

Effects of the Ethical Values and Willingness to Report Near Miss on the Perceptions of Patient Safety Culture of Nurses at General Hospitals

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Abstracts

Purpose: This study was conducted to review how the ethical values and willingness to report near miss of nurses at general hospitals affect the perceptions of patient safety culture.

Methods: Data were collected from July 1 to July 20, 2017 from 196 nurses at three general hospitals located in D City.

Results: Ethical values were higher among those aged 35 or older ($F=4.133$, $p=.007$), those with master's degree or higher ($F=5.479$, $P=.005$), and those with less than one year of work experience ($F=4.07$, $P=.019$). Willingness to report near miss were higher among those with master's degree or higher ($F=4.926$, $p=.008$), and those working in internal medicine departments ($F=5.429$, $p=.005$). Perceptions of patient safety culture were higher among nurses with less than one year of work experience ($F=10.591$, $p<.001$). There was a positive correlation between ethical values, near miss reports and perceptions of patient safety culture, while ethical values ($\beta=.368$, $p<.001$) and work experience of less than one year ($\beta=.240$, $p<.001$) were found to be variables affecting perceptions of patient safety culture.

Conclusion: To improve the perceptions of patient safety culture in nurses at general hospitals, a positive ethical value system must be established and near miss reports need to be encouraged.

Keywords: Ethical values, near miss reports, perceptions of patient safety culture

INTRODUCTION

According to a report issued by the U.S. Institute of Medicine in 1999, 48,000 to 98,000 patients die each year due to medical errors [1]. It can be estimated that in Korea, too, approximately 17,000 patients die due to accidents that could have been prevented. With the start of the evaluation system for medical institutions in 2004 that focuses on tertiary

medical institutions followed the evaluation on secondary medical institutions launched in 2007 and the certification system for medical institutions in 2014 [2]. Over the years, the value of patient safety has been increasingly recognized [3]. Moreover, the Patient Safety Act took effect in July, 2016 [4] and has been used as a yardstick to evaluate the quality of medical institutions. As such, medical institutions are implementing various policies to set a patient safety system and prevent accidents [5]. But compared to upper level general hospitals that recognize patient safety and received certifications from home and abroad, smaller hospitals have a low awareness of the importance of patient safety. As the Korean government announced the Patient Safety Act, added the patient safety item in the evaluation of medical services quality and announced a new policy of providing safety management allowances to institutions with dedicated personnel for patient safety starting in October, 2017, patient safety has risen as an important issue in general hospitals, too.

Meanwhile, a review of factors related to perceptions of patient safety shows that ethical values and near miss reports can be considered. As Korea became more affluent and science and technology progressed, ethical values in Korea changed, too, such as the recognition of dignity of life [6]. As such, nurses who work on the forefront of health management face conflict due to ethical issues [7]. Nurses are faced with situations where moral judgment is required at work [8], and frequently face decision-making by distinguishing legal responsibilities [6].

In situations where ethical judgment by nurses is required, establishment of ethical values is needed to minimize side effects and promote patient safety. This is because nurses are in closest contact with patients and are the most sensitive in perceiving patient safety. Moreover, near miss reports are done autonomously based on ethical judgment, making ethical values of nurses all the more important.

Korea, too, established a basis to share error experiences with

Article 14, Clause 1 of the Patient Safety Act that took effect July 29, 2016. This clause requires autonomous reporting of near misses to establish a patient safety culture. Near miss reports refer to a series of process that inform related departments of the medical institution on all forms of mistakes, negligence or accidents, regardless of whether the patient was harmed or not [9]. In general, most health care workers of the opinion that near miss reports are needed to improve the patient safety culture [10]. But, most are reluctant to report on patient safety incidents due to criticism aimed at the individual, the penal culture of the organization and lack of feedback [3].

To reduce errors of similar types, near miss cases need to be analyzed for their cause and response measures need to be prepared, in addition to analysis of red flag incidents [11]. In the case of near misses, legal responsibility is less compared to red flag incidents and thus can be analyzed more readily. This can help reduce the occurrence of red flag incidents, too [3]. But there is widespread perception among nurses that only actual errors need to be reported and do not recognize that near misses or potential errors are important to be reported, too. This leads to serious incidents being mostly reported but light errors not being reported [12]. There are in fact very few studies in Korea on how ethical values and near misses of nurses affect the perceptions of patient safety.

