Nurses' Perception of Evidence-Based Knowledge, Attitude and Practice: A Quantitative Study in Teaching Hospitals

Rohollah Kalhor[1], Mohammad Azmal[2], Omid Khosravizadeh[3], Saeideh moosavi[4], Maryam Sadat Asgari[5], Fatemeh Gharaghieh[5*]

[1] Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran
[2] Chancellor of Treatment Affairs, Bushehr University of Medical Sciences, Bushehr, Iran
[3] Health Management and Economics Research Center, Iran University of Medical Sciences, Tehran, Iran
[4] Occupational Health Department, School of Health, Qazvin University of Medical Sciences, Qazvin, Iran
[5] Health Services Management Department , School of Health, Qazvin University of Medical Sciences, Qazvin, Iran

A R T I C L E   I N F O

*Corresponding Author:
Fatemeh Gharaghieh
Health Services Management
Department , School of Public
Health, Qazvin University of
Medical Sciences, Shahid
Bahonar Blv., Qazvin, Iran.

Email:
f.gharaghieh@yahoo.com

Tel:
+ 98- 2833369581

A B S T R A C T

Background: Providing healthcare services of the highest quality and quantity, based on the results of scientific research, is one of the main tasks of nurses. The aim of this study is to evaluate nurses' perception of evidence-based knowledge, attitude and practice in selected hospitals of Iran.

Methods: This study was a descriptive cross-sectional analysis that was conducted to investigate nurses' perception of evidence-based practice (EBP). Two hundred-and-sixty nurses were selected randomly from six hospitals in Qazvin city in Iran to participate in the study. An evidence-based practice questionnaire was used to assess the dimensions of EBP. Descriptive and inferential statistics using frequency tables, t-student statistics, Pearson correlation coefficient and ANOVA were used for data analysis.

Results: According to this study, nurses' perception of EBP was generally above average (3.91 out of 7) and average of Practice, attitude and knowledge/skills were 4.14, 3.78 and 3.74 respectively. There was no statistically significant relationship among EBP dimensions and gender, age and job tenure (P-value > 0.05). There was a statistically significant relation between attitude of nurses and type of employment (P-value < 0.05).

Conclusion: In this study, the mean of evidence-based practice among nurses was at a level higher than the average. The attitude of the nurses who were studied was moderate, but thanks to the low level of their knowledge about EBP, training programs based on needs assessments resulting from the findings of this study were suggested that could improve nurses' knowledge of EBP.

Keywords: Evidence-Based Practice; Nurses' Knowledge and Skills; Nurses' Attitudes; Teaching Hospital

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Introduction

Care is considered a fundamental component of health services. In between all care provided in medical environments (such as hospitals), nursing care is of particular importance (1). That is why the provision of quality care and services has been sought as a priority in the healthcare system, especially with regard to nursing services (2).

Nurses are expected to provide care services with the highest standards of quality and quantity based on scientific findings. They always acquire the required ability for clinical decisions in providing care by reviewing the care procedures ability (3). In healthcare, evidence is defined as knowledge available to decision-makers and provides scientific evaluation of Practice. Evidence-based practice emerged as a marker for the quality of healthcare that is vital to improve the system (4–5). Nurses in health agencies should use evidence-based Practice and research to assess and enhance their skills. They must formulate and implement policies and procedures, perform effective clinical interventions, and provide care plan to improve patient outcomes (6). Evidence-based practice is a problem-solving approach to provide services and healthcare so that the best evidence of studies and data related to care of patients is integrated with experience of service providers and patients' preferences and values (7). The findings of the studies suggest that evidence-based practice entails benefits such as improved quality of care as well as the consequences. In addition, creation of positive results in clinical practice and desirable outcomes of patient care, standardization of care and increased satisfaction with nurses are other benefits of evidence-based practice (8). However, the implementation of evidence-based practice has been challenging (9). Several studies have shown that generally, perception of nurses as regards EBP is positive, considering it is important to deliver more quality care to patients. However, acceptance and its implementation are slowed (10). Unfortunately, only a small percentage of nurses work in the context of evidence-based practice (11). Investigations conducted reveal obstacles in the application of evidence-based practice in clinical nursing (12).

