data analysis

The SPSS/WIN 23.0 (IBM, Armonk, NY) program was used to analyze the data. Normal distribution of the main variables was assessed, and the significance level was set as two-tailed values of $p < .05$.

The general characteristics and related variables of the subjects were presented depicting their frequency, percentage, mean, and standard deviation. Cronbach's α was calculated to assess the reliability of the variables. Differences in cyber ethics awareness according to the subjects' characteristics were analyzed using an independent t test and analysis of variance (ANOVA). Pearson's correlation coefficient was used to assess the correlation between cyber ethics awareness and the main variables. Hierarchical multiple regression analysis was performed using variables that showed significance in the test of differences and correlation analysis to identify factors that affect cyber ethics awareness. Prior to performing the hierarchical multiple regression analysis, it was confirmed that multi-collinearity between the variables did not exist; only then was the regression model constructed. In the process of hierarchical multiple regression analysis included in step 1 of the cyber ethics awareness regression model, variables with significant differences in sociodemographic characteristics and correlation were selected; cyberbullying related to clinical practices was input in step 2.

Tools and measures

Cyberbullying related to clinical practices. Cyberbullying related to clinical practices was measured by the workplace cyberbullying measurement tool developed by Farley et al.⁸ It comprises 17 items, including 10 and 7 items on work- and person-related cyberbullying, respectively. The "Clinical practice-related" condition was added to the English version of the tool, whose reliability was evaluated through translation and reverse translation verification processes by Park and Choi.⁹ Experiences of workplace cyberbullying in the last six months were assessed, and cyberbullies among the head nurse, nurses, nursing assistants, physicians, patients, classmates, and others, were selected. The items were evaluated on a 5-point Likert-type scale, ranging from "never" (1 point) to "daily" (5 points). Higher scores reflected a greater number of experiences as a victim of cyberbullying. In the study by Park and Choi,⁹ Cronbach's $\alpha = .93$; in our study, Cronbach's $\alpha = .97$.

Cyber ethics awareness. Cyber ethics awareness refers to the attitude of tolerating cyber verbal violence and the level of awareness of the importance of ethical actions. Lee and Hwang developed a tool consisting of five items for adolescents.²¹ They include (1) "Verbal violence (vicious comments) in cyberspace reflects bad behavior," (2) "online verbal violence (vicious comments) will not cause significant damage to the others (reverse scored item)," (3) "It is okay to verbally harass someone online who uses too many words or is hyper active (reverse scored item)," (4) "When my friends, colleagues, or group are criticized, it is natural to respond with online comments containing abusive language (reverse scored item)," and (5) "Cyberspace crime is as bad as real-world crime." These items were evaluated on a 5-point Likert-type scale ranging from "strongly disagree" (1 point) to "strongly agree" (5 points). Higher scores reflected greater cyber ethics awareness. In the preliminary study with 15 nursing students, Cronbach's $\alpha = .72$, and in our main study, Cronbach's $\alpha = .70$.

Table 1. Differences in the level of cyber ethics awareness according to sample characteristics (N = 291).

Variables	Characteristics	N (%)	Cyber ethics awareness	
			M $\pm$ SD	F or t/(p value)
Gender	Male	40 (13.7)	4.30 $\pm$ 0.73	0.078
	Female	251 (86.3)	4.27 $\pm$ 0.64	(.788)
Grade	Junior	143 (49.1)	4.27 $\pm$ 0.63	0.012
	Senior	148 (50.9)	4.28 $\pm$ 0.66	(.912)
Age in years	M $\pm$ SD (range)	21.73 $\pm$ 1.45 (20–29)		
Types of hospital for clinical practice	University hospital	254 (87.3)	4.28 $\pm$ 0.66	1.119
	General hospital	23 (7.9)	4.37 $\pm$ 0.49	(.328)
	Other hospital	14 (4.8)	4.04 $\pm$ 0.62	
Having prior education on cyberbullying at university	Yes	80 (27.5)	4.16 $\pm$ 0.65	3.435
	No	211 (72.5)	4.32 $\pm$ 0.64	(.065)
Having prior education on cyber ethics at university	Yes	0 (0.0)	–	–
	No	291 (100.0)	4.27 $\pm$ 0.65	–

Computed using independent t test and analysis of variance (ANOVA).

