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Exploring the Factors affecting Implementation of Evidence-Based Nursing Practice in King Fahd Hospital of the University/ Al Khobar/ K.S.A

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Abstract: *Evidence-based practice {EBP} is a valuable tool to the nursing profession that, it involves the problem solving process and help nurses to deliver high quality care to the patients. The aim of this study was to identify the factors related to the hospital and nurses that have effect on the implementation of EBP, the sources of informations used more frequently by the nurses, and perception of nursing leaders and managers for the infrastructure elements that support EBPI.The research was conducted at King Fahd hospital of the University/Al Khobar/KSA. It based on analysis of responses provided by staff nurses and nursing leaders and managers. Two sets of questionnaires were used, one for staff nurses, second for nursing leaders and managers. The study revealed that half of the staff nurses knew the meaning of EBP and have confidence in their skill to formulate clinical question, but little confident in their literature- searching skill. Majority of nursing leaders agreed to the infrastructure elements that support adoption of EBP, but their behavior towards EBP activities is below the average. The most frequent perceived barriers were: time, no authority, lack of knowledgeable mentor, difficulty to access the research articles, and results of research can't be generalized to own setting. Specialty, nationality age and sex were the common variables that have association with barriers related to nurses. Recommendations: Provide the nursing staff with more time to learn and trained them about EBP. Nursing leaders and managers need to be more positive, having training program, support the nursing staff, and create the climate that will foster and promotes the use of research and evidence.*

Keywords: *Clinical question, Evidence- Based Practice Implementation, Infrastructures elements, Mentor, Nursing leaders and Managers.*

I. Introduction

Evidence- Based Nursing Practice (EBNP) is a systematic process by which nurses make clinical decision about the care of the patient, using the best available research evidence, their clinical expertise and the patient's preferences, with consideration of available resources or clinical settings. {1} Nurses constitute the largest group of health care providers and their care influences patient's outcomes. Thus the care provided by the nurses must be based on up-to-date knowledge and research that supports the delivery of the highest standards of care possible. {1} The foundation of EBP is the adoption of large volume of scientifically sound research that had been tested in a way which will allow it to be replicated or reused. The nursing profession has recognized that research is the basis for knowledge development, and evidence- based practice supports this premise. {2} Nursing's participation in research has changed drastically over the last 150 years and holds great promise for the twenty- first century. Nursing researches evolved slowly, from the investigations of Florence Nightingale in the nineteen century to the studies of nursing education in 1930s and 1940s and the researches of nurses and nursing roles in 1950s and 1960s. In 1970s through 1990s, an increasing numbers of nursing studies focused on clinical problems and produced findings that had a direct impact on practice. {3} Clinical research continue to be a major focus for the twenty- first century, with the goal of developing an evidence- based practice for nursing. {3} Nursing research is associated with the founder of nursing profession Florence Nightingale. Her belief was that through observation the nurse can determine the best care for a patient. {4} it was this idea of observation outweighed a trial-and-error approach, is what planted the seeds for the evolution of nursing science and the culture of evidence-based practice. Evidence- based nursing can date back to the 1800s if one considers Nightingale's first steps and forward. Her "Notes on Nursing" was first published in 1859 in England and in 1860 in America. {4} At that time, Nightingale was spreading the word of importance of sanitation in the nursing care, though not entirely true, and lacking scientific fact about germs and bacteria, her observations indicated that: patients are heal faster if the materials used to treat them were clean and if physicians washed their hands. {4} as she worked to guide the medical practices of her day, her idea remained that: "What you want are facts, not opinions".{4} The most important practical lesson that can be given to nurses is to: "teach them what to observe - how to observe - what symptoms indicate improvement -which are of none, which are the evidence of neglect- and what kind of neglect." Also it is widely accepted that the history of nursing research begins with

her studies of environmental factors (1860) that affected the health of soldiers in the Crimean War. [4] Nightingale also used research knowledge to make significant changes in society, such as testing public water, improving sanitation, preventing starvation, and decreasing morbidity and mortality. [4] The most wide quoted definition comes from Sackett [5] who defined evidence- based medicine as: *"The conscientious, explicit and judicious use of current best evidence in making decision about the care of individual patient".* It means integrating individual clinical expertise with the best available external clinical evidence from systematic research.Fineout Defined Evidence- Based Nursing as*: "A systematic process that nurses use current evidence in making decision about the care of individual patients, including evaluation of the quality and applicability of existing research, their clinical expertise, patient's preferences, cost and clinical setting".* [1]

1.1 What Makes EBP Important?

1. Evidence-Based practice is essential for the staff nurses to get acquainted with the available evidence which helps the nurses to provide high – quality patient care based on research and knowledge rather than because " this is the way we have always done it " or based on traditions, myths, hunches, advice of colleagues or outdated textbooks. [6]
2. Evidence- based practice is a frame work for clinical practice that integrates the best available scientific evidence with nurse's expertise and the patient's preferences results in better patient outcomes. This in turn will re- energize the nurses by seeing patients' and clients' positive measuring out-comes, thus It increases work satisfaction. [1]
3. Grounding nursing practice in evidence, rather than tradition, is necessary to meet nursing's social obligation of accountability, to gain and maintain credibility among other health disciplines and to build a nursing knowledge base that can be used to influence policy at agency and governmental level. [7]
4. It can helps nurses by facilitating informed and evidence-based clinical decision- making, helping them to keep updated with technologies, and enabling greater efficiency. These new competencies, in turn can raise nurses' status in multi- professionalism and the profession in general. [8]
5. Also policies and procedures are current and include the latest research, thus supporting JCAHO (joint commission of accreditation for health organizations) readiness, thus allows the health care organizations to position themselves. [1,6]