The results of a study in Iran (13) showed that the main barriers to using research are not having time to read and gain in-depth knowledge, inadequate facilities, and lack of sufficient authority to change nursing procedures. In addition, the findings classify facilitators in two main groups of human resource and individual/organizational factors. Pravikof et al. (14), in a study of 760 clinical nurses across America, found that nurses often seek information from colleagues rather than journals. In this study, more than half the nurses do not apply research reports in clinical decisions, and 82 % of them never use the library in hospitals. Another study (15) in America showed that evidence-based practice among nurses in terms of Practice, attitude and knowledge/skills are 4.49, 5.15, 4.56 out of 7. In a study by Cohen et al. (16), participants gained an average score in Practice and attitude of EBP. Average score of knowledge/skills were somewhat lower. Two obstacles cited for the implementation of evidence-based practice included time and knowledge. According to the information, considering the importance of EBP in nursing practice and its impact on the quality and effectiveness of patient care, and noting that no research work has been done in this field in Qazvin teaching hospital, the aim of this study is to evaluate the perception of nurses of Qazvin teaching hospital in evidence-based practice, including their knowledge, skills, attitudes and usage of EBP in 2014.

Materials and Methods

This study is descriptive-analytical, and has been conducted cross-sectionally in six hospitals in Qazvin among 260 nurses working in the abovementioned centers. Stratified random sampling method was used and it was based on the number of nurses in each center. To collect data, evidence-based practice questionnaire (EBPQ) designed by Upton and Upton measuring nurses' perception about evidence-based Practice was used

(12). The tool consists of three subscales: knowledge/skills, attitudes and usage, and holds 24 items that are in the Likert seven-point scale (often with a score of 7 and never with a score of 1).

In this study, the use of face validity was obtained using experts of the nursing discipline and reliability of the questionnaire was obtained by calculating Cronbach alpha by completing 30 questionnaires in 0.81. Data analysis was performed using $SPSS_{16}$ software for this purpose, descriptive and analytical statistics such as t-test, one-way ANOVA and Pearson correlation coefficient were used.

$$n = \frac{\frac{(z_{1-\frac{\alpha}{2}})^2 pq}{d^2}}{1 + \left[\frac{1}{N}(\frac{(z_{1-\frac{\alpha}{2}})pq}{d^2} - 1)\right]}$$

N = 781
P = 0.5, q = 0.5
d = 0.05

The current study was performed on 781 nurses working in these centers. On the basis of the formula, the sample size was calculated as 257 people by considering the design effect (design effect = 1.20). The final number of the sample was 308 individuals. The number of samples from Shahid Rajaie Hospital was 66, Kausar and Bu Ali 41 and 107, Qods 44, Velayat 38 and 22nd of Bahman hospital had 12 individuals. Finally, 260 completed questionnaires were returned to the researchers. Accountability was 84.4 %. It should be noted that the questionnaire was completed after obtaining the consent of the participants.

Further, in the current study all ethical issues were observed based on the Helsinki Declaration.

Results

In total, 260 nurses from six hospitals under the supervision of Qazvin University of Medical Sciences participated in the study. Table 1 shows the general characteristics of the participants in the study. The age average of subjects was 31.9 years and most of the people were in the age group of 30 to 39 (45.7%). The average work experience of the subjects was 8.1 years; the highest record of work experience was 1 to 4 years (33.8 %). In terms of type of employment, 45 % were contractual and 28.8 % official. The rest were projective (15.4 %) and conventional (10.8 %).

Table 2 shows frequency of response of study participants on EBP questionnaire. According to the findings of the table, overall average evidence-based practice among nurses is 3.91 out of 7. Meanwhile, the sub-scale of Practice and attitude has had an average higher than the sub-scale of knowledge/skills. Among other items after Practice, the highest average was related to "assessment of Practice consequences" at 4.51, and the lowest average was for "critical evaluation of the evidence" at 3.52.

According to the findings of Table 3 obtained by conducting Pearson test, with a significance level of less than 5%, the results showed that there is no significant relationship among the dimensions of evidence-based practice (knowledge, attitude and practice) with age and work (P-value > 0.05).

According to the findings of Table 4 obtained by conducting the *t*-test, the results showed that there is no significant difference between the dimensions of evidence-based practice (knowledge, attitude and practice) in men and women (P-value > 0.05).

On the other hand, according to the findings of Table 5, obtained by conducting one-way ANOVA test, the results showed that there is no significant difference between the dimensions of evidence-based practice (knowledge and practice) and the type of employment of the subjects (P-value > 0.05). However, a significant relationship was observed between attitude of subjects and types of employment (P-value < 0.05).