Cyber anonymity. A cyber anonymity tool was developed by Lee¹⁶ for adolescents, which consisted of the following items: (1) “I mainly use my real name for online activities (internet bulletin board, social networking service [SNS], chat, online games, etc.) (reverse scored item)” and (2) “I feel free to do whatever I want using other people’s names in cyberspace.” The items were evaluated on a 5-point Likert-type scale ranging from “strongly disagree” (1 point) to “strongly agree” (5 points). Higher scores reflected greater cyber anonymity. In the preliminary study with 15 nursing students, Cronbach’s $\alpha = .68$, and in our main study, Cronbach’s $\alpha = .71$.

Perceived seriousness of cyberbullying. A tool developed by Li¹⁸ was used to measure the level of perception of the seriousness of cyberbullying. It comprised two items that were evaluated on a 5-point Likert-type scale ranging from “strongly disagree” (1 point) to “strongly agree” (5 points). Higher scores indicated higher perceived seriousness of cyberbullying. In the preliminary study with 15 nursing students, Cronbach’s $\alpha = .88$, and in our main study, Cronbach’s $\alpha = .92$.

Preliminary study. A preliminary study was conducted with 15 nursing students not participating in this study (approximately 5% of the total number of participants). The preliminary study aimed to assess the clarity and validity of the instruments.

Results

Sociodemographic characteristics and differences in the level of cyber ethics awareness

A total of 291 nursing students were included in this study, of whom 251 (86.3%) were female and 148 (50.9%) were senior students. The mean age of the subjects was 21.73 $\pm$ 1.45 years, and 254 (87.3%) of them had prior clinical practice experience in university hospitals. In total, 211 (72.5%) subjects did not receive prior education on bullying within the university curriculum, and no education on cyber ethics was imparted to any of the subjects. Cyber ethics awareness was not significantly different according to sex, grade, type of hospital for clinical practice, and having prior education on bullying ($p < .05$) (Table 1).

Characteristics of cyberbullying related to clinical practices, cyber ethics awareness, and cyber environments

The mean total score for cyberbullying related to clinical practices was 1.04 ± 0.22 points, and for each category, the mean score for work-related clinical practice cyberbullying and person-related cyberbullying was 1.04 ± 0.26 and 1.03 ± 0.24 points, respectively. The item “been bypassed in group communications that are relevant to your work role” had the highest score, with 1.08 ± 0.42 points. The nurses were the most common cyberbullies except for others in terms of work-related clinical practice cyberbullying, while the cyberbullies were all classmates except for others in terms of person-related cyberbullying. Interestingly, none of the subjects experienced bullying, as defined by Leymann “experiencing at least one negative behavior from peers or superiors every week or every day for the past 6 months.”²² This definition was used to assess the incidence of cyberbullying in this study.

The mean score for cyber ethics awareness was 4.27 ± 0.65 out of 5, and “verbal violence (vicious comments) will not cause significant damage to the other party (reverse scored item)” had the highest score.

The cyber environment characteristics were scored out of 5; the mean scores for cyber anonymity and perceived seriousness of cyberbullying were 2.57 ± 0.83 and 3.07 ± 1.26 points, respectively (Table 2).

Correlations of the main study variables

Cyber ethics awareness showed significant negative correlations with cyberbullying related to clinical practices ($r = -.21, p < .01$) and cyber anonymity ($r = -.15, p < .05$) but significant positive correlations with the perceived seriousness of cyberbullying ($r = .14, p < .05$) (Table 3).