This study reviews how the ethical values of nurses at general hospitals and near miss reports affect perceptions of patient safety. When nurses who are on the forefront of clinical treatment have proper ethical values and autonomous reports of near misses are promoted, patient safety culture will be greatly improved. Patient safety training also needs to be not one-off but continued. But face-to-face training has its limits and therefore doing it in conjunction with internet training would be effective. To develop training programs on patient safety culture, this study seeks to provide a basic set of data by identifying causes that affect perceptions of patient safety culture.

Purpose

This study identifies the effect that ethical values of nurses at general hospitals and near miss reports have on perceptions of patient safety to help establish a patient safety culture where autonomous near miss reports are encouraged.

First, the ethical values of nurses, their near miss reports and degree of perception of patient safety culture are reviewed.

Second, the difference in the ethical values of nurses, near miss reports and perceptions of patient safety across different general characteristics of nurses is reviewed.

Third, the correlation between the ethical values of nurses, near miss reports and perceptions of patient safety culture is reviewed.

Fourth, the factors that affect perceptions of patient safety culture are identified.

METHODS

Research Design

This study is a descriptive survey on how the ethical values of nurses at general hospitals and near miss reports affect perceptions of patient safety.

Subjects & Data collection

Subjects of this study were 196 nurses working at three general hospitals in D city, who had signed a consent form for participation in the study. The three general hospitals were visited by the researchers to explain the study purpose and methodology and gain approval from the head of the nursing department. A questionnaire that includes a description of the purpose and need of the study and a consent form was distributed to the subjects.

Data were collected from July 1 to July 20, 2017. To protect the privacy of subjects, they were described the content and purpose of the study, the anonymity of subjects, protection of privacy, and the possibility to drop out of the study if the subject wishes. Nurses who agreed were asked to fill out a questionnaire. Participants were given a small gift afterwards. The number of samples for the study was calculated by setting at 0.15 for medium effective size, 0.5 for significance level and 0.95 for statistical power using the G-power3.1.2 program and 178 subjects were decided on. Taking into account the drop-out rate, 210 copies of the questionnaire were distributed. Excluding 14 copies with insufficient responses, a total of 196 copies were used for analysis.

Instruments

Ethical values

The tool that was based on the questionnaire on ethical values developed by Lee [13] and revised by Jung [14] was used. Out of a total of 38 questions, 32 were used after excluding six with a negative correlation coefficient in the validity analysis. These questions consisted of 7 questions on human life, 11 questions on the relation between the nurse and subjects, 7 questions on the nurse and their nursing tasks and 7 questions on the relation between the nurse and collaborators. Each response was measured on a 5 point Likert scale, with "I agree" scoring 5 points and "I disagree" scoring 1 point. A higher score indicates a firmer and more positive ethical value system, while a lower score indicates a more negative and less firm ethical value system. At the time the tool was developed by Jung [14], Cronbach's $\alpha = .68$ for reliability, while in this study it was .74.

Characteristics of near miss reports

A total of 4 questions were used, of which 2 were questions on the degree of recognition of near misses and their reporting structure used by Jeon [11] and 2 questions on whether the subject had near misses or near miss reporting experiences. For the recognition of near misses and their reporting structure, 1 point indicates "I do not know at all" while 5 points indicate "I am well aware" on a 5 point Likert scale. Subjects were asked whether they had near miss experiences in the past year, to which they could answer "yes", "no" or "I don't know." Subjects who had experienced near misses were also asked whether they reported the incident or not.

