

Full Length Research Paper

Evidence-based information resources management skill among Iranian residents, internship and nursing students in urgent care

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Information management skill refers to use of available, up to date and valid information sources, that are associated with patient care and are available during care. The advent of the Internet and electronic resources solve some of the physical information access problems and provide an opportunity for all care providers to have access to a wide range of research evidence. But urgent care in environments such emergency departments affect on the care is team's information management. This study showed how residents, internships and nursing students were using various information resources in particular evidence-based resources for their clinical decisions. The findings showed that urgency situations caused few populations the use of evidence based resources; and most of them preferred human and print information resources. It is important that information management skill in stressful environments is taught.

Key words: Evidence-based, information, management, skill.

INTRODUCTION

The need for quality health care services based on effective interventions as well as increasing demands on healthcare services provided impetus towards the provision of evidence-based practice (Palfrey et al., 2004). Over the past two decades, there has been a shift in healthcare towards practice that embraces evidence over tradition. This shift has started a discourse in education, practice, and administration for the need to develop initiatives to create and sustain practice that is based on high quality evidence (Levin and Feldman,

2006). Nowadays medical sciences universities teach the skills of retrieval, management and the use of patient-related information for clinical decisions (Dorsch et al., 2004). Information management skill means the ability to effective use of the increasing volume of medical information helping to clinicians in patient care (Pluye and Grad, 2004). The skill refers to use of available, up to date and valid information sources, that are associated with patient care and are available during care. These information resources are essential for effective therapeutic interventions (Shaughnessy and Slawson, 2009). For implementing of evidence based practice (EBP), information sources should be evaluated (Slawson and Shaughnessy, 2005). EBP means clear, precise and intelligence using of the best external clinical evidence in decisions about the care of patients through the systematic search in information resources (Joy and Benrubi, 2004). This approach helps clinicians to manage

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Abbreviations: **EBP**, Evidence based practice; **EBM**, evidence based medicine; **PDA**, personal digital assistant.

the types of information related to the patient. Today many medical schools teach evidence-based learning and students promote their qualifications and competences in treatment of patients by EBP (Aiyer et al., 2002; Slawson and Shaughnessy, 2005; Shaughnessy and Slawson, 2009). Many clinicians believe that the appropriate use of information resources in EBP, improves patient care (McColl et al., 1998). In stressful, high precision and non predictable environments such as emergency cases, care team must immediately and clearly resolve their information needs. During patient visits, doctors and nurses do several operations such as relationship with other partners who have already visited the patient, an overview of patient's information, registration results, planning and clinical decisions, education to patients and communication with people who are responsible for patient care (Teich and Waeckerle, 1997; Reddy and Ruma, 2006). Clinicians in emergency environments should manage the operations related to patient care inside and outside of the emergency department. Normally these operations affect clinicians' information search behavior (Reddy and Jansen, 2008). In most urgency cases, the goal is to identify patient problems and often there is little information about the admitted patient. Therefore, the most common clinical questions are guided to the patient (Ardahali, 2002). In these cases, information access methods are discussed. Access to information may be performed in many forms, such as searching the computer or book, formal and informal consultations among healthcare personnel. The last contains the most requested information and the most, staff working time (Tang et al., 1996). Several studies have been conducted about information seeking behavior of residents, medical students (Ramos et al., 2003; Green and Ruff, 2005). Studies have shown that nurses need a wide variety of health information to satisfy their educational and clinical needs. Because of time constraints, many healthcare workers prefer valid and convenient information resources (Dee and Blazek, 1993; Lathery and Hodge, 2001). Studies have shown that supervisors, colleagues and other healthcare providers, especially physicians are preferred as information sources of nursing staff (Fakhoury and Wright, 2000; Cogdill, 2003). In Iran between the years 2001 and 2003, evidence based medicine (EBM) movement was started to improve education and documented medical services in support of patients, community health promotion and to update Iranian teachers and students. Numerous national and international seminars and conferences about EBM were held in medical sciences universities. Nowadays in some medical universities in Iran, there many centers called EBM. Also several books and articles in relation to EBM have been written. In Semnan university of medical sciences, many courses in relation to EBM for all residents and medical and nursing students have been held. According to the development of EBM education in

the country and the Semnan universities of medical sciences, several questions were introduced to us about the use of residents, medical and nursing students of evidence based information resources in clinical environment, especially in stressful environments such as the emergency setting. Therefore, in this context there are several questions such as what information sources do residents, interns and nursing students use for clinical decisions and for patient care in the emergency environments? Do they often use colleagues or interact with other information resources? Do they use evidence based information sources for clinical decisions? What are barriers in using some information resources? The answer to these questions can have influence on patient and community health, organizational improvement of educational institutions and services, and information provision.