Effects of workplace cyberbullying on nursing students' cyber ethics awareness

In step 1, cyber environmental factors, which were significantly correlated with cyber ethics awareness, were included. Cyber anonymity ($\beta = -.134, p = .019$) and perceived seriousness of cyberbullying ($\beta = .176, p = .002$) were factors that significantly affected cyber ethics awareness; their total explanatory power of the two variables was 8.2%. In step 2, cyberbullying related to clinical practices ($\beta = -.186, p = .001$) was a new factor that significantly affected cyber ethics awareness with an additional explanatory power of 3.4%. In step 2, cyber anonymity ($\beta = -.131, p = .020$) and perceived seriousness of cyberbullying ($\beta = .174, p = .002$) were also significant variables that affected cyber ethics awareness; the total explanatory power of the three variables was 11.6% (Table 4).

Discussion

As the paradigm of clinical practice for nursing students, which was conducted face-to-face in hospitals, has begun to change,^{4,23} the importance of cyber ethics to cope with the increase in communication in cyberspace is being emphasized. Although cyber ethics awareness is influenced by various factors, this was the first assessment of cyberbullying and its effects related to clinical practices on cyber ethics awareness.

The instances of bullying by peers or supervisors every week or every day for the past 6 months were 0%, and the mean score for cyberbullying related to clinical practices was 1.04 ± 0.22 out of 5. Because there are only a limited number of previous studies on cyberbullying in nursing students, we compared our results with those of a study by Park and Choi⁹ conducted on nurses. In that study, the prevalence of workspace cyberbullying was 8% with a mean score of 1.11 ± 0.31 , which suggests that the prevalence of clinical practice-related cyberbullying is lower in nursing students than in nurses. In addition, the incidence of clinical practice-related cyberbullying in nursing students is much lower than that of traditional face-to-face

Table 2. Characteristics of cyberbullies and cyberbullying related to clinical practices, cyber ethics awareness, cyber anonymity, and perceived seriousness of cyberbullying (N = 291).

Main variables (range)	Mean $\pm$ SD	Cyberbullies (n)*
Workplace cyberbullying (1–5)	1.04 $\pm$ 0.22	
Work-related clinical practice cyberbullying	1.04 $\pm$ 0.26	RN (5), HN (1), NA (1), classmates(2), others(2)
Received messages that have a disrespectful tone	1.03 $\pm$ 0.24	Classmates (1), others (2)
Been unfairly blamed for work problems	1.02 $\pm$ 0.19	Others (2)
Received aggressively worded messages (e.g. all capital letters, bold font, or multiple exclamation marks)	1.03 $\pm$ 0.25	Others (1)
Had another organizational member copy people into messages that reflect negatively on you	1.04 $\pm$ 0.25	RN (1), classmates (1), others (4)
Had your work unfairly criticized	1.03 $\pm$ 0.23	Others (2)
Received rude demands from a colleague	1.03 $\pm$ 0.22	RN (1), others (2)
Been sent conflicting information	1.04 $\pm$ 0.29	RN (1), others (1)
Been bypassed in group communications that are relevant to your work role	1.08 $\pm$ 0.42	HN (1), RN (2), NA (1), others (3)
Been the subject of communications that undermine you	1.03 $\pm$ 0.26	Others (3)
Received unreasonable work demands	1.03 $\pm$ 0.27	Others (2)
Person-related cyberbullying	1.03 $\pm$ 0.24	Classmates (10), others (12)
Experienced unfair personal criticism (e.g. on character, appearance, opinions)	1.03 $\pm$ 0.22	Classmates (1), others (1)
Had negative rumors or gossip spread about you	1.03 $\pm$ 0.23	Classmates (2), others (2)
Had personal information shared without your permission	1.04 $\pm$ 0.30	Classmates (1), others (2)
Received messages that contain abusive language aimed at you	1.03 $\pm$ 0.23	Classmates (1), others (2)
Received threatening messages	1.04 $\pm$ 0.29	Classmates (2), others (2)
Received messages unfairly questioning your competence	1.04 $\pm$ 0.24	Classmates (2), others (2)
Been the only person excluded from social communications between classmates	1.02 $\pm$ 0.21	Classmates (1), others (1)
Cyber ethics awareness (1–5)	4.27 $\pm$ 0.65	
Verbal violence (vicious comments) in cyberspace reflects bad behavior	4.15 $\pm$ 1.35	
Online verbal violence (vicious comments) will not cause significant damage to the others (reverse scored item)	4.61 $\pm$ 0.66	
It is okay to verbally harass someone online who uses too many words or is hyperactive (reverse scored item)	4.50 $\pm$ 0.70	
When my friends, colleagues, or group are criticized, it is natural to respond with online comments containing abusive language (reverse scored item)	4.18 $\pm$ 0.89	
Cyberspace crime is as bad as real-world crime	3.93 $\pm$ 1.31	
Cyber anonymity (1–5)	2.57 $\pm$ 0.83	
I mainly use my real name for online activities (internet bulletin board, SNS, chat, online games, etc.) (reverse scored item)	3.19 $\pm$ 1.30	
I feel free to do whatever I want using other people's names in cyberspace	1.95 $\pm$ 0.93	
Perceived seriousness of cyberbullying (1–5)	3.07 $\pm$ 1.26	
Cyberbullying is a severe problem in my life	3.18 $\pm$ 1.36	
I believe cyberbullying should be illegal	2.96 $\pm$ 1.26	

