

PERCEPTION, KNOWLEDGE AND ATTITUDE TOWARDS PATIENT SAFETY AMONG NURSING STUDENTS IN A PRIVATE COLLEGE IN MALAYSIA

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ABSTRACT

Background: Patient safety is defined as the absence of preventable harm to a patient while providing health care, as well as the reduction of unnecessary harm associated with health care. The delivery of better healthcare requires the protection of patients. It is crucial to evaluate nursing students' knowledge and attitudes toward patient safety to identify deficiencies in the educational curriculum and encourage students in patient safety activities. Given the importance of patient safety today, the purpose of this study was to appraise nursing students' expectations, attitudes, and awareness regarding patient safety. **Methods:** This cross-sectional study was conducted in 2020 at one of the private university colleges in Malaysia. Ninety-two nursing students were recruited using the purposive sampling method. A self-administered questionnaire on patient safety was adapted. The data were analyzed using descriptive analysis and the Chi-square test. **Results:** The findings show that the nursing students had a positive perception of the importance of patient safety in both education and the need for adequate skills. Moreover, 90.3% of students demonstrated a positive attitude toward the importance of patient safety. The majority (98.9%) of the nursing students also demonstrated good knowledge about patient safety. The minimum desirable rates of positive responses (Likert 4 or 5) of 60% were exceeded among nursing students in all three aspects. **Conclusion:** Our findings can contribute to the growing knowledge base about students' patient safety competencies from various perspectives. A better understanding of these interconnected factors can help new graduates feel more confident in their patient safety skills. High patient safety skills can help nursing students provide safe patient care.

Keywords: *Patient Safety; Nursing Care; Nursing Student; Perceptions; Knowledge; Attitude*

INTRODUCTION

Patient safety (PS) is a top priority for all healthcare institutions, whether privately commissioned or government-funded. Healthcare institutions' challenges are enormous, and anyone concerned about patient care should consider the scope of patient harm and the need to embrace safety culture in healthcare (World Health Organization, 2007). Joint Commission International (JCI) is a non-profit institution that acknowledges, evaluates, and disseminates best practices in quality and patient safety all over the world (Eldridge, 2006). The International Patient Safety Goals (IPSG) had been developed by the World Health Organization in 2004 to assist certified institutions in addressing specific areas of concern in some of the most challenging areas of patient safety (Siddiqui, 2021).

The Malaysian Ministry of Health is very concerned about patient safety and patient safety management protocols distributed to government and private medical institutions. Following the recommendations of the Honorable Minister of Health on January 29, 2003, the Malaysian Cabinet formed the Patient Safety Council in January 2003 (Mu'taman Jarrar & Don, 2016). Moreover, the Fundamentals of Nursing books also details patient safety (Kohn, & Corrigan, 1999). The impact of culture on results and the complexities of PS concerns in health service delivery have gotten a lot of attention (Waterson, 2014).

A study involving Six Saudi Arabian government universities surveyed 829 nursing students on patient safety education. According to the research, the findings suggested that Saudi nursing students

positively viewed their patient safety skills. There were substantial differences in nursing students' patient safety competency among universities, genders, and years of study (Alquwez *et al.*, 2019). The higher the level of students learning, the more professional and experienced they are in inpatient safety (El-jardali *et al.*, 2014). With the importance of patient safety (PS) in educational institutions and health agencies, it is critical to understand nursing students' perspectives on their patient safety competence (Collet, Hine, & Du Plessis, 2015). This study aimed to determine the level of awareness, expectations, and attitudes about patient safety among nursing students.

METHODOLOGY

Design and Sampling

This cross-sectional study was conducted in 2020 at one of the private university colleges in Negeri Sembilan in Malaysia. The study population (N=120) included students who had more than two times the total clinical experience in year two and three of the Diploma in Nursing. Purposive sampling was used based on including and excluding criteria. Based on Krejcie and Morgan (1970) table (Abdul & Bukhari, 2021) in this study, the population was 120 nursing students (N=120), the sample for this study was estimated to be 92 nursing students (n=92).

