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CLINICAL DECISION MAKING IN NURSING CARE: EVIDENCE BASED PRACTICE AND SENIORITY

Abstract: *In the nursing profession, EBP makes a positive contribution to healthcare outcomes, care delivery, clinical teaching and research. The research objective was to determine the nurses' knowledge, attitude, practice towards EBP and barriers to use EBP in four (4) Government Hospitals in Malaysia, Hospital Universiti Sains Malaysia (HUSM), Hospital Pulau Pinang (HPP), Hospital Sultan Abdul Halim (HSAH) and Hospital Seberang Jaya (HSJ). A cross-sectional study was conducted from January until December 2012 among (n=600) nurses working in all disciplines, on shift or day time duties in four selected hospitals. The questionnaire was adapted from a Singapore study (Majid, 2011). Results showed that among the nurses working in 4 different Malaysian hospitals, close to fifty percent (53 %) knew what the evidence based practice meant. The items assessing the attitude showed a large number nurses responding that they did neither agree nor disagree with statements provided. The majority of the remaining nurses tended to show a rather positive attitude except when asked about how the workload interfered with their EBP practice. The practice level of EBP scored a mean of more than 3 out of maximal five for most items. Most nurses recognized there were many barriers to EBP in their working place. In conclusion, this study may have helped to increase our understanding of knowledge, attitudes, practice and barriers towards to use of EBP to the utilization of research by nurses through an exploration of perceived barriers and facilitators on the part of nurses.*

Keywords: *Knowledge, Attitudes, Practice, Nursing*

1. Introduction

Evidence Based Practice (EBP) has gained impetus in nursing, and it is defined in the literature in many different ways. Evidence consist of different levels, including research

findings, knowledge from basic science, clinical knowledge, and expert opinion. Practices based on research findings tend to be more likely to result in desired patient outcomes across various settings and expertise (Pape, 2003).

The impetus to practice EBP in nursing care may come mainly from healthcare facilities, since they tend to demand for cost

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repression, greater accessibility of information, and greater consumer knowledge about treatment and care options. Besides that, the EBP brought changes in education of students, resulted in more practice relevant research, and closer working relationships between clinicians and researchers (Youngblut, 2001).

Besides maximizing effects of clinical judgment, EBP furnished wide opportunities for nursing care to more individualized, more effective and dynamic. As a result of the availability of definition of the best practices with the evidence, nursing care keeps developing with the newest technological advances and it can take benefit of new knowledge developments (Youngblut, 2001).

Evidence transfer and its utilization in nursing is based on an assumption of shared professional knowledge and nurses are expected to implement the typical evidence that is brought to the clinical arena (Pape, 2003). But up to now there are no data on what is the level of shared professional knowledge of the nursing profession in Malaysia with regard to EBP?

Many nurses consider research and evidence to be the same (Jean, 2002). In fact, clinical experience, patient inclination and other related factors can be highly valued as evidence for patient care. However, lack of knowledge and time and also little perceived value could be a barrier for nursing research (Lehman, 2008).

Nurses play a major role in practicing EBP in their clinical practice. EBP is deemed to be capable of helping nurses to apply the best care for patient betterment, factors like insufficient training of nurses' specialists, nurses' personal background, attitudes, knowledge towards EBP, may interfere with its application in the wards. Practicing of EBP will contribute to improve quality of management. Meanwhile quality of management may be crucial importance for organization existence in a very competitive environment in hospital and became a legal

base in well developed countries. (Al, 2008)

There is a need for further research in this area to determine if compulsory training would affect outcomes. A thorough literature search did not reveal any study done in Malaysia that determine the level of knowledge and attitude towards EBP, neither on the on the potential barriers for its implementation among Registered Nurses (RN). In Serbia, e-training is specific kind of service include nursing provide greater number, of differences in relation to health service and effectiveness of training would be measurable with set of indicators (Arsovki, 2007).

The expected significance of this study lies in the potential identification of factors such as personal attributes that could influence nurses' knowledge, attitudes and barriers towards applying and practicing EBP in their clinical care and decision making. A descriptive survey design was selected for this study. The study has the potential to demonstrate nurses' attitudes toward EBP, knowledge and skills relevant to the implementation of EBP and the strength to implement their knowledge and attitudes in practicing and applying EBP in their clinical care and decision making.

Objectives of Study

To compare the nurses' knowledge, attitude, practice towards EBP and barriers to use EBP between junior and senior nurses.

