ORIGINAL ARTICLE

Clinical Decision Making Ability of Nursing Students in a Tertiary Hospital

HO SE[1], KOO YL[2], ISMAIL S[4], HING HL[1], WIDAD O[3], CHUNG HT[3], NABISHAH M[5], LIU CY[6], HO CCK[7]

[1]Department of Nursing, [4]Department of Emergency Medicine, [5]Department of Medical Education, [6]Department of Anaesthesiology & Intensive Care, [7]Department of Surgery, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.

[2]School of Language Studies and Linguistics, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia.

[3]Open University Malaysia, Centre of Post Graduate Learning, Jalan Tun Ismail, 50480, Kuala Lumpur, Malaysia.

ABSTRAK

Kebolehan membuat keputusan dalam rawatan merupakan salah satu kemahiran yang sangat penting untuk dimiliki oleh seseorang jururawat di dalam melaksanakan tugasannya. Tujuan kajian ini adalah untuk mengetahui persepsi di kalangan pelajar kejururawatan akan kebolehan mereka membuat keputusan. Satu kajian-rentas diskriptif menilai tahap persepsi dalam kalangan pelajar kejururawatan telah dijalankan di sebuah hospital tertiari dengan menggunakan versi modifikasi Skala Membuat Keputusan Dalam Kejururawatan (SMKDK) diadaptasi dari Jenkins (1985). Seramai 54 orang pelajar kejururawatan telah mengambil bahagian di dalam kajian ini yang mana skor purata SMKDK yang baik iaitu sebanyak 124.24±12.713 telah direkodkan. Di dalam empat sub-skala SMKDK purata skor yang didapati adalah seperti berikut: mencari alternatif (33.24±4.821), mendapatkan bantuan (28.74±3.514), penilaian dan penilaian semula (31.43±3.922), dan mencari maklumat (30.83±4.765). Daripada bilangan pelajar tersebut hanya 19(35%) peserta telah memilih kejururawatan sebagai pilihan pertama. Juga didapati 37(69%) peserta berpuas hati dengan kompetensi kejururawatan mereka. Terdapat perbezaan yang signifikan di antara subskala mencari alternatif dan penilaian-penilaian-semula jika dibanding pada kumpulan yang memilih kejururawatan sebagai pilihan pertama ($p< 0.05$). Juga terdapat perbezaan yang signifikan di antara mencari alternatif berbanding puas hati terhadap kompetensi kejururawatan ($p<0.05$). Perbezaan yang signifikan juga ditunjukkan di antara tahap pendidikan berbanding mencari alternatif dan maklumat ($p<0.05$). Pelajar kejururawatan menunjukkan persepsi

Address for correspondence and reprint requests: Assoc Prof. Ho Siew Eng, Department of Nursing, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +603-91456250 Fax: +603-91456683 Email: angieho88@gmail.com / ho@ppukm.ukm.edu.my

bahawa mereka berkebolehan membuat keputusan yang baik. Walaupun bidang kejuruwatan ini bukan pilihan pertama bagi kebanyakan pelajar tetapi kebolehan mereka mencari alternatif dan melakukan penilaian serta menilai semula membolehkan mereka berjaya dalam membuat keputusan yang baik. Kepuasan dalam bidang yang diceburi juga membantu di dalam membuat keputusan yang baik di dalam bidang jaga-rawatan kritikal ini.