Study Tools

A self-administered 5-point Likert-type scale questionnaire on patient safety perception, knowledge, and attitude was adapted (Madigosky *et al.*, 2006). The data collection tool is divided into two main sections. Part A of the survey questions had six questions about demographics, and Part B had 26 questions. Students' attitudes toward patient safety teaching, as well as their perceptions of patient safety (12 items), knowledge of patient safety (6 items), and knowledge of patient safety (12 items) (8 items). The perceptions, knowledge, and attitudes of nursing students toward patient safety culture were evaluated using a five-point Likert's scale (1=strongly disagree/very poor, 2=disagree/poor, 3=neutral/fair, 4=agree/good, 5=strongly agree/very good).

The knowledge and attitudes were dichotomized into two groups, and they are "good" and "poor" knowledge and "negative" and "positive" attitudes. The score ranges between 7 to 14, classified as poor knowledge and 15 to 30 classified as good knowledge,

while attitudes score range between 13 to 38 classified as negative and 39 to 65 classified as positive attitudes. The Cronbach's Alpha value for three parts was 0.718. Thus, this result suggests an excellent internal consistency.

Due to the Covid-19 pandemic, data was collected through Google form, and the link was forwarded via WhatsApp. Permission, explanation and informed consent were stated in the google form. The data were analyzed by using SPSS software Version 20. The analysis included descriptive statistics such as frequencies, percentage, means and standard deviation. The Chi-Square was used to analyze relationships between knowledge levels with sociodemographic, including age, year and semester of study, and total clinical experience.

Ethical Considerations

Ethical clearance was sought from the Research Management Committee (RMC) of University affiliation. The proposal of this study was reviewed and approved by RMC. The purpose of the study informed consent and the respondent criteria regarding privacy and confidentiality attached and briefly explained in the google form.

RESULTS

As shown in Table 1, most respondents (89%) were females aged between 19 to 20 years old. More than half of the respondents (52%) were from Year 2 Semester 6, and the majority of the respondents had a clinical rotation of 3 to 5 times.

Table 1: Analysis of Demographic Characteristics of the Sample (N=92)

Variable	Characteristics	Frequency (n)	Percentage (%) Mean ± SD
Gender	Female	82	89%
	Male	10	11%
Age	19-20	65	70%
	21-22	19	21%
	23-24	7	8%
	>25	1	1%
			1.39±0.67
Year and semester of study	Year 2 Semester 5	22	24%
	Year 2 Semester 6	48	52%
	Year 3 Semester 8	22	24%
			2.0±0.695
Total of clinical posting	3-5 times	70	76%
	6-8 times	22	24%
	>9 times	0	0
			1.24±0.429

Perception of Nursing Students towards Patient Safety

Table 2 shows student's perceptions of patient safety-related teaching at the private college. The perception questions consist of two categories, namely education and skills. For the education part, 48.9% of the students agreed, and 41.3% strongly agreed with the statement "physicians should routinely spend part of their professional time working to improve patient care. Majority also agreed or strongly agreed to the

items "patient safety is an important topic", "learning how to improve patient safety is an appropriate use of time in medical school", and "to receive further teaching on patient safety". Subsequently, 52.2% agreed on supporting and advising from a peer who must decide how to respond to an error for the skill part. For the item "find the cause of an error", 56 (60.9%) respondents agreed with it as essential. However, the majority disagreed with disclosing an error to the patient or a faculty member.