MATERIALS AND METHODS

This descriptive and analytical study was done to identify the behavior of nursing students, internships and residents using information resources in the emergency departments of three teaching hospitals in two medical universities (Islamic Azad university and Semnan university of medical sciences) Semnan, Iran in 2010. In this study, questionnaire was used. Following a review of the literature, a survey instrument was developed that included questions related to demographics, and current use of information resources with particular emphasis on electronic resources. For content validity, the initial questionnaire was reviewed by a group of experts in medical and nursing informatics and library areas. The questionnaire was reviewed regarding the suitability, the accuracy and its relationship with nursing and medical roles. The questionnaire was rewritten based on experts' recommendations. A pilot version of the questionnaire was sent to 20 randomly selected students. Inter-rater reliability was 92%. The final version of the anonymous questionnaire was given to all students rotating through the emergency departments (n=210). The 20 pilot study participants were excluded. A cover letter described the aims of the study, explained that response to the survey implied consent to participate, and assured participants that all individual responses would be kept confidential. The data for analysis were obtained from the questionnaire. The questionnaire had three parts. 1) Demographic data (age and sex), 2) A list of human, print and electronic information resources such as patient, physician, books and electronic journals etc. In this section of the questionnaire, the population was asked how they use these information resources (daily, weekly, monthly, and never)? Use frequency of information sources were graded, respectively, (daily=4, weekly=3, monthly = 2 and never=1) and 3) Factors affecting the lack of use of electronic information resources. Analysis of questionnaire data was conducted using statistical package for the social sciences (SPSS), Chi-square, two-tailed, t-test and two variable correlation tests were used to investigate significant relationships among the data.

RESULTS

Population included 140 nursing students, 32 interns and 38 residents (Pediatric, Gynecology and internal medicine). 190 (90.4%) participated, 143 (75.3%) were female. The mean age was 27.5 years (standard deviation

Table 1. Residents and interns' frequency on use of information sources at emergency department of teaching hospitals in Semnan universities of medical sciences in 2010 *N(%).

Information resource category	Frequency on use of Information resource	Daily		Weekly		Monthly		Never		Average (SD)	p-value
		Intern	Resident	intern	Resident	Intern	Resident	Intern	Resident		
Humanity	Patient or patient relatives	(62.5)20	(68.42)26	(6.25)2	(2.63)1	(38.12)9	0	0	(2.63)1	3.5(0.81)	0.012
	Head physician	(65.6)21	(52.63)20	(9.37)3	(13.15)5	(21.87)7	(2.63)1	0	(5.26)2	3.4(0.85)	0.075
	Nurses	(46.87)15	(6.25)2	(31.25)10	(47.36)18	(18.75)6	(62.5)5	0	(7.89)3	3(0.83)	0.002
Print	Print books	(34.37)11	(2.63)1	(37.5)12	(10.52)4	(25)8	(55.26)21	0	(5.26)2	2.6(0.84)	0.000
	Drug guide books	(18.75)6	(7.89)3	(50)16	(52.63)20	(28.12)9	(10.52)4	0	(2.63)1	2.8(0.66)	0.238
Electronic	Internet	(40.25)13	(7.89)3	(28.12)9	(13.15)5	(21.87)7	(50)19	(6.25)2	(2.63)1	2.7(0.92)	0.004
	computer of ward	(31.25)10	(7.89)3	(21.87)7	(52.63)20	(15.62)5	(2.63)2	(28.12)9	(7.89)3	2.6(1.03)	0.003
	Electronic journals	(15.62)5	0	(31.25)10	(7.89)3	(15.62)5	(57.89)22	(34.37)11	(7.89)3	2.1(0.88)	0.012

*The items were rated on the scale 4=daily, 3=weekly,2=monthly and 1=never

Table 2. Nursing students' frequency on use of information sources at emergency department of teaching hospitals in Semnan universities of medical sciences in 2010 *N(%).

Information resources categories	Frequency of use Information resources	Daily	Weekly	Monthly	Never	Average (S.D)	p-value
Humanity	Patient or Patient relatives†	(64.9) 85	(9.9) 13	(1.5) 2	(23.7) 30	(1)3.31	P = 0.000 r=0.465
	Head physician	(52.7)69	(14.5)19	(9.1)12	(23.9)31	(0.98)3	
	nurses†	(65.6)86	(14.5)19	(5.3)7	(14.5)19	(0.98)3.37	
Print	Print books	(27.5)36	(23.9)31	(22)29	(26.6)35	(1)2.6	
	Drug guide books	(52.7)69	(22)29	(13)17	(12.3)16	(1)3.1	
Electronic	Internet†	(29)38	(26)34	(16.8)22	(28.3)37	(1)2.7	P = 0.000 r=0.599
	computer of ward	(32.8)43	(17.6)23	(13)17	(36.7)48	(1.1)2.5	
	Electronic† journals	(16)12	(19.8)26	(16)21	(48)63	(0.94)2.3	

*The items were rated on the scale 4, daily; 3, weekly; 2, monthly; 1, never; †, significant relationship between information resources.