*Exclude nonresponse.

RN: registered nurse; HN: head nurse; NA: nurse aids.

Table 3. Pearson's correlation coefficient for the main study variables (N = 291).

Variables (Cronbach's α)	1	2	3	4	5
1. Cyber ethics awareness (.70)	1	—	—	—	—
2. Age in years	-.05	1	—	—	—
3. Cyberbullying related to clinical practices (.97)	-.21**	.06	1	—	—
4. Cyber anonymity (.71)	-.15*	.13*	.03	1	—
5. Perceived seriousness of cyberbullying (.92)	.14*	-.11	.01	.05	1

Computed using independent Pearson's correlation coefficients.

* $p < .05$. ** $p < .01$.

Table 4. Effects of cyberbullying related to clinical practices on nursing students' cyber ethics awareness (N = 291).

Step	Predictors	β	t value	p value	R ² change	Adjusted R ²	F (p value)
1	Cyber anonymity	-.134	-2.356	.019	.082	.082	8.55 (<.001)
	Perceived seriousness of cyberbullying	.176	3.063	.002			
2	Cyber anonymity	-.131	-2.341	.020	.034	.116	9.37 (<.001)
	Perceived seriousness of cyberbullying	.174	3.080	.002			
	Cyberbullying related to clinical practices	-.186	-3.309	.001			

Computed by independent hierarchical multiple linear regression analysis.

bullying, which comprises 50%–88.7% of bullying in different countries.^{3,24,25} In a study of 674 Canadian nursing students on face-to-face bullying, the cyberbullies were clinical instructors of nursing (30.2%), followed by classmates (15%), and then patients and families (14%),²⁵ which were similar to our findings. In our study, the main cyberbullies of work-related clinical practice cyberbullying were the nurses, and the main cyberbullies of person-related cyberbullying were classmates. Therefore, strategies to prevent and manage cyberbullying should consider nursing students as well as nurses.

Cyber ethics is a broader concept than computer or internet ethics.²⁶ Igwe and Ibegwam²⁷ included cyberbullying with online etiquette protocols and posting incorrect/inaccurate information in some highlighted cyber ethical issues. In this study, cyber anonymity and perceived seriousness of cyberbullying affected cyber ethics awareness, and stepwise regression analysis showed that cyberbullying related to clinical practices was a new factor that affected cyber ethics awareness. Studies on factors that affect or are correlated with cyber ethics awareness vary by country and culture.^{17,27,28} The variables that affected cyber ethics awareness in a study by Kim and Park¹⁷ differed from those observed in this study. Internal factors—including self-esteem, moral obligation, and self-control—and external factors—such as cyber ethics education and social influence—were found to affect cyber ethics awareness. In our study, the subjects responded that they did not have any experience in cyber ethics education, unlike those in the study by Kim and Park.¹⁷ Thus, the effects of cyber ethics awareness according to education experience could not be assessed. However, concepts and education on cyber ethics would need to be included in nursing ethics education. Cyber education is a necessary program for anyone using cyberspace, and it should aim to impart knowledge of ethical standards and issues to prevent cybercrime.²⁷ It is essential to develop a program for nursing students that satisfies this purpose.