Implementing evidence-based nursing in health care systems needs elements of structure in place to foster EBP. Examples are: Interventions related to work patterns, skill mix, research support committee, clinical supervision, communication system, quality improvement, management structure, and staff development. [1] To use the EBN process effectively, the nurse should perform an updated literature search on the topic to see if there are any more current research findings in the area. Bridging the gap from research to clinical practice can be accomplished by multiple means. One of the most common is incorporating evidence-based research into an organization's policies and procedures. Although policies can be changed to reflect current guidelines (developed from the evidence), the critical issue becomes the actual change in nursing practice to reflect evidence-based research. For example, the traditional method for verifying the placement of a nasogastric tube was air insufflation. However, according to current nursing research, the accurate method for verifying placement is radiologic examination. [9-10] Despite the advantages of EBNP, researches revealed that nurses prefere to be informed by collegues , rather than using the internet or nursing database , and that most rely on what they learned during their nursing education and from experience. Few nurses appear to use library services, and even when knowledge is aquired through journal reading, it is rarely systematically applied.Very few nurses who surveyed used the health database, Cumulative Index to Nursing and Allied Health Literature (CINAHL). Whoever, a recent study revealed that the sources of nurses' professional information are literature searches, researches, medical journals and reports of controlled experiments. [11-13]

Studies of nurses' attitudes towards research have revealed defferent results. On the one hand, several studies have demonstrated nurses' positive attitudes towards research and agreement that research and evidence-based nursing practice are relevant for their daily practice. [14-16] Others have claimed that evidence in nursing exists, and that EBNP indeed advances nursing practice. [12, 17] Further more, nurses' attitudes towards research were found to be less positive than those of other healthcare professional. [14]In a systematic literature review, a positive correlation was found between practice according to research findings and attitudes toward research, and between educational level and reading professional journals. Moreover those nurses reported being engaged in reading professional journals more frequently than other nurses. [16] A crosssectional survey was conducted among a random sample of 449 nurses in Italy, using a self – administered questionnaire to assess knowledge, attitude and behaviors regarding evidence- based practice. The response rate was 49.0%. Asignificantly high level of knowledge was observed among nurses who a) did not work in medical and surgical words; b) believed that the evaluation of the efficacy of health interventions is needed in their activity; c) believed that the clinical experience must be combined with the evidence; d) attended a course about EBP in the last year; and e) received information from courses and scientific journals. The perceived importance of the application of the guidelines

and protocols was significantly higher among nurses who a) worked in medical words; b) agreed that the guidelines are useful in identifying and selecting interventions; c) believed that the evaluation of the efficacy of the health interventions is needed in their activities ; d) believed that the clinical experience must be combined with the evidence; e) attended a course about EBP in the last year; and f) received information from courses and scientific journals. Nurses were more likely to have modified their practice in the last year if they attended a course about EBP in the last year and if they often/ always read scientific juornals and guidelines. {18}

A researcher paper presents a survey of evidence- based practice among cardiac nurses exploring nurses' attitude towards evidence- based practice and the type of knowledge they employ in clinical practice. The study was a cross sectional survey with descriptive and comparative design, using self administered postal questionnaire. The questionnaires were sent to 33 head nurses and 51 bed- side nurses representing one or two units in each cardiac department in the Denmark. The final response rate was 81%. The study was carried out in 2004. Respondents have a positive attiude towards evidence- based practice, also they relied upon personal clinical experience. Head nurses were statitically significantly more familiar with the concept of evidence- based practice than bed- side nurses, and read significant journals more frequently. Introductory coursec to evidence-based practice are rare and seldom mandatory, and the data suggest that respondents lacked knowledge of the finer points of evidence- based practice and equated the concept with research utilization. Barrier to evidence-based practice are inadequate education, unfamiliarity with English, and low organizational position. Facillitators included the implementation of the guidelines, provision of continuing education, and an increase in the accountability of bed- side nurses. {12}

Determine registered nurses' readiness for evidence- based practice, this was a study title conducted by Thiel L e*t at* {19} ,the study result was: the majority (72.5%) of respondents indicated that when they need information, they consulted colleagues and peers rather than using journals and books, 24% of nurses surveyed used the health database, Cumulative Index to Nursing and Allied Health Literature (CINAHL), the respondents perceived their EBP knowledge as moderate. Cultural EBP scores were moderate, with unit scores beign higher than organizational scores. The nurses' attitudes towards EBP were positive. The post hoc analysis showed many significant correlations. The conclusions was: nurses have access to technological resources and perceived that they have the ability to engage in basic information gathering but not in higher level evidence gathering. The elements important to EBP such as a work place culture and positive attiudes are present and can be built upon. A "site- specific " baseline assessment provides direction in planning EBP initiatives . The nurses' readiness for EBP survey is a streamlined tool with established reliability and validity.