Willingness to report near misses

Willingness to report near misses was measured using the tool developed by Jeon [11]. A total of 11 questions consisted of 1 question on overall willingness and 10 questions on willingness to report near misses in specific situations. For overall willingness, the question "Would you be willing to report it if you experienced a near miss?" was used. The response "not at all" was given 1 point, while "Very much so" was given 10 points. A higher score indicates a higher willingness to report near misses. Scores on near miss reports in specific situations presented 10 situations that frequently occur in hospitals (drug administration, fall, treatment, tests, blood transfusion, pressure sores, surgery, restraints, suicide and infection) and asked the subjects' willingness to report near misses on a 5 point Likert scale, with "not at all" given 1 point and "very much so" given 5 points. A higher score indicates a higher willingness to report near misses. The reliability of the tool had a Cronbach's $\alpha = .86$ in the study by Jeon [11] and in this study .87.

Perception of patient safety culture

To survey the safety culture at hospitals, the Hospital Survey On Patient Safety Culture (HSOPSC) developed by AHRQ in the U.S. and translated into Korean by Kim et al. [10] was used. This questionnaire is an open tool that does not require approval from AHRQ for use. The tool has 6 categories, with 17 questions on perceptions of patient safety culture within the department, 4 questions on the attitude of direct supervisors or managers related to patient safety, 6 questions on the perception of reporting structure for medical incidents at the hospital, 3 questions on the frequency of incident reporting, 11 questions on the perception of patient safety culture at the hospital, 1 question on overall safety at the work place, and 1 question on the number of incidents reported over the past year, making a total of 44 questions. One question which had a negative correlation coefficient in validity analysis was excluded to make a total of 43 questions. Each

question used a 5 point Likert scale, with "not at all" given 1 point and "very much so" given 5 points. At the time of the tool's development, Cronbach's $\alpha = .7$, while it was .90 in the study by Kim [10] and in this study it was .86.

Data Analysis

The collected data were analyzed using the SPSS Win 21.0 program. The general characteristics of the subjects were analyzed using frequency, percentage, mean and standard deviation. The ethical values of nurses, their willingness to report near misses and perceptions of patient safety culture were analyzed using mean and standard deviation. The difference in ethical values, willingness to report near misses and perceptions of patient safety culture across different general characteristics of subjects was analyzed using a t-test and ANOVA and for post-test, Scheffe test was used. The correlation between nurses' ethical values, willingness to report near misses and patient safety culture was analyzed using Pearson's correlation coefficient. Stepwise multiple regression was conducted to identify factors affecting perceptions of patient safety culture.

RESULTS

General characteristics of subjects

The general characteristics of subjects were as seen in <Table 1>. There were 184 females (93.9%) and 12 males (6.1%). Average age was 29.55 ± 6.96 years, with those in the 25~29 age bracket counting 80 (40.8%) or the largest share. There were 113 people (57.7%) who graduated from a four year university accounting for the largest share. The most common length of work experience was 1-3 years (12 months – 35 months) at 32.1% or 63 people. The average work experience was 70.62 ± 74.43 . In terms of work department, the largest share of subjects at 48% or 95 people were in the special department, followed by 56 subjects (28.6%) in the surgical departments and 45 subjects (23%) in internal medicine-related departments. The average work hours was 9~10 hours for 160 subjects (81.6%) and all 196 subjects (100%) had received safety training. In terms of the number of patient safety training, 71 subjects (36.2%) received it once a year, 67 subjects (34.2%) received it two times a year, and 58 subjects (29.6%) received it three times or more per year.

Table 1: General characteristics of subjects

(N=196)

Characteristics	Categories	N(%)	Mean±SD
Gender	Male	12(6.1)	
	Female	184(93.9)	
Age	Younger than 25	47(24)	29.55±6.96
	25~29 years	80(40.8)	
	30~34 years	35(17.9)	
	35 years or older	34(17.3)	
Education	2 year university	74(37.8)	
	4 year university	113(57.7)	
	Master's degree or higher	9(4.6)	
Work experience	Less than 1 year	26(13.3)	70.62±74.43
	1~5 years	94(48)	
	5 years or longer	76(38.8)	
Department	Internal medicine related	45(23)	
	Surgery related	56(28.6)	
	Special department	95(48.5)	
Average work hours	8 hours or less	27(13.8)	
	9~10 hours	160(81.6)	
	11 hours or more	9(4.6)	
Safety training	Completed	196(100)	
Number of safety training	Once a year	71(36.2)	
	2 times a year	67(34.2)	
	3 times or more per year	58(29.6)	

Ethical values of nurses

The mean score for ethical values of nurses was 3.56±.31. The mean score for sub-categories were 3.88±.52 for relations with collaborators, 3.86±.38 for relations with subjects, 3.29±.42 for nursing work, and 3.04±.59 for respect for life.