Table 1. Demographic features of studied nurses

Variable	Sub-group	Number	Percentage (%)
Age (31.9)	20-29	106	40.8
	30-39	119	45.7
	40 <	35	13.5
Gender	Male	18	6.9
	Female	242	93.1
Work Experience (8.17)	1-4	88	33.8
	5-9	81	31.2
	10-14	48	18.5
	15-19	34	12.7
	20 <	9	3.8

Table 2. Mean and nurses answer questions on knowledge, attitude and practice of using evidence

Practice (4.14)	Mean 4.14 ± 1.2		Never 1	2	3	4	5	6	Frequently 7
Formulating answerable questions	4.02	Number	21	34	55	49	36	40	25
		Percentage (%)	8.1	13.1	21.2	18.8	13.8	15.4	9.6
Use of related evidence	3.90	Number	14	41	55	53	57	25	15
		Percentage (%)	5.4	15.8	21.2	20.4	21.9	9.6	5.8
Critical assessment of evidence	3.52	Number	19	57	60	63	29	18	14
		Percentage (%)	7.3	21.9	23.1	24.2	11.2	6.9	5.4
Integration of evidence	4.37	Number	6	24	51	61	50	42	26
		Percentage (%)	2.3	9.2	19.6	23.5	19.2	16.2	10
The outcome of Practice evaluation	4.51	Number	6	20	45	64	47	43	34
		Percentage (%)	13.1	16.5	18.1	24.6	17.3	7.7	2.3
To share information with colleagues	4.49	Number	5	28	40	63	41	51	32
		Percentage (%)	1.9	10.8	15.4	24.2	15.8	19.6	12.3
Attitude	**Mean 3.87 ± 1.4**		**Negative 1**	**2**	**3**	**4**	**5**	**6**	**Positive 7**
Lack of time due to workload rather than devoting time to evidence	3.04	Number	82	46	32	45	16	13	26
		Percentage (%)	31.5	17.7	12.3	17.3	6.2	5	10
resentment rather than embracing the questions about Practice	3.86	Number	50	37	37	34	29	24	49
		Percentage (%)	19.2	14.2	14.2	13.1	11.2	9.2	18.8
wasting time of EBP instead of urgency for the functioning	4.72	Number	23	26	30	34	34	36	77
		Percentage (%)	8.8	10	11.5	13.1	13.1	13.8	29.6
Applying the old ways instead of Change	3.86	Number	42	40	46	32	32	23	45
		Percentage (%)	16.2	15.4	17.7	12.3	12.3	8.8	17.3

Knowledge/skill	Mean 74 ± 1.1		Poor 1	2	3	4	5	6	Best 7
Research skills	3.08	Number	56	52	46	54	35	7	10
		Percentage (%)	21.5	20	17.7	20.8	13.5	2.7	3.8
Information technology skills	3.50	Number	25	49	62	59	34	22	9
		Percentage (%)	9.6	18.8	23.8	22.7	13.1	8.5	3.5
Monitoring and review of Practice skills	3.90	Number	19	33	45	72	54	24	13
		Percentage (%)	7.3	12.7	17.3	27.7	20.8	9.2	5
Changing Information needs to a research question	3.15	Number	42	46	72	53	30	13	4
		Percentage (%)	16.2	17.7	27.7	20.4	11.5	5	1.5
Knowledge of a variety of information sources	3.62	Number	24	38	61	65	45	16	11
		Percentage (%)	9.2	14.6	23.5	25	17.3	6.2	4.2
The ability to detect defects in professional practice	3.95	Number	18	28	51	74	43	34	12
		Percentage (%)	6.9	10.8	19.6	28.5	16.5	13.1	4.6
Knowing how to renew information	3.50	Number	29	38	66	59	41	22	5
		Percentage (%)	11.2	14.6	25.4	22.7	15.8	8.5	1.9
The ability to critically analyze different evidence with standards	3.57	Number	19	49	54	71	41	21	5
		Percentage (%)	7.3	18.8	20.8	27.3	15.8	8.1	1.9
The ability to use authentic information.	3.78	Number	20	36	49	70	52	23	10
		Percentage (%)	7.7	13.8	18.8	26.9	20	8.8	3.9
The ability to determine the usefulness of the applicable materials and methods	3.87	Number	20	27	61	65	46	28	13
		Percentage (%)	7.7	10.4	23.5	25	17.7	10.8	5
The ability to use information on individual cases	3.99	Number	18	30	50	58	61	28	15
		Percentage (%)	6.9	11.5	19.2	22.3	23.5	10.8	5.8
To share ideas and information with colleagues	4.25	Number	21	16	49	52	56	44	22
		Percentage (%)	8.1	6.2	18.8	20	21.5	16.9	8.5
To share new comments about care with colleagues	4.06	Number	29	25	46	48	49	40	23
		Percentage (%)	11.2	9.6	17.7	18.5	18.8	15.4	8.8
Ability to revise own Practice	4.19	Number	21	18	47	61	50	44	19
		Percentage (%)	8.1	6.9	18.1	23.5	19.2	16.9	7.3

Table 3. The relationship of age and work experience of subject nurses with knowledge, attitude, and evidence-based Practice.