Table 2: Student's Perceptions to Teaching Items on Patient Safety (n = 92)

Teaching on Patient Safety		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	M±SD
Education	Physicians should dedicate a portion of their professional time to improving patient care regularly.	38(41.3%)	45(48.9%)	9(9.8%)	0	0	4.32±0.64
	The topic of 'patient safety is very important.	74(80.4%)	16(17.4%)	2(2.2%)	0	0	4.78±0.46
	In medical school, learning how to improve patient safety is a good is critical.	53(57.6%)	35(38.0%)	4(4.3%)	0	0	4.53±0.58
	You would like to learn more about how to keep patients healthy.	43(46.7%)	44(47.8%)	5(5.4%)	0	0	4.41±0.59
Skills	Supporting and advising a peer who must decide how to respond to an error	34(37.0%)	48(52.2%)	10(10.9%)	0	0	4.26±0.64
	Analyzing an incident to determine the source of the error	33(35.9%)	56(60.9%)	3(3.3%)	0	0	4.33±0.53
	Disclosing an error to a patient	0	0	30 (32.6%)	55(59.8%)	7(7.6%)	2.25±0.58
	Disclosing an error to a faculty member	0	0	26(28.3%)	59(64.1%)	7(7.6%)	2.21±0.56

Knowledge of Nursing Students towards Patient Safety

Based on Table 3, the level of knowledge of the 92 respondents, 91 (98.9%), scored between 5 to 30, which represents a "good" level of knowledge.

Table 3: Analysis of the Level of Knowledge on Patient Safety

Poor n (%)	Good n (%)	Mean	SD
1 (1.1%)	91 (98.9%)	11.01	0.104

The mean and standard deviation score for the level of knowledge shows that the respondents had good knowledge related to patient safety (M=11.10, SD=0.104). A clearer view of the differences in responses can be obtained by looking at the tabular representations of response data (Table 4).

Table 4: Student's Knowledge on Patient Safety (n = 92)

Knowledge of Patient Safety	Very Good	Good	Fair	Poor	Very Poor	Mean	SD
The number of adverse incidents in MOHH that could have been avoided last year.	19(20.7%)	55(59.8%)	15(16.3%)	3(3.3%)	0	3.98	0.71
The number of avoidable adverse events recorded by international bodies per year. e.g. IOM Report: To Err is Human	9(9.8%)	55(59.8%)	22(23.9%)	6(6.5%)	0	3.73	0.72
Estimation of the proportion of hospitalizations that result in adverse effects.	9(9.8%)	52(56.5%)	28(30.4%)	3(3.3%)	0	3.73	0.681
Characteristics of a successful error reporting system	12(13.0%)	51(55.4%)	24(26.1%)	4(4.3%)	1(1.1%)	3.75	0.77
Definition of latent factors	4(4.3%)	40(43.5%)	42(45.7%)	6(6.5%)	0	3.46	0.68
You are well informed on 'patient safety'	42(45.7%)	43(46.7%)	5(5.4%)	2(2.2%)	0	4.36	0.68

Relationship between Selected Demographic Profiles and Level of

Table 5 shows the relationship between selected demographic variables and the level of knowledge regarding patient safety. From this table, most of the respondents were aged between 19-20 years old and had good knowledge of patient safety, with 64 (70.0%). Only 1 (1.0%) from the age of 19-20 years old had poor knowledge. ($\chi^2=0.42, p\text{-value}=0.936$). The finding of this analysis revealed no significant relationship

between age and the level of knowledge. It could be said that the age of respondents did not influence the level of knowledge.

Most of the respondents had undergone 3-5 times clinical rotation, and 69 (75.0%) had a good level of knowledge. This analysis had revealed no significant relationship between the level of knowledge and total clinical posting ($\chi^2=0.318, p\text{-value}=0.573$). Thus, it is shown that the total of clinical posting did not influence the level of knowledge.