Table 2: Ethical values of nurses

(N=196)

Area	Mean±SD
Respect for life	3.04±.59
Relations with subjects	3.86±.38
Nursing work	3.29±.42
Relations with collaborators	3.88±.52
Total	3.56±.31

Characteristics related to near misses are as seen in <Table 3>. To the question, “Have you heard about near misses?” used to gauge the degree of recognition of near misses, 61 subjects (31.1%) said they were well aware of it, 80 subjects (40.4%) said they knew it relatively well, and 55 subjects (28%) said they didn’t know or knew only little of it. To the question, “Do you know the incident reporting system of the hospital?” to gauge the recognition of incident reporting systems, 48 subjects (24.5%) answered they knew it very well, 72 subjects (36.7%) said they knew it relatively well, and 76 subjects (38.8%) said they didn’t know or knew only little of it. To the question, “Have you experienced a near miss over the past year?” 96 subjects (49%) said yes, 86 subjects (43.9%) said no, and 14 subjects (7.1%) said they don’t know. To the question, “If you experienced a near miss, did you report it through the reporting system”, 44 subjects (45.8%) said yes and 52 subjects (54.2%) said no.

Degree of near miss reports by nurses

Characteristics related to near misses of nurses

Table 3: Near miss-related characteristics in nurses

(N=196)

Characteristic	Categories	N(%)
Recognition of near misses	I am well aware of it.	61(31.1)
	I know relatively well.	80(40.8)
	I don't know or know little of it.	55(28)
Recognition of incident reporting systems	I know it relatively well.	72(36.7)
	I don't know or know little of it.	76(38.8)
Near miss experience	Yes	96(49)
	No	86(43.9)
	I don't know	14(7.1)
Whether the near miss experience was reported	Yes	90(45.9)
	No	106(54.1)

-Willingness of nurses to report near misses

The willingness of nurses to report near misses is as seen in <Table 4>. Overall willingness was 7.02±2.01 on a scale of 10. The willingness in 10 specific situations measured on a scale of 5 showed blood transfusion to be the highest at 3.88±.87, followed by surgeries, suicides, infection, restraints, tests, falls, treatments, pressure sores and drug administration.

Table 4: Willingness of nurses to report near misses

(N=196)

Category	M±SD	Range
Overall willingness to report	7.02±2.01	1-10
Drug administration	3.15±.98	1-5
Falls	3.29±.96	1-5
Treatment	3.22±.92	1-5
Suicides	3.82±.86	1-5
Tests	3.32±.90	1-5
Surgeries	3.87±.85	1-5
Blood transfusion	3.88±.87	1-5
Restraints	3.32±.89	1-5
Infection	3.36±.89	1-5
Pressure sores	3.22±.95	1-5

Perceptions of patient safety culture

Perceptions of patient safety culture were as seen in <Table 5>. Overall mean was 3.51±.31. By category, the highest to lowest scores were found in supervisor/ manager within the department (4.18±.59), communication within the division building (3.81±.44), safety of the patients in the division building (3.77±.54), division building's tendency to report safety incidents (3.51±.31), work environment of the division building (3.46±.37), and hospital environment (3.27±.51). The most common response to the question asking the number of incidents reported was a 'non-response' (68.4%) which was omitted from the table.

Table 5: Perceptions of nurses regarding patient safety culture

(N=196)

Area	M±SD
Work environment of the division building	3.46±.37
Patient safety in the division building	3.77±.54
Supervisor/ manager	4.18±.59
Communication within the division building	3.81±.44
Hospital environment	3.27±.51
Tendency of the division building on reporting patient safety incidents	3.15±.90
Total	3.51±.31

Difference in ethical values, willingness to report near misses and perception of safety culture across different general characteristics

The difference in ethical values, willingness to report near misses and perception of safety culture across different general characteristics is as seen in <Table 6>.