Kata kunci: membuat, keputusan, pelajar, kejururawatan

ABSTRACT

Decision making in nursing is one of the most important skills nurses must apply and utilize in their nursing practice. The aim of this study was to determine the perception of clinical decision making ability among nursing students. A descriptive cross-sectional study was conducted in a tertiary hospital. A total of 54 nursing students were recruited using a modified version of Clinical Decision Making in Nursing Scale (CDMNS) adapted from Jenkins (1985). The findings showed good CDMNS score with mean and standard deviation of (124.24±12.713). The four sub-scales of CDMNS were: searching for alternative (33.24±4.821), canvassing (28.74±3.514), evaluation and re-evaluation (31.43±3.922), searching for information (30.83±4.765). Nineteen (35%) of the participants chose nursing as their first choice, whereas 35 participants (65%) did not. Thirthy seven (69%) participants were satisfied with their nursing competency, 17 (31%) were unsatisfied. There were significant differences between searching for alternatives, evaluation and re-evaluation, and nursing as their first choice (p=<0.05). There were also significant differences between searching for alternatives and satisfaction with nursing competency (p=<0.05). There was significant difference between education level and searching for alternatives and information (p=<0.05). The nursing students possessed adequate clinical decision making ability. Although most of the nursing students did not choose nursing as their first choice, they sought for alternatives and evaluated-reevaluated during their decision making process. Nursing students' satisfaction also contributed to appropriate clinical decision making in the critical care setting.

Keywords: decision, making, nursing, student

INTRODUCTION

As nursing practice continues to increase in complexity and nurses assume greater responsibility and accountability in the delivery of care, nursing students must be well-equipped with knowledge and skill in rendering nursing care for patients in the clinical setting (Gordon et al. 2013). To be able to perform competently in their roles, nurses must be prompt and able to identify abnormalities in the signs and symptoms of the patients. It can be argued that the primary aspect

to achieving this outcome is the role and responsibility of nurse educators and other team players, such as clinical instructors, registered nurses and faculty of the medical setting, who are responsible for creating an adequate platform to foster student learning (Caldwell et al. 2010).

The nursing students' role and responsibility in the clinical setting is to plan nursing care that addresses patients' needs in a holistic, individualized manner through the use of the nursing process. The nursing process format requires that nursing students systematically collect and scientifically analyze the patient's unique data as a basis to identify nursing problems in order to make diagnoses, plan and implement nursing interventions, and evaluate the response to those nursing interventions (Koehler 2004). The nursing care plan can be revised according to assessment of new data to meet the patients' needs. Nursing students develop care plans and make clinical decisions based on their theoretical and scientific body of knowledge to set priorities and implement care. Bucknall (2003) highlighted the clinical landscape of critical care on nurses' decision making. It was reported that the three main environmental influences that affected decision making among nurses were patient situation, resource availability and interpersonal relationships. The research concluded that decision making is a manifestation of the hospital setting and patients' needs. However, nurses' prerequisite knowledge and skill play an important role in nurses' decision making to improve nursing outcomes. Certainly, experiential knowledge and skill will contribute to positive clinical decision making by nurses (Horton et al. 2012).

Keeping the above facts in mind, the present study involved the use of a modified version of CDMNS questionnaire. The main purpose of this study was to examine the perception of decision making ability of nursing students in a tertiary hospital in Malaysia.

MATERIALS AND METHODS

This was a cross-sectional study conducted in Universiti Kebangsaan Malaysia Medical Centre (UKMMC) from June 2007 till December 2007. Nursing students in their final year of the Bachelor of Nursing degree programme in UKMMC were recruited after informed consent was obtained. Those who refused to give their consent were excluded.

Prior ethical approval was obtained from the Universiti Kebangsaan Malaysia Research Ethics Committee. Prior permission was obtained for this study from the director of the Universiti Kebangsaan Malaysia Medical Center (UKMMC). This study was supported by the Universiti Kebangsaan Malaysia (UKM) grant (FF-243-2007).

INSTRUMENT

The CDMNS targets decision making processes viewed as essential cognitive skills for professional nurses (Jenkins 1985). Students rate their behaviors related to decision making while providing patient care in the clinical setting. A total of 54 nursing students

from department of nursing UKMMC were recruited. A modified version of CDMNS was used to measure the nurses' clinical decision making ability. A 40-item questionnaire was used to measure the nursing students' clinical decision making. The scores were rated on a 5-point Likert scale (1=never, 2=seldom, 3=occasionally, 4=frequently and 5=always). The instrument provides an overall score for clinical decision making and four subscale scores, which include: search for alternatives and options scale, canvassing of objectives and values scale, evaluation and re-evaluation of consequences scale, and search for information and unbiased assimilation of new information scale.