A descriptive survey was conducted with a convenience sample of 160 nurses who were attending EBP conferences or workshops in four states located within the eastern region of the United States. The primary aims of the study were to 1) describe nurses' knowledge , beliefs, skills and needs regarding EBP; 2) determine wether relationships exist among these variables ; and 3) describe major barriers and facilitators to EBP. Results were: Although participants belief about the benefits of EBP were high, knowledge of EBP was relatively low. Significant relationships were found between the extent to which the nurses' practice is evidence- based and 1) nurses' knowledge of EBP, 2) nurses' beliefs about the benefits of EBP, 3) having an evidence- based mentor, and 4) using the Cochrane Database of systematic Reviews and the National Guideline Clearinhouse. {20}

From all these previous studies cited here, the conclusion of the most important factors (organizational and individual) that affected evidence-based nursing practice implementation or adoption, and act as a barriers were: Not having enough authority to change patient care procedures, insufficient time in the job to implement new ideas, lack of resources, lack of knowlegeable mentors, lack of nursing managers support, lack of access to research findings, difficulty in understanding statistical analysis, inadequate access to information technology (IT), limited IT skills, lack of information searching skills, lack of knowledge pertaining to evidence-based practice, lack of support from colleagues, and enormous amount of healthcare literatures published in a variety of sources, which make it almost impossible for individual medical professionals to keep up to date.

1.2 Aim

To explor the factors that have effects on the implementation of evidence- based nursing practice.

1.3 Objectives of the study

1. Identify the factors related to the hospital and the nurses such as education, knowledge, position, specialty and nationality that have effects on the implementation of evidence-based nursing practice.
2. Identify the sources of informations that are used more frequently by the nurses in the clinical care provided to the patients.
3. Explore the perception of nursing leaders and managers about the infrastructure elements that support evidence-based nursing practice implementation.
4. Explore the behavior of the nursing leaders and managers towards activities related to evidence-based practice.

II. Methods

2.1 Research design

The research was a hospital based, descriptive and quantitative study.

2.2 Setting

Study was conducted at the King Fahd Hospital of the University in Al Khobar/ Eastern Province/ Kingdom of Saudi Arabia (K.S.A). This hospital was selected for the study because it is one of the biggest hospitals in the Eastern province that provides medical care in a variety of specialties, and with highest levels. It is a center to learn and practice the concept of preventive services and assistance, and rehabilitation services as necessary elements for the total care of patients, and to make these services available to the community through primary health care. This hospital is referral hospital for the Eastern region. It is a teaching hospital for the colleges of Medicine, Nursing Sciences, and Applied Medical Sciences. The capacity of this hospital is 427 beds for various clinical services. The hospital departments include medicine, surgery, pediatrics, neurosurgery, orthopedics, urology and cardiology. Special services available in the hospital are the burn unit; adults and children intensive care units; endoscopy; adults and children cardiac laboratories; ophthalmology; dermatology; dental laboratories; physiotherapy ;kidney stones lithotripsy units; radiology; physiotherapy; pharmacy; hemodialysis and peritoneal dialysis units in addition to the emergency and outpatient departments. The hospital contains a medical library founded in 1983 to provide services to the medical staff of the hospital and the university staff of medicine, nursing and applied medical sciences. Departments of academic affairs, training and scientific research which are conducting scientific and applied researches in the medical and health sciences. Workforces in the hospital include qualified professional, technical and specialized administrative and highly qualified of Saudis and contractors.

2.3 Populations

The populations of this study were the registered nurses who obtained the qualification of diploma, bachelor or master degree in nursing. The total was 484 of staff nurses and nursing leaders and managers who met the inclusion criteria. They were divided into two categories:

1/ Nursing leaders and managers who have the following titles:

- Director and associate director of nursing services in the central nursing office.
- Nursing supervisors in the quality management and nursing education departments.
- Clinical nursing supervisors in the inpatient care services.
- Nursing supervisors in the ambulatory and psychiatric services.
- Off-shift house supervisors in the central nursing office.
- Head nurses in all wards or units.

2/ Staff nurses in all nursing units and wards, who provide bedside patient care .

2.4 Data collection time

Data were collected between: 15thOct. to15thDec. 2013.

2.5 Data collection tool

Two sets of questionnaires were used to collect data for this study. Draft questionnaires were developed; one questionnaire set was for staff nurses, and the other set was for nursing leaders and managers. The questionnaires were reviewed by an expert team comprising nursing faculties, nursing managers and researches consultant.

First set questionnaire**:** For staff nurses composed of four sections:

a. The first section contains demographic information about the participants.
b. The second section composed mainly of four statements to explore participant's knowledge of EBNP and research, its meaning and their capacity to formulate clinical question, their literature searching skills; on a Likert scale from '1' strongly disagree to '4' strongly agree. And other six statements to check their participation in some EBNP activities.
c. The third section contains sources of information or knowledge frequently used by the nurses in their clinical practice and patient care. The three sources that stated were printed, electronic and human sources.
d. The last section contained:
   - The first part composed of eight barriers related to nurses' knowledge and implementation of evidence-based practice, and
   - The second part composed also of eight barriers related to their health institute or clinical setting.