Table 5: Relationship between Age and Level of Knowledge on Patient Safety

Variables	Characteristics	Good n (%)	Poor n (%)	Statistical significance
Age (Years)	19-20	64 (70.0%)	1 (1.0%)	$\chi^2= 0.420, df=3, p=0.936 (p<0.05)$
	21-22	19 (21.0%)	0	
	23-24	7 (8.0%)	0	
	>25	1 (1.1%)	0	
Total of clinical posting	3-5 times	69 (75.0%)	1(1.1%)	$\chi^2= 0.318, df=1, p=0.573 (p<0.05)$
	6-8 times	22 (23.9%)	0	
	>9 times	0	0	
Level of study	Y2S5	22 (23.9%)	0	$\chi^2= 0.927, df=2, p=0.629 (p<0.05)$
	Y2S6	47 (51.1%)	1(1.1%)	
	Y3S8	22 (23.9%)	0	

The analysis relationship between year and semester of study and patient safety level using Chi-Square shows that most respondents (51.1%) had good knowledge from year 2-semester 6. This finding of

relationships shows no significant relationship ($p\text{-value}=0.629$) between year and semester of study with the level of knowledge.

The Attitude of Nursing Students towards Patient Safety

Based on Table 6, the attitude was divided into two categories. The majority of the respondents (90.3%) scored between 39 to 65 that represents a "positive" attitude, while 8.6% of the respondents scored below 38, which is under "negative" category attitude.

Table 6: Analysis of Nursing Student's Overall Attitude to Patient Safety

Positive (39 to 65) n (%)	Negative (13 to 38) n (%)
84 (90.3%)	8 (8.6%)

As shown in Table 7, the attitude questions consist of two categories: causes of errors and error management. The statement "making errors is inevitable", 27.2% strongly agreed, and 10.9% agreed. Most of the students believed that "there is a gap between what is known as "best care" and what is being provided on a day-to-day basis", with 39 (42.4%) agreed and 16 (17.4%) strongly agreed. For the third item, "competent physicians do not make medical errors," most respondents agreed. However, most (40.2%) reacted to the item "most errors are due to things that physicians cannot do anything about" as neutral.

Table 7: Student's Attitude on Patient Safety (n = 92)

Attitude on Patient Safety		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
Causes of Errors	Making errors in medicine is inevitable	10(10.9%)	25(27.2%)	20(21.7%)	17(18.5%)	20(21.7%)	2.87±1.32
	There is a gap between what physicians known as "best care" and what is being provided on a day-to-day basis.	16(17.4%)	39(42.4%)	30(32.6%)	7(7.6%)	0	3.70±0.84
	Competent physicians do not make medical errors that lead to patient harm	31(33.7%)	33(35.9%)	20(21.7%)	6(6.5%)	(2)2.2%	3.92±1.00
Error Management	The majority of errors occur as a result of circumstances beyond the control of physicians.	5(5.4%)	18(19.6%)	37(40.2%)	28(30.4%)	4(4.3%)	2.91±0.94
	If I saw a medical error, I would keep it to myself	1(1.1%)	5(5.4%)	7(7.6%)	30(32.6%)	49(53.3%)	1.68±0.91
	If there is no harm to a patient, there is no need to address an error	4(4.3%)	17(18.5%)	25(27.2%)	35(38.0%)	11(12.0%)	2.65±1.05
	Only physicians can determine the causes of a medical error	8(8.7%)	29(31.5%)	27(29.3%)	23(25.0%)	5(5.4%)	3.13±1.06
	Reporting systems do little to reduce future error	21(22.8%)	55(59.8%)	9(9.8%)	4(4.3%)	3(3.3%)	3.95±0.89
	An effective strategy after making an error is to work much harder and be more vigilant.	60(65.2%)	25(27.2%)	7(7.6%)	0	0	4.58±0.63
	Physicians should not tolerate uncertainty in inpatient care.	12(13.0%)	28(30.4%)	18(19.6%)	27(29.3%)	7(7.6%)	3.12±1.19
	The medical community makes it simple for providers to deal constructively with errors.	55(59.8%)	25(27.2%)	11(12.0%)	1(1.1%)	0	4.46±0.74
Physicians routinely report medical errors.	11(12.0%)	35(38.0%)	40(43.5%)	5(5.4%)	1(1.1%)	3.54±0.81	