2. Methods of study

Research Design

A cross-sectional study was conducted from January until December 2012 among nurses working in all disciplines, on shift or day time duties in four selected hospitals namely Hospital Universiti Sains Malaysia (HUSM), Hospital Pulau Pinang (HPP), Hospital Sultan Abdul Halim Sungai Petani (HSAH) and Hospital Seberang Jaya (HSJ).

Population and Setting

This study was done in four (4) Government Hospitals in Malaysia. HUSM is a tertiary teaching hospital in Malaysia, located on the east coast of Peninsular Malaysia. HPP is tertiary state hospital under the Ministry of Health in Penang Island. HSAH and HSJ are two district hospitals with specialist services on the West Coast of Malaysia, located in Kedah and Penang, mainland respectively. The population in this study involved full time Registered Nurses (RN) working in all disciplines whether on shift or day time duties.

Sample Size

The sample size calculation revealed that the researcher would take a sample size of 505, a precision (Δ) of ± 0.04 or $\pm 4\%$ would be achieved. In other words, the result could maximally deviate for 0.04 or 4% from the true proportion; the researcher takes a sample size of 505, at the 95% confidence level.

After adding 20%, non-responserate, the total sample size required was 606. Therefore, about 150 nurses were required to be respondents from each hospital.

Sampling Method

Simple random sampling was used to select 150 nurses from each hospital.

Statistical Analysis

Descriptive and inferential statistics was used in order to identify the frequency and percentage of demographic statistic. The associations between dependent and independent variables were analyzed using Independent T-Test (less than 2 categorical data) and One-Way ANOVA (more than 2 categorical data). Numerical data were such as nurses’ knowledge, attitudes, practice and barriers among different hospitals, whereas the categorical data were selected data from demographic status of the participants.

Data Collection Methods

A validated questionnaire used for this stud and it is one of the most recent questionnaires used to measure nurses’ knowledge, attitudes, practice and barriers towards to use of EBP in nursing. It was used in Singapore which makes a very useful comparison for our Malaysian study. This self-administrated questionnaire would distribute to nurses during meeting with matron of each site. Nurses answered the questions in questionnaire form without any name written. The instructions were read to the nurses and all the necessary information was addressed in order to avoid ambiguity. Nurses were allowed to ask questions and more explanations were given by the researcher. However, anyone who did not wish to participate in this study was allowed to leave the session. It took approximately 10-15 minutes for participants to complete the guided questionnaire. Below is a flow chart which states the whole progress of data collection.

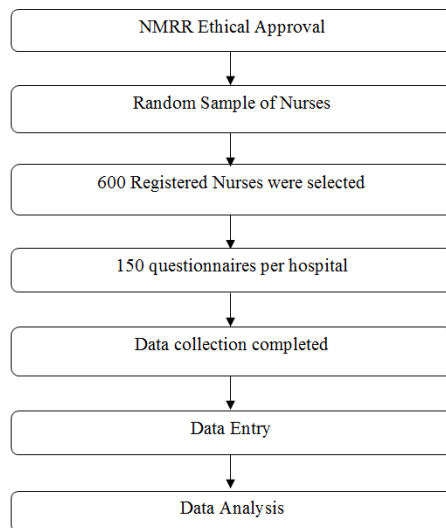


Figure 1. The Schematic Diagram of the Study

Ethical Considerations

This study was conducted after approved by Medical Research & Ethics Committee (MREC) and Research and Ethic Committee,

University Sains Malaysia (USM). The researcher was adhering to the ethical standard guidelines that were set by the Research and Ethical Committee. Ethical approval was required to ensure that the study met the criteria of ethical standards.

3. Results

Table 1 summarizes the demographic characteristics between senior and junior nurses. The percentage of junior nurses who

had certificate or diploma was higher compared to the senior nurses (73.9% and 55.0% respectively). However, the percentage of senior nurses who had post basic or advanced diploma was higher as compared to junior nurses (33.5% and 18.6% respectively). More senior nurses than juniors were having a post as nurse manager (22.7% and 2.9% respectively) and attended the EBP training (52.1% and 33.9% respectively).