Second set questionnaire**:** For nursing leaders and managers composed of three sections:

a. The first section contained demographic information about the participants.

b. The second section consisted of twenty of the infrastructure elements which will help in the implementation of EBNP. The section's aim was to explore the perception of nursing leaders and managers to these elements, and, it is a part of their administrative role to assist in provision of these elements.
c. The last section composed of eight statements that aimed to explore nursing leaders' behavior towards activities related to implementation of EBNP.

2.6 Ethical Consideration and Procedure

Ethical approval for this study was obtained from the Institutional Review Board Committee of King Fahd Hospital of the University (IRB).

2.7 Pilot Study

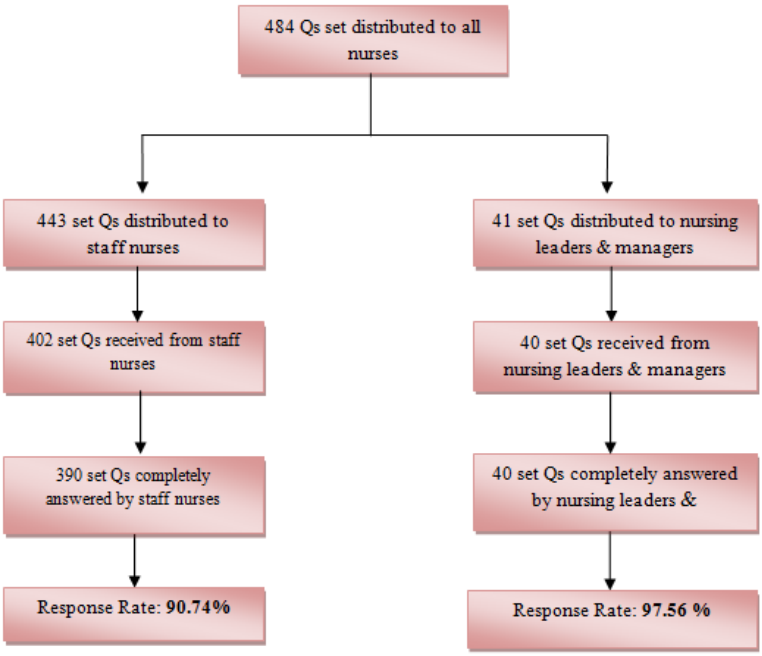
Pilot study was done in the king Fahd Hospital of the University. Twenty questionnaire papers were distributed randomly to staff nurses from different sections and units. And five questionnaire papers distributed to nursing managers and leaders. Completed questionnaire papers were collected back gave response rate of 100%. All the sections were checked and reviewed, it were completely answered and no any comment indicated miss understanding to any part of the questionnaire.

2.8 Reliability

The content reliability and internal consistency of each subsection of the two questionnaires were assessed using Cronbach's alpha coefficients (α).Coefficient values from 0.7 to 0.9 indicate good reliability and are excellent if above 0.9 [21] The Cronbach's alpha of different sections of the questionnaires was between 0.713 and 0.862, indicating that data collected through these questionnaires were reliable.

2.9 Data collection technique

Questionnaires were distributed to all staff nurses and nursing leaders who met the inclusion criteria. {Total were 484}. The two sets of questionnaire copies were handed to the head of each unit or section according to the actual number of her staff in the roster. They were requested to distribute the questionnaire copies to the nursing staff in their respective units and receive back the completed questionnaires. Invitation letter to participate in research and informed consent were attached to each copy of the questionnaire. There was written instruction for nurses to hand back the completed answered questionnaire to the unit head. The response rate is shown in "Fig. 1"



"Fig. 1" Flow chart of response rate

2.10 Data analysis

The data was coded then analyzed by specialized team in the unit of statistic and research at University of Dammam. Statistical package of social sciences (SPSS) version 19.0 soft ware was used. Descriptive

statistics include frequencies, percentages, means, and standard deviations. Chi- square correlation analysis with the significance level set at 0.05 level of significance was used to find associations between nurses' back ground variables and their knowledge about EBNP, their behavior and perception to barriers affecting implementation of EBNP.

III. Results

3.1 First: Staff Nurses

Table 1: Demographic information of staff nurses

Item	Category	Frequency	%
Specialty	General nurse	102	26.2
	Midwifery nurse	31	07.9
	Medical-surgical nurse	51	13.1
	Pediatric nurse	30	07.7
	Intensive care nurse	70	17.9
	Operation room nurse	28	07.2
	Coronary care nurse	17	04.4
	Hemodialysis nurse	21	05.4
	Other	39	10.0
Sex	Male	29	07.4
	Female	361	92.6
Nationality	Saudi	62	15.9
	Non Saudi	326	83.6
	Missing	2	0.5
Age	<34 years	218	55.9
	35- 49 years	11	28.5
	> 50 years	56	14.4
	Missing	5	01.3
Social status	Married with children	220	56.4
	Married without children	45	11.5
	Single	117	30.0
	Widow	03	0.8
	Divorced	04	01.0
	Missing	01	0.3
Education	Diploma	133	34.1
(certificate)	Bachelor	247	63.3
	Master	8	02.1
	Other	1	0.3
	Missing	1	0.3
Number of years in job	Mean & *S.D **Min &*** Max	10.84 0.5	8.35 38