In step 1, cyber environmental factors that affected cyber ethics awareness were similar to those observed in previous studies. Cyber anonymity was found to influence cyber verbal violence in previous studies,^{15,21} and it was significantly correlated with cyber cultural perception, which was used as a tool similar to cyber ethics.¹⁶ In a study on college students, experiences of cyberbullying victimization were a

significant factor that affected its perceived seriousness, and the more frequent the experience of victimization, the higher the perceived seriousness of cyberbullying.²⁹ Therefore, it is important to lower the level of cyber anonymity and raise awareness of the perceived seriousness of cyberbullying to improve cyber ethics awareness. Step 2, cyberbullying related to clinical practice, which affects cyber ethics awareness, needs to be further discussed. As fewer cyberbullying experiences during clinical practice lead to higher cyber ethics awareness among nursing students, nursing management should pay greater attention to reducing the incidence of cyberbullying to establish healthy and firm cyber ethics awareness. The importance of cyber ethics awareness based on morality is increasing in nursing colleges due to the recent COVID-19 pandemic, a more widespread cyber clinical practice environment, and changes in various communication channels.^{4,26} Therefore, a multi-dimensional and comprehensive model of intervention that considers the characteristics of cyberspace is required to establish cyber ethics awareness and reduce cyberbullying of nursing students.³⁰ These efforts would require cooperation between nursing universities, healthcare organizations, professional nurses, and nursing students.

Thus, with regard to the major implications of this study, cyber anonymity and perceived seriousness of cyberbullying affected cyber ethics awareness, and cyberbullying related to clinical practices was observed as a new external factor among nursing students. Clinical workplaces and nursing universities should cultivate appropriate cyber ethics through a multilateral cooperation system and provide effective practical nursing education to reduce cyberbullying.

The limitations of this study are as follows. First, the model for factors affecting cyber ethics awareness was statistically significant; however, the explanatory power was low at 11.6%. It would be necessary to investigate further by adding individual and other multi-faceted factors that affect cyber ethics awareness. Other studies have suggested that self-control, moral obligation, self-esteem, cyber security, punishment, and cyber ethics education should be investigated as further factors affecting cyber ethics. Their results also suggest the use of other cyberbullying questionnaires.^{13,14,16–19} Second, there is a lack of studies on cyberbullying of nursing students during clinical practice. Therefore, qualitative studies that include an increased number of countries, institutions, and subjects should be conducted to assess the cases and incidence of cyberbullying in depth.

Conclusion

During the COVID-19 pandemic, nursing students' clinical practice has been conducted in cyberspace. It is important to create a positive cyber environment and lower the experience of cyberbullying related to clinical practices. Therefore, it is necessary to establish proper cyber ethics awareness and increase our understanding of cyberbullying. Because the main cyberbullies of work- and person-related cyberbullying were nurses and their classmates, respectively, multi-directional strategies to prevent and manage cyberbullying should consider both groups. Cyber ethics awareness was significantly affected by cyber environmental factors, including cyber anonymity and perceived seriousness of cyberbullying. Cyberbullying related to clinical practices was observed as a new factor that significantly affected cyber ethics awareness. It would be important for clinical workplaces and nursing universities to cooperate and impart cyber ethics education to nursing students. Further, it is essential to develop and implement an effective intervention program for the nursing curriculum to reduce cyberbullying.

Conflict of interest

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