Table 1. Demographic Characteristics between Senior and Junior Nurses

VARIABLES	Senior	Junior
	n (%)	
Qualification		
Certificate / Diploma	133 (55.0)	207 (73.9)
Post basic / Advanced Diploma	81 (33.5)	52 (18.6)
Bachelor	22 (9.1)	17 (6.1)
Master	3 (1.2)	1 (0.4)
PhD	2 (0.7)	2 (0.8)
Designation		
Nurse Manager	55 (22.7)	8 (2.9)
Staff Nurse	182 (75.2)	259 (92.5)
Community Nurse	2 (0.8)	11(3.9)
Assistant Nurse	2 (0.8)	0 (0.0)
EBP Training		
Yes	126 (52.1)	95 (33.9)
No	116 (47.9)	85 (66.1)
Discipline		
Surgical	108 (47.4)	135 (54.2)
Medical	106 (46.5)	94(37.8)

There were no significant differences in the mean knowledge score with seniority. Both

group conquered the same mean score with (Mean =0.5, SD =0.50) (Table 2).

Table 2. Comparison of nurses' knowledge on EBP with Seniority

Statements	Junior	Senior	Mean difference	*p value
	Mean (sd)		95% ci	
Total knowledge score	0.5 (0.50)	0.5 (0.50)	0.014 (-0.703, 0.101)	0.751

Table 3 shows there was only one significant difference in the mean attitudes score towards EBP between senior and junior nurses: Senior nurses scored slightly better

than junior nurses for the item: my workload is too high to keep up-to-date with all new evidences (2.4 versus 2.5, p=0.024).

Table 3. Comparison of nurses' attitudes towards EBP with Seniority

STATEMENTS	JUNIO R	SENIO R	MEAN DIFFERENCE	*P Value
	Mean (SD)		95% CI	
1.My workload is too high to keep	2.5 (0.98)	2.4 (0.97)	0.195 (0.026, 0.364)	0.024
2.I don't like people questioning my clinical practices which are based on established methods	3.2 (0.90)	3.2 (1.03)	<0.001 (-0.167, 0.167)	0.999
3.I believe evidence-based practice has only limited utility	3.1 (0.85)	3.1 (0.98)	0.01 (-0.168, 0.149)	0.902
4.I prefer using more traditional methods instead of changing to new approaches	3.5 (0.85)	3.5 (0.92)	0.023 (-0.130, 0.176)	0.767
5.Most research articles are not relevant to my daily practice	3.3 (0.81)	3.2 (1.03)	0.026 (-0.133, 0.184)	0.750
Total attitudes score	15.6 (2.83)	15.4 (3.57)	0.237 (-0.316, 0.791)	0.400

*Independent T-Test

The significant mean differences of practice on EBP with seniority were observed for the statements 1, 2, and 3 (<0.001), (0.005) and (0.028) respectively (Table 4).

Table 4. Comparison of nurses' practice on EBP with Seniority

STATEMENTS	JUNIOR	SENIOR	MEAN DIFFERENCE	*p Value
	Mean (SD)		95% CI	
I am able to:				
1. Identify clinical issues/ problems	3.4 (0.69)	3.6 (0.64)	-0.206 (-0.322, -0.091)	<0.001
2. Translate a clinical issue/problem into a well-formulated clinical	3.2 (0.59)	3.4 (0.66)	-0.156 (-0.265, -0.048)	0.005
3. Distinguish between different types of questions (e.g. intervention, prognosis, harm, and cost-effectiveness)	3.3 (0.61)	3.4 (0.66)	-0.123 (-0.233, -0.013)	0.028
4. Conduct online searches (using databases and Web search engines)	3.2 (0.73)	3.2 (0.87)	0.039 (-0.099, 0.177)	0.581
When reading research article, I am able to:				
5. Relate research finding to my clinical practice and point out similarities and differences	3.3 (0.65)	3.3 (0.71)	-0.025 (-0.142, 0.092)	0.67
6. Use check list to assess research articles	3.3 (0.72)	3.4 (0.72)	-0.066 (-0.191, 0.059)	0.298
7. Read a research report and have a general notion about its strength and weaknesses	3.3 (0.74)	3.3 (0.74)	-0.045 (-0.174, 0.083)	0.490
When applying research recommendation(s), I am able to:				
8. Apply an intervention based on the most applicable evidence	3.4 (0.63)	3.4 (0.70)	-0.058 (-0.173, 0.058)	0.329
9. Evaluate the application of intervention and identify areas of improvement	3.4 (0.66)	3.5 (0.72)	-0.103 (-0.221, 0.016)	0.090
Total practice score	29.8 (4.33)	30.5 (5.04)	-0.757 (-1.567, 0.053)	0.067

*Independent T-Test

Table 5 shows there was no significant difference in the mean barriers score to

adopt EBP between senior and junior nurses for all barriers statements.