Ethical values showed a significant difference according to age (F=4.133, p=.007), education (F=5.479, p=.005), and work experience (F=4.068, p<.019). Near miss reports showed significant difference according to training (F=4.926, p=.008) and working department (F=5.429, p=.005), while perception of patient safety showed a significant difference according to only work experience (F=10.591, p<.000).

Table 6: Difference in ethical values, willingness to report near misses and perception of safety culture across different general characteristics

(N=196)

Characteristics	Categories	Ethical values		willingness to Near miss reports		Perception of patient safety culture	
		M±SD	t/F(p)	M±SD	t/F(p)	M±SD	t/F(p)
Gender	Male	3.55±.38	-0.08 (.937)	6.75±2.34	-0.48 (.631)	3.56±.36	0.50 (.616)
	Female	3.56±.30		7.04±1.99		3.51±.32	
Age	25 or younger ^a	3.55±.29	4.133 (.007) c<d	7.21±1.49	1.245 (.296)	3.60±.34	2.332 (.075)
	25~29 ^b	3.55±.26		6.73±2.03		3.46±.35	
	30~34 ^c	3.45±.33		7.00±2.11		3.46±.25	
	35 or older ^d	3.70±.34		7.47±2.40		3.57±.28	
Education	2 year university ^a	3.53±.27	5.479 (.005) a,b<c	6.62±2.13	4.926 (.008) a<c	3.5±6.36	1.919 (.150)
	4 year university ^b	3.55±.31		7.15±1.85		3.48±.29	
	Master's degree or higher	3.88±.37		8.67±1.94		3.60±.39	
Experience	Less than 1 year ^a	3.69±.26	4.068 (.019) a>b	7.38±1.27	1.323 (.269)	3.76±.34	10.591 (<.001) a>b,c
	1~5 years ^b	3.51±.29		6.79±1.97		3.45±.31	
	5 years or more ^c	3.58±.33		7.18±2.22		3.51±.30	
Department	Internal medicine ^a	3.56±.35	0.340 (.712)	7.58±1.75	5.429 (.005) a>b	3.52±.33	0.142 (.868)
	Surgery ^b	3.53±.31		6.34±2.11		3.49±.33	
	Special ^c	3.57±.28		7.16±1.96		3.52±.32	
Average work hours	8hours or fewer	3.52±.24	1.088 (.339)	7.33±1.82	0.432 (.656)	3.53±.36	10.901 (.152)
	9~10 hours	3.56±.31		6.98±2.02		3.52±.32	
	11 hours or more	3.69±.33		6.78±2.33		3.31±.35	
Safety training	Completed	3.56±.31		7.02±2.01		3.51±.32	
Number of safety training	Once a year	3.53±.30	0.436 (.647)	6.73±2.13	2.532 (0.82)	3.50±.36	0.413 (.662)
	Twice a year	3.56±.30		6.91±2.01		3.50±.29	
	3 times or more per year	3.59±.32		7.05±1.77		3.54±.32	

Correlation between ethical values, willingness to report near misses and perception of patient safety culture

The correlation between ethical values, willingness to report near misses and perception of patient safety culture is as seen in <Table 7>. The analysis showed that there was a significant positive correlation (r=.32, p<.001) between ethical values

and willingness to report near misses, between perception of patient safety culture and ethical values (r=.41, p<.001) and between perception of patient safety culture and willingness to report near misses (r=.22, p=.002).

Table 7: Correlation between ethical values, willingness to report near misses and perception of patient safety culture

(N=196)

Variable	Ethical values	Willingness to report near misses	Perception of patient safety culture
Ethical values	1		
Willingness to report near misses	.32(<.001)	1	
Perception of patient safety culture	.41(<.001)	.22(.002)	1

Factors affecting perception of patient safety culture

Table 8 shows a multiple regression analysis to identify factors affecting perception of patient safety culture. Ethical values (t=5.708, p<.001) and less than one year of work experience (t=3.731, p<.001) were found to have a significant effect on the perception of patient safety.