Summation of score was classified as follows: 40 was considered low, and 200 considered as high. The higher the score indicated the higher ability of the nursing students' clinical decision making. International consistency was found using Cronbach's alpha (r=0.70), which was adequate. The Cronbach's alpha for this instrument ranged from .71 to .81, with overall coefficient of .74. Socio-demographic data included age, education level, nursing as first choice, and satisfaction in nursing.

STATISTICAL ANALYSIS

Statistical Package for Social Science (SPSS) version 21 for Windows was used for statistical analyses. Descriptive analyses included frequency of the respondents' socio-demographic, mean and standard deviation on the CDMNS score. T-test and Analysis of Variance (ANOVA) tests were used to compare the relationship between socio-demographic profile and CDMNS score of the participants.

RESULTS

Respondents' socio-demographic data included age, education level, nursing as first choice, and satisfaction in nursing (Table 1). The participants' age groups that ranked the highest was 19 to 23 years with 23 (43%), 24 to 29 years with 2 (4%), and more than 30 years with 29 participants (53%). Education level of the participants showed that 30 participants (56%) had studied until high school, 9 participants (17%) until pre-university level, and 15 participants (27%) until foundation program. Nineteen participants (35%) stated nursing as their first choice, whereas 35 (65%) participants did not. 37 participants (69%) were satisfied in

Table 1: Socio-Demographic Profiles

	Participants (n=54)	Percentage (%)
Age		
19 – 23 years	23	43%
24 – 28 years	2	4%
29 years and above	29	53%
Education level		
SPM	30	56%
STPM	9	16%
Matriculation	15	28%
Nursing as first choice		
Yes	19	35%
No	35	65%
Satisfaction in nursing		
Yes	37	69%
No	17	31%

Table 2: Respondents CDMNS score

Variables	Mean±SD
Search for alternatives and options	33.24±4.821
Canvassing of objectives and values	28.74±3.514
Evaluation and re-evaluation of consequences	31.43±3.922
Search for information and assimilation of new information	30.83±4.765
Total CDMNS	124.24±2.713

Table 3: Respondents CDMNS score with nursing as first choice

	Mean±SD		t	P
	Yes (n=19)	No (n=35)		
CDMNS				
Alternatives	31.00± 3.844	34.46±4.907	-2.656	.010*
Canvassing	28.05± 2.635	29.11±3.894	-1.062	.293
Evaluation	29.89±2.283	32.26±4.381	-2.605	.012*
Information	31.68±4.667	30.37±4.820	.966	.338
Total CDMNS score	120.63±6.353	126.20±14.810	-1.922	.060

*p value <0.05 significant difference

their nursing practice, while 17 (31%) felt dissatisfied.

The findings showed good CDMNS score with mean and standard deviation of (124.24±12.713). The results of the four CDMNS sub-scales were: searching for alternative (33.24±4.821), canvassing (28.74±3.514), evaluation and re-evaluation (31.43±3.922), searching for information (30.83±4.765) (Table 2).

There were significant differences between searching for alternatives, evaluation and re-evaluation, and nursing as their first choice (p=<0.05). In terms of nursing as first choice and searching for alternatives for clinical decision making, showed that those who did not choose nursing as their first choice scored higher (34.46±4.907), while those who chose nursing as their first choice scored lower (31.00±3.844), with (t=-2.856; p=0.006). However, there were no significant differences between canvassing and searching for information, and nursing as their first choice (Table 3).

There were also significant differences between searching for alternatives and those satisfied with nursing competency with mean and standard deviation of (34.78±4.315), participants unsatisfied with nursing competency (29.88±4.196) with (t=3.951;p=<0.05) (Table 4).

There was significant difference between education level and searching for alternatives and information (p=<0.05). Participants with high school qualifications with mean and standard deviation of (35.77±3.971), pre-university (29.67±4.975) and foundation (30.33 3.200) with (F=13.830;p=<0.05) (Table 5).