Table 5. Comparison of barriers to adopt EBP with Seniority

STATEMENTS	JUNIOR	SENIOR	MEAN DIFFERENCE	*P Value
	Mean (SD)	95% CI		
1.Inadequate understanding of research terms	3.3	3.4	-0.102	0.107
used in research articles	0.65	0.79	(-0.227, 0.022)	
2.Inability to understand statistical terms used	3.3	3.3	-0.059	0.397
in research articles	0.75	0.82	(-0.194, 0.77)	
3.Difficulty in judging the quality of research	3.3	3.4	-0.137	0.044
papers and reports	0.75	0.78	(-0.269, -0.004)	
4.Inability to properly interpret the results of	3.3	3.3	-0.036	0.605
research studies	0.75	0.85	(-0.174, 0.102)	
5.Difficulty in determining the applicability	3.3	3.2	-0.042	0.530
of research findings	0.73	0.78	(-0.089, 0.172)	
6.Inability to implement recommendations of	3.3	3.3	-0.05	0.464
research studies into clinical practice	0.75	0.81	(-0.184, 0.084)	
7.Difficulty in finding time at work place to	3.5	3.6	-0.035	0.623
search for & read research articles and reports	0.84	0.79	(-0.177, 0.106)	
8.Insufficient time at work place to implement	3.4	3.4	0.055	0.454
changes in their current practice	0.8	0.86	(-0.089, 0.198)	
9.Insufficient resources (e.g. equipment,	3.4	3.4	-0.016	0.813
materials) to implement EBP	0.7	0.84	(-0.150, 0.117)	
Total barriers score	30.0	30.3	-0.339	0.445
	(4.66)	(5.43)	(-1.211, 0.533)	

*Independent T-Test

There was a significant effect of hospitals on nurses knowledge on EBP after adjusted (p<0.001). Nurses working in

HSJ had significantly higher adjusted mean knowledge score 0.7 (0.49, 0.86), than those working in HPP had the

lowest adjusted mean knowledge score 0.4 (0.25, 0.62). There was no significant effect seniority on knowledge on EBP

after adjusted mean knowledge score (Table 6).

Table 6. The effect of academic qualification, hospitals, seniority and EBP training on nurses' knowledge on EBP

FACTORS (Knowledge)	Adjusted Mean (95% CI)	F statistics (df)	*p value
Qualification			
Certificate / Diploma	0.5 (0.40, 0.51)	6.213 (3)	0.818
Post basic / Advanced Diploma	0.5 (0.41, 0.58)		
Bachelor	0.5 (0.36, 0.67)		
Master	0.5 (0.03, 1.00)		
PhD	0.7 (0.27, 1.25)		
Hospital			
Hospital Universiti Sains Malaysia	0.5 (0.29, 0.66)	0.444 (5)	<0.001
Hospital Pulau Pinang	0.4 (0.25, 0.62)		
Hospital Abdul Halim Sungai Petani	0.6 (0.42, 0.78)		
Hospital Seberang Jaya	0.7 (0.49, 0.86)		
Working experience (years)			
Juniors (<10)	0.6 (0.40, 0.75)	1.407 (1)	0.236
Seniors (>10)	0.5 (0.35, 0.69)		
EBP Training			
Yes	0.6 (0.39, 0.74)	0.720 (1)	0.397
No	0.5 (0.36, 0.69)		

*Multi-factorial ANOVA. Post hoc test: HUSM and HSJ, p=0.025; HPP and HSJ, p=0.004

4. Discussion

This study found that among the nurses working in 4 different Malaysian hospitals, close to fifty percent knew what the evidence based practice meant. The items assessing the attitude showed a large number of nurses responding that they did neither agree nor disagree. The majority of the remaining nurses tended to show a rather positive attitude except when asked about how the workload interfered with their EBP practice. The practice level of EBP scored a mean of more than 3 out of maximal five for most items. Most nurses recognized there were

many barriers to EBP in their working place. Factors influencing the result significantly after multifactorial analysis were the hospital and the academic qualification of the nurses.

Among the 600 RN who answered the given questionnaires, all were female and mostly were Malay. This most likely reflects the demographics of the nurses working in the four.

The majority of RN was certificate or diploma holder, followed by post basic or advanced diploma holders and bachelors only a minority had Master or PhD. This also may reflect the distribution of nurses within

the hospitals with regards to educational levels. The level of education was quite similar of participants in the four hospitals with an apparent higher number of Bachelor degree holders in HUSM.