For the second category of the attitude items in the error management, the majority disagreed with the item "if I saw a medical error, I would keep it to myself" and "if no harm, no need to address an error". Most of the students believed that "only physicians can determine the causes of a medical error. The item "reporting systems do little to reduce future error" and "to work harder and be more careful" majority responded positively. For the item "physicians should not tolerate uncertainty in patient care", 28 (30.4%) of the students agreed, and 12 (13.0%) strongly agreed, respectively. On items "the culture of medicine makes it easy to deal with errors" and "physicians routinely report medical errors," the majority had positive responses.

DISCUSSION

Perception Regarding Patient Safety

In this study, the researcher found that in the category of education, which is the part of perceptions, the results were similar to findings in another study. Nursing students have more profound perceptions regarding patient safety (Nabilou, Feizi, & Seyedin, 2015). These results were similar to a study finding by Leung & Patil (2010) where nursing/midwifery students have more profound perceptions about patient safety than medical students. The cause may be because their lecturer emphasized the importance and methods of patient safety in teaching session in the classroom. In addition, the clinical Instructors (NI) in the hospital reinforced the importance of patient safety while handling the patient, in the wards where the students spend more time with patients (Alquwez *et al.*, 2019). During the orientation week, the Clinical Instructors routinely introduce and explained the International Patient Safety Goals (IPSG) implemented in the private hospital network. Finding also revealed that most nursing students' perceptions in this Private University College toward patient safety were good. A study supported this findings (Leung & Patil 2010), where the majority of the respondents in the study emphasized the necessity of patient safety education, necessary training skills and time allocation in the related course.

The Level of Knowledge Regarding Patient Safety

In this study, the researcher found that most nursing students had good knowledge of patient safety. Similar to another study conducted by Nabilou *et al.*, (2015), the nursing and midwifery students dedicated more knowledge to patient safety than medical students. The latest study also revealed that nursing students in China

gain more knowledge in the clinical setting and manage gaps in their knowledge (Huang *et al.*, 2020). This condition will become more efficient by fostering collaboration between nursing faculty and clinical nurses to teach patient safety content to close the knowledge gap in theory and practice (Huang *et al.*, 2020).

A study was conducted to assess Saudi Arabian undergraduate medical students' patient safety awareness and attitudes. More than half of the respondents (52.7 per cent) rated their general patient safety knowledge as "healthy." Insufficient information, on the other hand, was recorded in specific items. Unsatisfied participants who self-rated 'good' for their general and essential information on patient safety were also identified among the participants (Collet, Hine, & Du Plessis, 2015).

The Relationship between the Demographic Data and the Knowledge Level on Patient Safety

In this study, the researcher finds no significant relationship between age and the level of knowledge. It could be said that the age of the respondent did not influence the level of knowledge. In this study, most of the respondents were from the age of 19-20 years old. All of the respondents are new students in the nursing fields. In another study, most nursing students in Iran had better skills and were from different age groups ranging from 20 to 25. Based on the report, there was no significant relationship between age and information level (Jamshidi *et al.*, 2016).

Year and semester of study might affect the knowledge level of patient safety among nursing students. The finding showed that students in year two and year three of the study, representing the majority of the respondents, had good patient safety knowledge. However, the relationship between year and semester of study with the level of knowledge was not significant.

According to Alquwez *et al.* (2019), the higher the year level of students or the more senior in rank, the more professional and informed about patient safety. Finding shows that the higher the level of their study, the more significant the exposure to learning opportunities relevant to patient safety principles, which leads to a higher level of trust in patient safety practices (Noviyanti, Handiyani, & Gayatri, 2018).