*S.D: Standard Deviation, **Min: Minimum, ***Max: Maximum

Table 2: knowledge and skills of nurses about evidence-based practice

	Numbers are in %					
Statements	**Incorrect**	**Correct**	**Disagreed**	**Agreed**	**Not confident**	**Confident**
Meaning of evidence- based nursing (N= 389)	49.0	50.8				
Nursing practice decisions should be based on research -based evidence (N= 390)			21	79		
Confident in capacity to formulate clinical practice question using PICOT (N= 387)					47.2	52.1
Confident in searching the literature using Boolean "AND""OR" and "NOT" (N=388)					55.9	43.6

Table 3: Association between nurses' variables and their knowledge and Skills about evidence-based practice

	***P* Values * according to nurses' variables**			
Statements	Specialty	Age	Social Status	Education
Meaning of evidence- based nursing	.004	.17 N.S	.003	.25N.S
Nursing practice decisions should be based on research -based evidence	.056 N.S	.007	.22 N.S	0.62 N.S
Confident in capacity to formulate clinical practice question using PICOT	.79 N.S	.013	.25 N.S	0.49 N.S
Confident in searching the literature using Boolean "AND""OR" and "NOT"	.49 N.S	.021	.000	.000

***** Differences were tested with Chi- square test for correlation of variables.

P value Equal to or less than 0.05 has significant association. N.S: No Significant association, *P* values more than 0.05

Table 4: Nurses' participation in some activities related to EBNP

Activity Statement	**Responses (N) in %age**		**Total number**
	Yes	**No**	
Attended educational courses that teach research methods	79.7	20.3	390
Attended presentations symposium or courses related to evidence based nursing practice.	94.9	5.1	390
Apply or propose to apply what you find from the results of Researches.	62.8	36.9	389
Subscribed to one of nursing journals.	32.6	67.2	389
Subscribed to one of nursing research journals.	28.5	71.3	389
Subscribed to journal Club/ nursing Forum.	26.7	73.1	389

Table 5: Means and S.D of print information resources and nurses' responses number in %age

Print information resources	**Mean**	**S.D**	**Use 1- several times /week in %age**
News papers	2.64	1.31	25.1%
Journal articles/ research recommendations	2.66	1.04	19.0%
Pamphlets/ handouts(produced by healthcare companies)	3.12	1.15	34.9%
Textbooks	3.34	1.11	42.8%
Reference books (e.g. medical dictionary, encyclopedias)	3.79	4.42	51.0%

Table 6: Means and S.D of electronic information resources and nurses' responses number in %age

Electronic information resources	**Mean**	**S.D**	**Use 1- several times /week in %age**
On line tutorial provided by professional associations, medical libraries, and overseas hospitals.	2.27	1.21	17.4%
Medical databases (e.g. CINAHL)	2.29	1.20	17.4%
Digital medical and nursing libraries	2.54	1.26	23.1%
Nursing E- Books	2.79	1.29	29.4%
Internet resources, Google websites providing information about specific medicine, treatment or symptoms.	3.89	1.16	66.7%

Table 7: Means and S.D of human information resources and nurses' responses number in %age

Human information resources	**Mean**	**S.D**	**Use 1- several times /week in %age**
Nursing research committee/ Evidence-based nursing group.	2.71	1.23	26.1%
Professional friends work in other hospitals and clinics	3.04	1.23	36.3%
Nursing management staff	3.53	1.19	50.5%
Nursing Supervisor	3.55	1.22	53.9%
Ward colleagues	3.90	1.18	66.4%

Table 8: Means and S.D of using the three information sources (combined)

Information sources	**Mean**	**S.D**
Electronic Information Sources	2.76	0.89
Print Information Sources	3.11	1.16
Human Information Sources	3.34	0.87

Table 9: Frequency of using resources of information and *P* values related to nurses' variables

Sources of knowledge		***P* Values * according to nurses' variables**			
	Sex	**Age**	**Education**	**Nationality**	**Specialty**
News papers	.317 N.S	.130 N.S	.001	.341 N.S	.020
Journal articles/ research recommendations	.890 N.S	.025	.205 N.S	.261 N.S	.000
Pamphlets/ handouts(produced by healthcare companies)	.641 N.S	.912 N.S	.001	.002	.000
Textbooks	.310 N.S	.421 N.S	.326 N.S	.000	.000
Reference books (e.g. medical dictionary, encyclopedias)	.009	.222 N.S	.244 N.S	.007	.006
On line tutorial provided by professional associations, medical libraries, and overseas hospitals.	.607 N.S	.041	.266 N.S	.518 N.S	.009

Internet resources, Google websites providing information about specific medicine, treatment or symptoms.	.317 N.S	.130 N.S	.105 N.S	.341 N.S	.020

***** Differences were tested with Chi- square test for correlation of variables
P value Equal to or less than 0.05 has significant association.
N.S: No Significant association, *P* values more than 0.05

Table 10: Means and S.D of the barriers to EBPI related to nurses and nurses' responses number in %age