With regards to the designation of RN, the majority of the nurse belonged to the group of nurse managers or staff nurses. Only a small minority were community nurses and assistant nurses. This may also be a reflection of the distribution within the selected hospitals.

Among the participants of the study there were slightly more nurses in the medical than in surgical field, which may just be a chance effect following random selection of the nurses. A slightly higher proportion of the study subjects were junior, compared to senior, which most likely reflects the demographics of nurses working in the selected hospitals.

The majority of the RN had never attended any training courses on EBP and many had not even participated in any specific training on the implementation of EBP in patient care. This may reflect the lack of training activities that are going on in the respective hospitals.

Knowledge of nurses

There were significant differences in the mean knowledge score among the four hospitals. The mean differences of knowledge level were significant between HPP and HSJ (0.03). However, there were no significant differences in the mean knowledge score with seniority. Therefore, there was no significant difference between senior and junior nurses could not be rejected.

Knowledge could bring a great influence towards to use of EBP in participating hospitals. Lack of knowledge among RN regarding EBP will affect nurses' confidence to give the best in their clinical practice and decision making in their daily practice (Foo, 2011).

In the Singapore based study that used the same questionnaire as the current study, the knowledge part was not reported in the publication, making direct comparison between the findings of this study and the Singaporean study with regards to knowledge not possible (Foo, 2011).

Attitude of nurses

A significant mean difference in total scores of attitudes was observed among hospitals and the mean differences of attitudes were significant between HUSM and other two hospitals; HASH (0.02) and HSJ (0.01) respectively. There was significant difference in the mean attitudes score towards EBP between senior and junior nurses which is my workload is too high to keep up-to-date with all new evidences (0.024). Therefore the alternative hypothesis was accepted.

In the USA, a study has been conducted among nurses of different educational level, years of experience, and designation and assessed the perceived availability of, attitude towards research, research resources, support, and research use in practice. This study found significant differences ($p < .001$) in the perceived use of research, attitude toward research, availability of research resources, and perceived support for research activities based on educational level and organizational position (Fink, 2005).

Practice of nurses

There were no significant mean differences of total scores of practice among hospitals. But the mean differences of selected statements of practice were significantly different between HUSM and HPP. The mean score for several items was significantly different between junior and senior nurses. This could be because senior nurses are more experienced compare to junior nurses and the number of years practicing is taking account in this matter. However the total scores for practice did not significantly differ according to seniority.

Barriers of Nurses

There were significant differences in the mean barriers score among four hospitals. The mean differences of barriers were significant between HPP and HSJ. There was no significant difference in the mean barriers score to adopt EBP between senior and junior nurses for all barriers statements. There were no significant differences in perceived barriers, according to seniority of nurses.

More than 53% of the nurses either agreed or strongly agreed with the statement that the major barrier to their adoption of EBP was the lack of time at their workplaces to search and read research articles. The next 3 most famous barriers, identified by more than 40% of the nurses, were their inability to understand statistical terms, inadequate understanding of technical jargon used in research articles, and difficulty in judging the quality of research articles and reports.

5. Conclusion

The findings of this study confirmed the suspicion that many nurses still lack in knowledge attitude and practice with regards to EBP in nursing care in all Malaysian hospitals participating in this study. The identified particular items scoring best and poorest and identified barriers to EBP may be useful for hospital and nursing management in Malaysia, as well as in some

other Southeast Asian countries, to develop an appropriate strategy to promote EBP among their nurses and overcoming associated barriers as well as developing comprehensive training programs to improve the literature searching and utilization skills of nurses and other medical professionals.

Health care providers and policy makers are interested in knowing the best way to support EBNP at an organizational level, in order to improve the effectiveness and quality of care. Hence, medical and health care is one of the most dynamic human disciplines, and large amounts of money are spent annually for high quality and sophisticated research, resulting in an exponential growth in care literature.

The Conceptual framework is usually used in research to outline possible courses of action or to present a preferred approach to an idea or thought. Personal attributes which consist of academic qualification, job title, and length of nursing experience, selected hospital, specialty, and training in EBP may influence RN knowledge, attitudes, practice and barriers.

This survey indicates that many nurses in these four government hospitals are not familiar with the term of Evidence Based Nursing Practice (EBNP). The identified gaps in knowledge, attitude and practice and the barriers may help to design proper interventions for increasing EBP practice in the hospitals involved.

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