This study shows that most of the respondents had undergone more than 3 to 5 times clinical posting. The

total of clinical posting in this study was not a significant relationship with the level of knowledge. However, the previous study found that the intern students have more experience and knowledge in clinical practice, substantiating a higher confidence level in patient safety (Tella *et al.*, 2015). Instead of learning the theory, the nursing students required more clinical experience to implement their knowledge into the clinical setting and consistently improved patient safety outcomes. High patient safety knowledge and competence are perceived and reported by first-year students, moderate by second-year students and higher at the end of the third-year students (Stevanin *et al.*, 2015).

The Attitude Regarding Patient Safety

According to Alquwez (2019), the higher a student's year level or rank, the more skilled and knowledgeable they regarded patient safety. Findings indicate that the higher their study levels, the more chances that they will learn about patient safety values, which leads to a higher level of confidence in patient safety practices (Noviyanti, Handiyani, & Gayatri, 2018).

On the other hand, another study conducted in Arab Saudi discovered that less than 50% of nursing students had a positive attitude towards patient safety (Almaramhy *et al.*, 2011). However, the rate is considered too low compared to the 90% of nursing students in Hong Kong who had positive attitudes towards patient safety (Leung & Patil, 2010). This is because nursing students during the clinical training are constantly being observed by the clinical instructor and the patients themselves. Nursing students must show their performance and must be in their best attitude when handling patient safety (Nabilou *et al.*, 2015).

Limitation and Recommendation

Findings of this study related to nursing students at a private healthcare nursing college are difficult to generalize. Due to the Covid-19 pandemic, the data collection process had to be modified from a pen and paper-based questionnaire to a google form (online) questionnaire. As a result, the researcher cannot monitor the respondents' progress, and the study findings depend upon the respondent's trustworthiness. Finally, since this is a cross-sectional analysis, it was difficult to identify any causal relationship between variables. A longitudinal study is recommended to examine whether attitudes and knowledge on patient

safety change before and after clinical practice, or theory class or after working as a nurse after graduation.

This study's findings emphasized the importance of well-structured educational interventions for undergraduate nursing students. To close the expertise gap between theory and practice, fostering cooperation between nursing faculty and clinical nurses to teach patient safety material should be introduced early in the medical sector. Aside from that, developing seminars or patient safety training by stimulation can help improve nursing students' ability, awareness, and attitudes toward patient safety and consistently improve patient care quality. The recommendation is to conduct another study using a qualitative or quasi-experimental method to observe nursing students' abilities, knowledge, and attitudes regarding patient safety, especially during clinical placement.

During the theory sessions, the lecturer must teach the methods of enhancing patient safety recognition, while the clinical instructor must reinforce it at the clinical level. For example, nursing students familiar with the Patient Safety Goal (PSG) components are vital to the nursing training during their clinical attachment. The interventions can help nursing students often face actual or perceived obstacles during the clinical learning process. Students have doubts about their abilities, which contributes to anxiety. About 75% of nursing students have communication issues during the clinical learning process, and 24% of them say it's challenging to cope with these challenging situations (Noviyanti *et al.*, 2018). Since this study involved only one private university nursing student, more research in different hospital or institution settings is needed to help us identify different aspects of patient safety, improve our understanding of causes, and improve the lecturer's ability to teach patient safety in nursing education and practice.

CONCLUSION

Nursing students in this study had a strong understanding, attitudes, and perceptions about patient safety. Medical mistakes were well-known to the nursing students in this study as an inevitable obstacle between "best treatment" and accessibility. There was also no awareness gap and no desire to learn about patient safety.

However, it is critical to emphasize and develop a standardized curriculum or preparation for nursing

students during clinical placement and continue this shift in healthcare culture. As a result in the long run, all forms of errors will be reduced in dynamic settings like hospitals and this will strengthen clinical practice and the transition from nursing student to staff nurse. Nurse administrators and practicing nurses must regularly instruct nursing students in clinical environments to identify dangerous acts, report unsafe conditions, and take appropriate safety measures.

Conflict of Interest

The authors declare that they have no conflict of interest.

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