Barriers Statements	**Mean**	**S.D.**	**Agreed in %age**
Difficult to read research literatures in English. (* N=390)	1.94	.88	16.7
No support from colleagues in implementing research results. (N =389)	2.56	.93	44.6
Lack of information about research or evidence-based nursing practice. (N=390)	2.59	.97	41.9
Do not know how to select the appropriate research reports. (N=389)	2.60	.91	47.1
Difficult to evaluate scientific articles. (N=390)	2.64	.93	46.7
Difficult to begin change into practice. (N=390)	2.65	.97	48.3
Difficult to access research articles and reports. (N= 390)	2.75	.94	50.5
Results of research are not generalizable to own setting. (N= 389)	2.81	.88	58.7

*****N: Number of participants who responded to each barrier statement

Table 11: Means and S.D of barriers related to hospital / setting and the nurses' responses number in %age

Barriers Statement	**Mean**	**S.D**	**Agreed in %age**
No time in job to read research reports (* N=390)	3.73	1.1	81.3
No authority to change patient care procedure. (N=390)	3.40	1.1	73.8
Lack of knowledgeable mentor or instructor (N=388)	2.93	1.0	61.7
No support or incentives for clinical practice development (N=390)	2.92	1.0	57.5
The rewards for using research results are not worthwhile. (N=390)	2.91	0.9	64.6
No time to get to the library and take advantages of available resources. (N=390)	2.89	1.0	55.1
Administration perceived evidence-based as a low management priority. (N=390)	2.75	0.9	57.2
Difficulty to access research articles and reports (no computer or data base(N=390)	2.69	1.0	47.0

*****N: Number of participants who responded to each barrier statement

Table (12) Demographic information of the nursing leaders & managers

Item	**Category**	**Frequency**	**%**
Position	Executive/ Director/CNO	1	2.5
	Off-shift house nursing supervisor	2	5.0
	Quality management	2	5.0
	Education training	2	5.0
	Clinical coordinator	3	7.5
	Clinical supervisor	8	20
	Unit head- nurse	21	52.5
	Other	1	2.5
Specialty	General nurse	11	27.5
	Midwifery nurse	1	2.5
	Medical-surgical nurse	4	10.0
	Pediatric nurse	3	7.5
	Intensive care nurse	4	10.0
	Operation room nurse	2	5.0
	Coronary care nurse	1	2.5
	Hemodialysis nurse	1	2.5
	Other	13	32.5
Sex	Male	7	17.5
	Female	33	82.5
Nationality	Saudi	14	35
	Non Saudi	26	65.0
Age	<34 years	12	30.0
	35- 49 years	11	27.5
	>50 years	17	42.5

Social Status	Married with children	30	75.0
	Married without children	3	7.5
	Single	6	15.0
	Widow	1	2.5
Education	Diploma	3	7.5
(Certificate)	Bachelor	31	77.5
	Master	4	15.0
Number of years in job	Mean and *S.D **Min and *** Max	18.2 2	9.66 33

*S.D: Standard Deviation, **Min: Minimum, ***Max: Maximum

Table 13: Means and S.D of nursing leaders' perception to infrastructure elements of EBPI and leaders' responses number in %age

Infrastructure elements	**Mean**	**S.D**	**Agreed in %age**
Co- operation among nurses, doctors and healthcare personnel.	4.44	.79	92.5%
Availability of quality improvement committee.	4.31	.86	90.0%
Stated philosophy, values, mission and institutional model, that reflects nursing commitment, to provide evidence-based nursing care.	4.30	.76	95.0%
Yearly staff performance evaluation, including evidence –based nursing practice.	4.27	.82	93.0%
Explaining and stating performance expectations for staff nurse, as it is one of the keys areas when implementing evidence- based nursing.	4.20	.88	92.5%
Conducting programs to increase nurse' awareness of common source of evidence & conducting training in relation to literature searching.	4.20	.94	95.%
Easy access to the nursing leadership by nursing staff.	4.18	1.07	95.0%
Available medical library facilities rich in text books, nursing journal and nursing research journal	4.15	.95	77.5%
Documented need to change clinical practice.	4.03	.90	82.5%
Available help services for searching data bases, and easy access to computer and data base in each unit	4.03	.86	85.0%
Conducting courses that teach research methods and other views of evidence-based nursing practices.	4.00	.93	85.0%
Easily accessible sources of evidence- based nursing guidance and protocols and condensed recommendations.	3.95	.88	77.5%
Dedicated time to learn and practice evidence- based nursing.	3.93	.92	82.5%
Administration perceived evidence- based practice as a management first priority.	3.90	.94	82.5%
Clinical supervision committee that supports evidence- based practice.	3.85	.89	82.5%
Rewards for using research results, and support for clinical practice development.	3.85	1.18	67.6%
Institutional position for nurse researcher, who can organize research committees and conduct regular research meetings.	3.80	.99	75.0%
Establish journal clubs and grand nursing rounds and encourage staff nurses to subscribe.	3.77	.83	75.0%
Availability of budgetary allowances for evidence- based practice education, and evidence- based practice experts in every ward.	3.74	1.29	65.0%
Availability of research support committee.	3.65	.92	70.0%

Table 14: Nursing leaders & managers' behavior towards activities related to Evidence- based nursing practice