(SD) = 1.5). Results showed that 78.4% population were using human resources, 56.8% were using print sources and 37.4% were using electronic sources for clinical decisions. So that 68.42% residents were using patients or his relatives, 65.6% interns were using attend physician and 65.6% nursing students were using

nursing staff for clinical decisions daily. Results showed that only 16% nursing students and 15.62% interns during working days were using electronic information sources such as E-journals (Tables 1 and 2). There was a significant relationship between the interns and the residents in the use of various information sources (P<0.05)

(Table 1). The behavior of nursing students in the use of nursing staff and interviews with patients or his relatives (P = 0.000, r = 0.465) and use the Internet and use of E-journals (P = 0.000, r = 0.599) was meaningful (Table 2). The major reasons for not using electronic information resources in the population were no need for

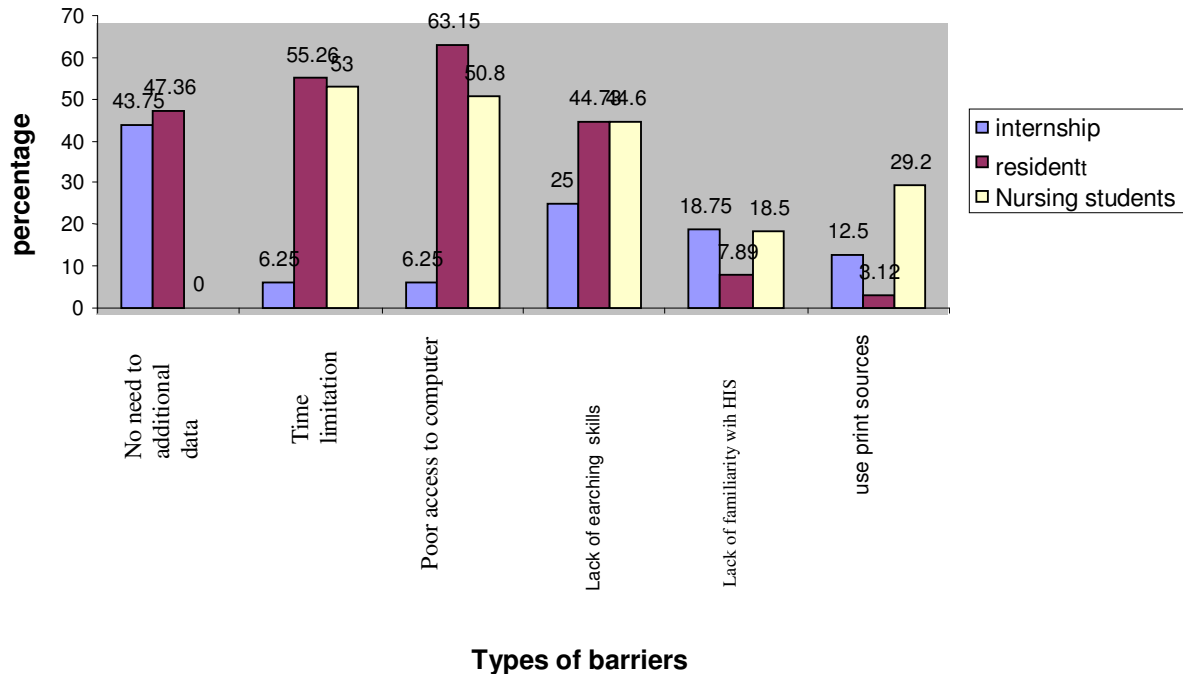


Figure 1. Barriers for use of electronic resources by the residents, internships and nursing students in emergency departments.

additional information, lack of special computer in the department and lack of time.(Figure 1).