The Durbin-Watson value was 1.766 which indicates there is no self-correlation. The tolerance limit was .971 which is higher than 0.1, and the VIF value was 1.030 which does not exceed 10, indicating that there was no multi linearity between independent variables. A multiple regression analysis was conducted with ethical values, work experience, and reporting of near misses as independent variables and perception of patient safety culture as dependent variables. Work experience was treated as a dummy variable for 12 - 59 months, and it was found that less than one year of work experience had an effect. Ethical values (β=.391, p<.001) explained 16.2%, while less than one year of work experience (β=.230, p<.001) explained 5.3%, with a total explanatory power of 21.5% (F=27.697, p<.001). As a result, ethical values and work experience (less than one year) were found to affect perception of patient safety culture.

Table 8: Factors affecting perception of patient safety culture

(N=196)

Characteristics	B	S.E	β	R ²	Adj. R ²	t	p
Constant	2.091						
Ethical values	.391	.069	.368	.167	.162	5.708	<.001
Work experience (Less than one year)	.230	.062	.240	.223	.215	3.731	<.001

Reference: 5 years or more R² = .223, Adj. R²= .215, F=27.667, p<.001

DISCUSSION

This study was conducted to review the effects that the ethical values and near miss reports of nurses at general hospitals have on the perceptions of patient safety culture to promote a culture of voluntary near miss reports and establish a patient safety culture.

In this study, the ethical values of nurses were 3.56±.31 on a scale of 5. This is similar to the average 3.62±.29 points in Jung [14] and the 3.50±.23 points in Koo [6], but higher than the 3.22±.38 points in Kim [15] and the 3.36±.43 in Uhm [16]. In subcategories, relations with collaborators scored 3.88±.52 points, relations with subjects scored 3.86±.39 points, nursing work scored 3.29±.42 points, and respect for life scored 3.04±.59 points. This indicates that the ethical values of nurses were more positively acting in their relations with colleagues or patients rather than in the course of work or respect for life [17]. Issues related to patient treatment at hospitals are directly related to human dignity, and thus can become social issues. In order to ensure that the ethical values of nurses play an important role in near miss reports, an ethics guideline befitting the nursing organization must be prepared and used for training, so that a more proper ethical value system is established and awareness of patient safety culture is improved.

The willingness to report near misses scored 7.02±2.01 on a scale of 10. This is similar to the 7.49±1.86 of Koo [5] and the 6.82±1.86 of Jeon [11]. In Jeon [11], the willingness to report near misses in 10 situations was analyzed. The willingness was higher when the incidents were related to blood transfusion, surgeries, suicides or infection rather than when related to pressure sores, treatment or drug administration. This is in contrast to the findings of Jeon [8] where drug administration and falls had a higher willingness to report near misses, as well as in contrast to Koo [5] where drug administration and falls had a higher willingness to report. This seems to be due to nurses reporting on less frequently occurring incidents that can lead to big accidents such as blood transfusion, surgeries or suicides for prevention.

The perceptions of patient safety culture scored 3.51±.31 which is similar to the 3.36±.32 of Koo [5] and the 3.30±.31 of Moon [18] as well as the 3.30±.31 of Jeon [11] and the 3.24±.32 of Kim [19] which studied upper tier general hospitals and the 3.54±.40 of Whang [20] and the 3.44±.39 of Kim [21] which studied in small-medium sized general hospitals. This seems to indicate that through the certification evaluation system for medical institutions, awareness and perception of safety culture has reached a certain level.

A closer look at the subcategories showed that supervisor/manager scored the highest at 4.18±.59, followed by communication within the division building and safety of the patients within the division building at 3.81±.44 and 3.77±.54, respectively. The hospital environment and tendency of the

division building reporting safety incidents were both low at $3.27 \pm .51$ and $3.15 \pm .90$, respectively. These findings are similar to those of preceding studies such as Koo [5], Moon [18] and Kim [22] and imply that general hospitals lack the environment to provide patient safety and awareness among nurses on the importance of reporting patient safety incidents to reduce occurrences is lacking.