Table 4: Respondents CDMNS score with satisfaction in nursing

	Mean± SD		t	P
	Yes (n=37)	No (n=17)		
CDMNS				
Alternatives	34.78±4.315	29.88±4.196	3.910	.001*
Canvassing	29.30±3.635	27.53±2.982	1.750	.086
Evaluation	31.57±4.369	31.12±2.804	.388	.699
Information	30.11±4.999	32.41±3.890	-1.678	.099
Total CDMNS score	125.76±14.133	120.94±8.310	1.301	.199

*p value <0.05 significant difference

Table 5: Respondents CDMNS score with education level

	Mean±SD			F	P
	SPM (n=30)	STPM (n=9)	Matriculation (n=15)		
CDMNS					
Alternatives	35.77±3.971	29.67±4.975	30.33±3.200	13.830	.001*
Canvassing	29.13±3.421	29.00±5.220	27.80±2.366	.742	.481
Evaluation	31.67±4.147	33.33±4.243	29.80±2.651	2.551	.088
Information	29.80±4.604	34.56±5.318	30.67±3.830	3.830	.028*
Total CDMNS score	126.36±13.071	126.56±17.868	118.60±5.316	2.133	.129

*p value <0.05 significant difference

DISCUSSION

The results of the study showed that the nursing students possessed adequate clinical decision making ability in the clinical setting. The nursing curriculum that has been well-structured with comprehensive content and effective teaching methodology allow the nursing students to integrate learning into their clinical practice. In addition, the tertiary hospital is well-equipped with the latest technologies and experienced faculty staff to guide and supervise nursing students in the clinical practice setting. del Bueno (2005) reported that new nursing graduates lack the ability to make clinical decisions upon joining the nursing workforce. Conversely, Wiles et al. (2013) argued that newly graduated nurses more often than not are thrust into roles they are not prepared to handle. In the local scenarios from the study have showed that the nursing students of this tertiary hospital possessed committed lecturers and adequate hospital facilities to fulfill the learning needs of the students.

In this study, the results revealed that searching for alternative solutions is one of the major attributes when making clinical decisions. In the hospital setting, decision making has to be prompt and appropriate action must be taken in order to prevent further deterioration of the patient's condition. This shows

that nursing students are capable of seeking solutions and help to overcome difficulties in clinical decision making. Interestingly, in this study, it can be seen that there were significant differences in CDMNS scores for alternatives in terms of education level. Those with SPM education were noted to have better scores than STPM or matriculation. This suggests that the higher the education level, the less likely they would search for alternatives. This needs to be investigated further. However, the older they are, the better the CDMNS score, suggesting maturity in thinking as they search for alternatives. This needs to be validated further.

Congruently, a study conducted by Smith et al. (2013) reported that additional education interventions were necessary to promote confidence in triage decision making among final semester nursing students. Aitken et al. (2009) stated that decision making in the clinical setting involves integration of a wide range of attributes in the assessment aspect of patient care. Their research concluded that clinical decision making should integrate a closed clinical supervision and guidelines to achieve positive patient outcomes.

Nursing students undergoing clinical practice were closely supervised throughout their posting by well trained preceptors. The preceptors' knowledge and skillful bedside teaching and clinical skills could have assisted further in influencing their confidence and competency among nursing students in this tertiary hospital, which may contribute to the development of their clinical decision making ability. The nurse-patient ratio in the medical and surgical unit is 1:5, therefore nursing students are able to be more focused on their patients' health condition and make sound clinical decisions with the supervision of the registered nurses who act as preceptors in the clinical setting. The preceptors in the wards have undergone preceptorship training programs and are well-prepared to supervise and guide the students. Should the nursing students make any mistakes, it can be identified and remedied immediately without causing harm to the patients. According to Björkström et al. (2008) it was reported that nursing students considered themselves competent in terms of nursing competence, but their self-judgment reduced in relation to the new demands as a professional nurse.