Variable	Number		Correlation Coefficient*		P**	
	Age	Work Experience	Age	Work Experience	Age	Work Experience
Knowledge/Skills	259	260	-0.061	0.012	0.329	0.844
Attitude	260	260	0.111	0.059	0.073	0.345
Practice	259	260	0.002	-0.083	0.973	0.181

*Pearson Correlation Coefficient
**Significant at the 0.05 level

Table 4. The relationship of gender of the subject nurses with knowledge, attitude, and evidence-based Practice

Variable	Gender	Number	Mean	Test Statistic	Freedom Degree	P
Knowledge/Skills	Male	18	4.10	-0.103	257	0.918
	Female	241	4.13			
Attitude	Male	18	3.77	0.273	258	0.785
	Female	242	3.87			
Practice	Male	18	3.29	-1.673	257	0.096*
	female	241	3.77			

*Significant at the 0.05 level

Table 5. The relation of employment type of the nurses studied with knowledge, attitude, and evidence-based Practice

	Number	Test Statistic	P
Knowledge/Skills	258	1.185	0.234
Attitude	259	1.841	0.013*
Practice	259	1.119	0.275

* Significant at the 0.05 level

Discussion

In the current study, the overall mean of evidence-based practice among nurses was at a higher level than average. Meanwhile, subscales of knowledge/skill (3.74) and attitude (3.87) showed lower averages compared to subscale of Practice (4.14). The findings of the study are aligned with the findings of Nader Khah et al. (5), Shafie et al. (17), and Apton (18). Moreover, the findings are aligned with the findings of Cohen et al., in which participants obtained an average score in Practice and attitude of EBP (16). In his study, Tel evaluated the level of knowledge and attitude of respondents to be at an average and positive level

(19). On the other hand, among other items after Practice, the highest average was related to "assessment of Practice consequences" at 4.51, and the lowest average was for "critical evaluation of the evidence" at 3.52. In a study by Brown (15) and Shafiee et al. (17), "critical evaluation of evidence" was the first priority. In the study by Adib (20), only 46% of nurses used research evidence. In addition, in the study by Vali Zadeh (21), the rate of using evidence-based practice was low among nurses, and this finding is not aligned with the findings of the current study. In the study by Majid (22), the rate of using evidence-based practice was average. Moreover, in the study by

Dehghani (10), more than half of the nurses had average Practice. Among the items after attitude, the highest average was related to "wasting time of EBP instead of urgency for the functioning" at 4.72, and the lowest one was related to "lack of time due to workload rather than devoting time to evidence" at 3.04. The findings were not compatible with the findings of Shafie et al. (17), in which the highest priority to be considered was "applying old methods instead of change". In the study by Dehghani (22), the majority of the nurses had a positive attitude and a few had average attitude. In the study of Nebet (23) in Australia, 95.7% of subjects had a positive attitude. Among the items, after knowledge/skill, the highest average was related "to sharing ideas and information with colleagues" at 4.25 and the lowest average was related to "research skills" at 3.08. In this dimension, findings of the current study are compatible with the findings of Shafie et al. (17), in the findings of Brown (15), this item is at the second level. Results of Dehghani's study (22) in special care ward indicated that nurses have had low and average awareness. In the study by Agha Hosseini (24), a high percentage of nurses had low and average awareness and this result is aligned with the results of the current study. In addition, in the study by Behtsvani (25), more than half the people evaluated their awareness as being at a low level in this field. In the study by Mac Klaski (26) in Australia, it was shown that 39 % of the studied occupational therapists reported their awareness to be low, 42 % reported it as average, and 18 % reported it to be high.

Conclusion

According to the findings, the status of the studied nurses in three dimensions is average. Increasing nurses' knowledge of basic concepts of search and how to achieve the best training, as well

as holding appropriate training programs based on the findings of the study and considering improvable points of nurses, are recommended.

The training can also be incorporated in the curriculum of nursing students so that after graduation, they use it properly, so as to boost their Practice. Moreover, training programs based on learning needs assessment will persuade managers to support these programs. Since there are barriers to implementing evidence-based practice, identifying the barriers and adopting strategies to overcome these obstacles could facilitate its implementation and improve the effectiveness of the program. In this regard, creating organization infrastructure and required recourses, including human, physical and financial resources, can be helpful. One of the limitations of the current study is that the findings have been collected and analyzed in training hospitals of Qazvin medical university; therefore, they cannot be generalized for non-training, private and other hospitals.

Conflict of interests

The authors declared no potential conflict of interests with respect to the authorship and/or publication of this paper.

Authors' contributions

All the authors had a role in designing the study. Kalhor R, Azmal M and Khosravizadeh O had the role in conducting the data analysis and interpretation of data. Moosavi S, Asgari MS and Gharaghieh F contributed to the data acquisition and write the preliminary draft of the manuscript.

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