Activities	**Numbers in %age**	
	Yes	**No**
Conducted and attended presentations, symposium or courses related to evidence- based nursing practice.	70.0	30.0
Conducted and attended educational courses that teach research methods.	40.0	60.0
Found solutions of researchable problems and urged the nursing staff as well.	45.0	55.0
Gave support for new and innovative ideas for patient care.	70.0	30.0
Provided emotional support through positive attitude and behavior relating to EBPI and support of nurse's autonomy.	62.5	37.5
Subscribed to one of nursing journals.	15.0	85.0
Subscribed to one of nursing research journals.	10.0	90.0
Subscribed to journal club/ nursing forum.	10.0	90.0

IV. Discussion

This study revealed that the majority of the nursing staff in the King Fahd Hospital, who participated in this study, even though they are not actively implementing EBP, they agreed to the fact that decisions of nursing care should be based on research-based evidence. Furthermore, these findings indicated that the nurses recognized the importance of EBP and its potential value for their clinical practice, which was consistent with some previous studies. {17, 19, 22} The study also revealed that only 50% of the staff nurses knew the exact meaning of evidence-based practice. This finding is consistent with a study of Mclnerney and Suleman {23} who revealed lack of knowledge pertaining EBP in a South African institution. And also is consistent with a researcher paper {12} in which the respondents lacked knowledge of the finer points of EBP and equated the

concept with research utilization.One of the challenges for nurses is to know how to ask or formulate clinical question that can be answered, using the acronym PICOT, (P; population, I; intervention, C; comparison intervention, O; outcome and T; time expected) The PICOT format provides an efficient framework for searching electronic databases, it increases the chance that the nurse can find the best evidence in a timely and efficient manner to guide her practice. Also it is very important for the nurse to possess good searching skill and to know how to develop a search strategy that will help her to quickly retrieve current, relevant, and accurate information. One of these strategies of searching is to know how to identify the key words to focus the search, extending or refining the search by using for example: Boolean operators, which will result in more focused and productive results.In this current study; 47.2% & 55.9% of the participants were lacking confidence in formulating clinical question using the acronym PICOT and skill in searching literature using Boolean operators respectively. "Table 2". This is consistent with the study conducted in public hospital in Singapore resulted in that the overwhelming majority of the participants didn't know how to use Boolean in their literature searching.[24]

There was association of the finding with nurses' variables: age, and education. IT indicates that the two groups; 34-49 years age are more confident in their searching skills and in using the computer, comparing to the third group more than 50 years. In relation to the education, nurses who have Master degree were confident in their searching skills, more than those with Diploma and Bachelor degree."Table 3" This finding is consistent with the finding of Lehman and Karen D[25] who found that the level of education to be an important factor in EBP.It is well known that it is so important for the nurse to be knowledgeable and up to date with the knowledge, skills and activities related to EBP and researches. This could be attained by attending symposiums and courses that teach such activities. This study detected that: 94.9% of nurses attended symposiums and courses related to EBP and 79.7% of them attended courses that teach research methods during the last year. On the other hand their subscription to nursing and research journals is very low when it compared to the importance of these activities that tend to increase nurses' knowledge and awareness about research evidence. "Table 4" . This finding is consistent with the finding of a systematic literature reviews [26,16,18] a positive correlation was found between practice according to research findings and attitudes toward research, and between educational level and reading professional journals and attending educational courses related to EBP. Nurses in those studies reported being engaged in reading professional journals more frequently than other nurses, attended a course about EBP in the previous year and received information from courses and scientific journals.

One of the objectives of this study was to identify the sources of information used by nurses in clinical practice and decision-making about patient care, and the frequently of using these sources. Access to relevant, accurate and current information is a critical turning point to the nurses in order to be aware of and up- to- date with the evidence- based researches and studies in the field of nursing.This study found that the main resources of information used by nurses more frequently among human sources are: ward colleagues and nursing supervisors. "Table 7" with less frequently to other human resources . This finding is consistent with Thiel [19] study which found that: the majority (72.5%) of respondents indicated that when they need information, they will consult colleagues and peers rather than using journals and books. Table (5&6) show nurses' less frequently uses of those resources.In this current study, the more frequent nurses' background variables that showed association with how frequently they use print information resources are: specialty and nationality "Table 9". The Coronary Care (C.C) nurses are the group who are more frequently using text books and reference books followed by hemodialysis and medical- surgical nurses. Non- Saudi nurses are using text books, handout, and reference books more frequently than Saudi nurses. In electronic resources, the only variable that showed association was the social status. The single age group was the one who more frequently using the internet resources.In relation to education, what was detected in this current study that: education has no association with the nurses' behavior towards EBP or frequently uses of information resources"(Table 9" This finding was consistent with study conducted in Taiwanese nursing homes. [25] At the same time it was inconsistent with a study conducted in Australia, which found that completion of university subjects on nursing research was significant in determining positive attitudes and knowledge of research. [26] Moreover, in this current study there was only eight nurses who had Master degree in nursing, the overwhelming numbers of nurses had Bachelor degree, least were nurses who had Diploma in nursing. Whereas high proportion of Australian nurses who participated in that study had master degree in nursing or higher level of education.Although the literatures had mentioned the importance and benefits of EBP and different models had been established to facilitate its actualization and implementation; at the same time literatures revealed many factors that act as barriers to EBPI. These factors are related either to nurses or to the hospitals/ settings.The most common barriers affecting EBPI related to nurses that identified in this current study and it is consistence with previous studies were: difficulty in accessing research articles, the results of research are not generalizable to own setting, difficulty in beginning changes into practice, difficult to evaluate scientific articles, and no support from colleagues. "Table10"