Nursing students have to acquire the necessary knowledge and skill related to clinical decision making ability in the clinical setting, and be prepared for the role and responsibilities of delivery of care to patients. The nursing curriculum have great emphasis on the quality of care and competent skills in the delivery of care to equilibrium with the soft skills to meet the needs of patients and family whilst hospitalization. Previous study by Standing (2007) reported that acquisition of clinical decision making skills and preparedness regarding responsibilities as nurses require nursing students to 'think on their feet' without the 'comfort blanket' of student status. The nursing students early exposure to clinical setting could have contributed to their development and improvement in clinical decision making in the real world situation.

Limitations of this study was that

only the final year nursing students in one tertiary education centre were recruited. A larger sample size involving other institutions would be able to validate the findings of this study.

CONCLUSION

Clinical decision making ability in nursing is one of the most important skills nursing students must learn and employ in their nursing practice in order to ensure patient safety and optimal delivery of care. In conclusion, nursing students possess adequate clinical decision making ability during their clinical posting. These findings may further assist nurse educators to better plan clinical experiences and more effectively utilize various training to optimize clinical learning in a tertiary hospital.

ACKNOWLEDGEMENT

The authors would like to acknowledge the help from registered nurse, nurse manager and head nurse of UKMMC for their cooperation in responding to the survey. Heartfelt thanks to Dato' Prof. Dr. Raymond Azman Ali, Dean, Faculty of the Medicine and Prof. Dr. Srijit Das for their continuous guidance and support.

REFERENCES

Aitken, L.M., Marshall, A.P., Elliott, R., McKinley, S. 2009. Critical care nurses' decision making: sedation assessment and management in intensive care. *J Clin Nurs* **18**(1): 36-45.

Björkström, M.E., Athlin, E.E., Johansson, I.S. 2008. Nurses' development of professional self--from being a nursing student in a baccalaureate programme to an experienced nurse. *J Clin Nurs* **17**(10): 1380-91.

Bucknall, T. 2003. The clinical landscape of critical care: Nurses' decision making. *J Adv Nurs* **43**(3): 310-19.

Caldwell, L.M., Tenofsky, L.M., Nugent, E. 2010. Academic and clinical immersion in an accelerated nursing program to foster learning in the adult student. *Nurs Educ Perspect* **31**(5): 294-7.

del Bueno, D. 2005. A crisis in critical thinking. *Nurs Educ Perspect* **26**(5): 278-82.

Gordon, C.J., Frotjold, A., Fethney, J., Green, J., Hardy, J., Maw, M., Buckley, T. 2013. The effectiveness of simulation-based blood pressure training in preregistration nursing students. *Simul Healthc* **8**(5): 335-40.

Horton, C.D., DePaoli, S., Hertach, M., Bower, M. 2012. Enhancing the effectiveness of nurse preceptors. *J Nurses Staff Dev* **28**(4): E1-7.

Jenkins, H. M. 1985. Improving clinical decision making in nursing. *J Nurs Educ* **24**(6): 242-3.

Koehler, C. J. 2004. Nursing process mapping replaces nursing care plans. In *Fuszard's innovative teaching strategies in nursing (3rd ed.).* Edited by A. J. Lowenstein, & M. J. Bradshaw. Sudbury: Jones and Bartlett; 303-13.

Smith, A., Lollar, J., Mendenhall, J., Brown, H., Johnson, P., Roberts, S. 2013. Use of multiple pedagogies to promote confidence in triage decision making: A pilot study. *J Emerg Nurs* **39**(6): 660-6.

Standing, M. 2007. Clinical decision-making skills on the developmental journey from student to Registered Nurse: A longitudinal injury. *J Adv Nurs* **60**(3): 257-69.

Wiles, L.L., Simko, L.C., Schoessler, M. 2013. What do I do now?: clinical decision making by new graduates. *J Nurses Prof Dev* **29**(4): 167-72.