DISCUSSION

Results showed that the population frequently use several resources for answering clinical questions related to the patient. Findings indicated that emergency care and consideration of the preferences and values of patients impacted on the search behavior of information sources of the population, so that they daily use information resources for rapid knowledge of the situation and immediate treatment of their patients. Results showed that the weekly or monthly use of information resources by the population can be indicated that the resources were not used for immediate needs of the patients. In other words, the population used such resources for the less important cases. This study showed that the population preferred human resources more than other sources. The findings showed that more than half of the interns and the nursing students and more than 60% of residents used physicians more frequently than nursing staff as information resources daily. Fakhoury and Wright's (2000) studies showed that mental nurses preferred to consult with psychiatrists. Surveys showed that doctors often consult with other doctors, particularly specialists and generally with their colleagues to treat patients (Ramos et al., 2003; Schilling

et al., 2005). The selection of human resources as the first choice of information resources among population could indicate that the population believed that these resources are the fastest way to achieve reliable and summarized data. Of course organizational culture based on oral communication and escape careful and regular study can also impact on the behavior of the population. The use of print resources in the population was slightly different, so that few of the population that were using printed books every day was reported. The results suggest that only this group of people were more willing to manage better patients care by using printed books daily. Other studies showed that nursing students and nursing staff do not tend to use library or do not have access to libraries (Barta, 1995, Hodge, 2001). The purpose of hospital library is dissemination of biomedical and clinical information for medical profession such as doctors, nurses, paramedics etc, and its emphasis is to prepare information resources for treating patients. Meanwhile every morning when physician comes to meet the patients, he or she should be informed the last papers about how to treat patients (Elderege, 2006). In present study, daily use of a limited number of the population of printed books can assume that these people knew to use these resources in obtaining accurate and useful information. Whereas printed books are in the hospital library, factors such as lack of time and urgency of information and making decisions based on it, the lack of study culture can impact the use of printed books. Dee

and Stanley's (2005) study confirms the results of this study, so that in that study, only 28% of nursing students were using the hospital library. Studies have shown that the electronic databases have a crucial role in the clinical environment and to assist decision makers in health issues and they have often led to changes in patient survival (Richwine and McGowan, 2001; Bennett et al., 2004; Ely et al., 2005). The results showed that few residents, interns and nursing students were using e-journals and Internet for clinical decision making daily and weekly. But the rate of use of electronic resources among population in comparing with the results of Dee and Stanley's (2005) study was low. They found that 84% of nursing students were using electronic journals from 1 to 5 times a week. Of course, many papers have reported that nurses show less attention to Internet as information source (Wozar and Worona, 2003). However, the role of teachers and instructors who encourage students to use these resources should not be ignored. So that in Dee and Stanley's (2005) study, the students said that in clinical environments their instructors did not force or encourage them to extract information from the scientific literature to treat patients. Also in that study, some of the students told their instructors that in complex cases, they did not use scientific journals to obtain information for patient care. Studies have shown that most students during the training used personal computers. Also, studies have shown that students using computer-based information resources, are easier in clinical interventions (Ghazi et al., 2006). In this study, a maximum of about 30% of the population reported to were using computers in the emergency departments daily. Proper application of information systems by healthcare staff can lead to improve the quality of health services and reduce costs and medical errors and document patient records (Kahouei et al., 2007). Less than half of the population reported lack of skills in searching as one of the reasons for not using electronic resources. Hence, training courses are recommended to improve awareness and ability of residents, interns and nursing students in effective use of electronic resources. Researches have shown that searching skills training leads learners to more use of electronic sources and also this process makes to increase the use of them in clinical and educational environments (Peterson et al., 2004). More than 60% of the residents announced that lack of access to specific computer was one of the reasons for not using the electronic resources. Perhaps this was because in Iran at the teaching hospitals, there is not any computer in the clinical environment for students or residents and a computer is only used by staff, and also use of personal digital assistant (PDA) in the clinical environments is not common. The results of this study are contrary to Martinez-silveria and Oddone's (2008) findings. They found that 79% of residents in the clinical environments had access to a computer that was connected to the Internet.

Conclusion

The results showed that residents, interns and nursing students were using available and easy information sources. Among the numerous information sources, human resources, more than other sources were used for treatment by the population. Results of this study described the understanding of residents, interns and nursing students on what sources of information are appropriate for their clinical decisions. These cases are important therefore, today, many medical and nursing schools must develop their training programs based on EBP. It is essential that situations are provided in clinical environments for residents and students that they can make use of update and electronic resources instead of traditional sources and behave base on EBP. Due to lack of time in the emergency department, it is recommended that print resources and other resources which are less used by students and residents should made available in clinical settings to enable them to use other information sources. This study suggests that the best available resources such as PDA containing evidence based decision support tools are used because of ease of use, quickness and accessibility. In addition, training programs should be developed, about the role and importance of hospital libraries as bridge between information needs and information resources. Also the findings suggest that an information specialist should participate in increasing searching skills of students and residents. This study was done only in emergency environments and its results can be generalized in such environments. Therefore, the researcher suggests further studies in other clinical environments.

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