Organizational context has been described as the setting in which practice occurs, but it is sought to be more than a mere back drop to practice, instead it is an interacting factor in practice .The role of the organization is now viewed as integral to the long-term success of EBP .Some of the hospital factors are related to infrastructures and resources, but there are also issues of professional power and boundaries. [27- 30] Barriers related to hospital that detected in this study were: no time, lack of knowledgeable mentor, lack of enough authority, administration is not perceive EBNP as first priority ."Table 11" The associated nurses' variables are: sex, nationality and specialty. Lack of authority is concurs with the study of Chang [25] and as he mentioned others findings that it may relate to the low status and autonomy of nurses across all of the countries investigated. [31- 32] As Olade [33] argued; nurses' general lack of power and authority might emanate from a tradition in which nurses didn't question nursing practice but instead focused on tasks set for them by colleagues in management positions or by medical staff.

Health care systems need some elements of the infrastructure that would promote and assist in the implementation of evidence-based practice. As leaders and managers and executives of nursing they are a cornerstone and the most responsible for the training and preparation of nursing staff for the implementation of nursing practice. The current study found that managers and leaders of nursing in this hospital / King Fahd Hospital of the University are aware of and agree on the elements of infrastructure that are important in the implementation of evidence-based nursing practice, as well as it is part of their administrative role to ensure the availability of these elements. "Table 13" This finding is very important and it might help in directing and guiding nursing managers and leaders to plan the adoption and implementation of EBNP. At the same time it helps to make use of the available facilities and resources within the hospital and start igniting the spark of adoption of evidence-based practice.While EBP is specifically related to developing practice, it is not the exclusive responsibility of practitioners. Nursing Managers have been shown to have critical role in the management of change, which encompasses EBPI. [27] No doubt that the positive behavior of the nursing leaders and managers towards EBP will be reflected on the practitioners' behavior.In this current study, the nursing managers and leaders' responses to statements about their behavior or their participation in certain activities related to implementation of EBNP were below the average. "Table 1" Although these activities are extremely important for the nursing managers and leaders to be part of it and to practice it to be up- to- date with the research evidence in order to urge and support their nursing staff and provide them all necessary facilities which in turn help in the adoption and implementation of EBNP.

V. Conclusion

This descriptive quantitative study is one of the first studies that conducted in one of the biggest hospitals in the Eastern province in the K.S.A. King Fahd Hospital of the university in Al-Khobar. The study aimed to explore the factors affecting evidence-based practice implementation, information sources that nurses are using more frequently in the care provided to the patients, barriers affecting EBPI, literature searching skills, and behavior of nursing managers and leaders towards activities related to EBP, also the relation of these factors to nurses' back ground variables.Overall the findings among staff nurses and nursing managers and leaders were in line or concur with these previous studies that investigated nurses' behaviors, knowledge, literature searching skills, and barriers towards implementation of evidence- based nursing practice, in Western and non Western countries.This study revealed that: nurses have positive behavior and perception towards EBNP, some variables related to nurses like nationality, age, specialty, and sex have relation with factors affecting EBP implementation. Almost half of the nurses are lacking knowledge about EBP and lacking confidence in their skills to formulate clinical question and searching literature. The preferable resources of information were: ward colleagues and nursing supervisors. Factors identified as barriers include: time restrain, lack of knowledgeable mentor, lack of authority, lack of support from colleagues, difficulty in accessing the evidence and to some extend difficulty in reading research article in English.One other important point that: nursing leaders were agreed over the importance of infrastructure elements that are needed to implement EBNP. But their behaviors towards activities related to EBNP are below the average.

5.1 Recommendations

1. Nursing leaders and managers need to support their nursing staff through provision of more time for training and education about EBP and research. Also need to create the culture of EBP and be more positive in their behaviors towards EBNP in order to support their front line staff.
2. Make educators and mentors available to provide such classes and workshops about the components of evidence- based practice, statistics and basic principles and concepts of researches and their implementations, and how to use the appropriate findings into their clinical practice.
3. Provide opportunities and permission for the nurses to change and modify the nursing care and clinical practice; at the same time strengthen their beliefs about the benefits of EBP and how it will help improve their patients' outcomes.

4. Nurses need to be encouraged from administrators and managers to be involved and participate in certain activities related to EBNP, and to have representatives in the available committees of evidence- based practice and research within their organization.
5. Librarians need to be involved in teaching and training to improve searching skills, and help to make use of the available electronic resources and data base.
6. Provision of intensive training program about EBPI; to target group composed of staff nurses and managers

5.2 Strengths

The strengths of this study that have implications for policy and practice:

1. Evidence- based practice is multifaceted process. This study detected the factors that are related to both nurses and hospitals which have effect on EBPI. And association between these factors and nurses' background variables.
2. This study detected the behavior of nursing leaders and managers towards activities related to EBP and their perception to infrastructure elements that are essential to EBPI. Because the staff nurses alone will not be able to implement EBP unless they are supported by their nursing managers and leaders.

5.3 Limitations

The limitations of this study that: it was conducted only in one University hospital in Al-Khobar/ Eastern province of K.S.A because of the systems and permissions.

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