Ethical values showed difference in accordance with the subject's age, education and work experience, with those aged 35 or older showing higher ethical values than those aged 30-34. Ethical values were also higher in 4 year university graduates than 2 year university graduates, and in nurses with less than one year of work experience than in those with 1-5 years of experience. Near miss reports showed a difference according to education and working department. Nurses with a master's degree or higher had higher willingness to report near misses than 2 year university graduates and nurses in internal medicine were more likely to report than those working in surgery.

In Koo [5], none of the items showed significant difference. Jeon [11] saw a significant difference in age, education, work experience and number of safety training sessions and thus did not align with the findings of this study. In terms of the perception of patient safety across different general characteristics of the nurse, those with less than 1 year of experience had a higher perception than those with 5 years or more of work experience.

This finding seems to be due to the fact that there were few subjects who had less than one year of experience (13.3%) and them having a higher sense of responsibility being fresh out of nursing school. There was a significant positive correlation between ethical values, near miss reports and perceptions of patient safety culture. Higher ethical values and higher willingness to report near misses were correlated with higher perception of patient safety culture. This is in line with Koo [5] and Jeon [11] which noted that higher perception of patient safety culture was correlated with higher willingness to report near misses, as well as the findings by Cho [23] which stated that there was a significant correlation between the knowledge of and attitude towards incident reporting and the subject's perception of safety culture. Therefore, to improve perceptions of patient safety culture, it is important to instill positive ethical values in nurses and encourage reporting of near misses before patients are harmed so that safety incidents can be prevented.

Lastly, a multiple regression analysis of how work experience, ethical values and near miss reports affect perceptions of patient safety culture showed that ethical values and work experience (less than one year) were found to have an effect, with an explanatory power of 21.5%. Although direct comparison is difficult since there are no preceding studies on how ethical values and work experience (less than one year) affect perceptions of patient safety culture, it is clear that the

belief that one must do what is morally right [13] directly affects the nurse's behavior, which in turn is directly related to patient safety. As such, the behavioral selection of nurses is affected and subsequently, nursing practice, too [24]. This can serve as a rationale for decision-making when there are medical errors in clinical settings so that reports of safety incidents are encouraged and awareness of patient safety culture is promoted.

In this study, those aged 35 or older, with a master's degree or higher and those with less than one year of work experience had higher ethical values. Those with master's degree or higher and those working in internal medicine departments had higher near miss reports. Nurses with less than one year of experience had a higher perception of patient safety culture. There was a positive correlation between ethical values, near miss reports and perception of patient safety culture, and ethical values and work experience (less than one year) were found to be variables affecting perception of patient safety culture. This is a finding that is in contrast with preceding studies that stated that willingness to report near misses and perception of patient safety culture were higher in those with longer clinical experience. This implies that repeated training is necessary for nurses with many years of clinical experience, too, and since the ethical values of nurses affect their perception of patient safety culture, it is important to help establish their ethical values regarding respect for patients as individuals and recognition of human dignity. To generalize the above findings, iterative studies would have to be conducted as a follow-up on how ethical values and work experience affect perceptions of patient safety culture.

CONCLUSION

This study was conducted to review how the ethical values and near miss reports affect perceptions of patient safety culture in nurses, in order to establish a patient safety culture by promoting voluntary near miss reports. There was a positive correlation between ethical values, near miss reports and perceptions of patient safety culture, and ethical values and work experience (less than one year) were found to be variables affecting perceptions of patient safety culture. As such, to improve awareness of patient safety culture in nurses at general hospitals, it would be necessary to establish a positive ethical value system and verify their awareness of patient safety culture in accordance with their work experience. To that end, ethical values of nurses must be checked to conduct related training and create various contents to promote near miss reports and raise awareness of patient safety. Training must be done not as a one-off event but consistently and with the use of IT tools for variety in programs. Based on the findings of this study, the following is suggested.

First, an iterative follow-up study is needed on how ethical

values affect perceptions of patient safety culture. Second, a follow-up study is suggested to identify new variables that can help improve perceptions of patient safety culture. Third, a study on the behavioral model of nurses is needed to raise awareness on patient safety culture. Fourth, more in-depth qualitative studies are needed on the factors that interfere with patient safety awareness behavior in each job category

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