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Research Article

THE PRACTICE OF EVIDENCE BASED MEDICINE AND ITS BARRIERS AMONG PHYSICIANS IN THE GOVERNMENTAL GENERAL HOSPITALS IN MINISTRY OF HEALTH, JEDDAH, SAUDI ARABIA, 2019

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Abstract:

Background: In today's healthcare, evidence based medicine is considered crucial for providing high quality medical services, improving patient satisfaction and reducing costs. In this respect, physicians are expected to play the chief role. The current study aims at assessment of physicians' practices of EBM in general hospital in Jeddah, SA and explore barriers of practice. **Subjects and methods:** Through a cross sectional study design, 386 physicians working in two general hospitals responded to a predesigned self-administered questionnaire reflecting their practice of EBM and barriers of practicing it. SPSS ver.21 was used for statistical analysis including Independent sample t test and ANOVA for significant differences and linear regression for determining predictors. **Results:** The overwhelming majorities of the physicians are Saudis [95.6%], with dominance of young aged <40 years [78.8%], having experience for <10 years [76%] and mainly working as residents [45.3%].

The significantly highest EBM practicing score was recorded for male physicians [mean \pm SD; 26.1 \pm 7.71], non-Saudis [mean \pm SD; 29.5 \pm 5.57], aged 40-50 years [mean \pm SD; 28.0 \pm 7.41], who are Board certified [mean \pm SD; 27.4 \pm 7.07] and those who are working as consultants [mean \pm SD; 28.6 \pm 6.71] with a consistent increase in the overall mean score with increasing years of experience, it ranged between 23.0 \pm 7.50 in physicians who had experience for less than three years up to 27.6 \pm 7.65 in those who had experience for more than 20 years. The main reported barriers were lack of training, understanding statistical analysis, ability to critically appraise the literature and insufficient time.

Conclusion: Physicians' practicing of EBM is still below optimal in general hospitals due to lack of training.

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INTRODUCTION:

Along the past few decades, there is a growing concern about the importance of evidence based medicine [EBM] in meeting demands of patients and ensuring optimal quality of medical services. [1] EBM stresses on examination of clinical evidence instead of laying much emphasis on pathological rationale, disorganized clinical experiences, and intuition. [2] As such, Greenhalgh proposed integration of EBM as a science and art when making clinical judgment. [3] In this context, although physicians and other medical professionals have recognized benefits of implementing EBM at their place of work, there are several factors determine its successful practice. [3] Although the previous researches carried out in Saudi Arabia revealed positive attitude of the physicians towards EBM, [4-7] most of these researches showed that there was poor practicing of EBM. The same was observed in Jordan [8]. The poor practice was attributed, in most of these researches, to various barriers, including inadequate training, lack of critical appraisal skills, inability to understand statistical analysis and lack of time. [4-7] Other barriers were related to resources such as unavailability of technology gadgets like computers and internet access. [4] Among the limitations mentioned in most of the reviewed researches was lack of generalizability of the results and application of study findings in other jurisdictions. Thus, the purpose of the current study is to find out some of the barriers to EBM implementation in governmental general hospitals in Ministry of Health [MOH], Jeddah, 2019.

SUBJECTS AND METHODS:

Through a cross-sectional analytic study design, all physicians in two governmental general hospitals in MOH were eligible for inclusion in the study. The selection of the hospitals with their primary health care centers was done in two stages. First, it started by clustering the sample into five portions, which included governmental general hospitals namely King Abdullah Medical Complex, King Fahad Hospital, East Jeddah Hospital, AL-Thagher Hospital and King Abdulaziz Hospital & Oncology Centre]. Two of these were chosen randomly. Then, within each cluster all physicians were considered eligible for inclusion in the study [n=1147]. To construct the study questionnaire, the dependent variables [practice of EBM] were adopted from the 24-item EBPQ that was developed by Upton and Upton [2006] [9] to measure health professionals' use of evidence-based practice [EBP]. In addition, the set of expected barriers were taken from a validated questionnaire on EBHC. The questionnaire was a modified version at 2010 from previous studies. It included 10 barrier factors

assessed on a 5-point Likert scale. The independent variables included demographic data such as age, gender, nationality, current job, medical qualification and number of years of practice. To collect data, we used link to Survey monkey website to engage participants by sending it to hospitals departments after ethical approval and research committee approval. After sending the link, the participants who agreed to take part in the study were reminded after two weeks to submit their response. They were later reminded after another lapse of two weeks to give their feedback. This was done to ensure higher response rate, the final number of physicians who responded accounted for 386 physicians making a response rate of 33.6%. SPSS version 21.0 was used in data entry and analysis. Independent sample t test and ANOVA test were used to identify significance of demographic data and EBM practice. Multiple logistic regression was used to adjust for predictors of practicing EBM. Ethical approval number A00621 was collected from the regional Institutional Research Board in the Directorate of Health Affairs, MOH, Jeddah at 19/9/2018.

Main Results:

Out of all responded physicians [n=386], there was slight dominance of females physicians [58.8%] over males [41.2%], and the overwhelming majorities [95.6%] are Saudis. Relatively young physicians aged <40 years constituted more than three quarters [78.8%], with almost one third [32.4%] aged <30 years. Slightly less than one half [44.3%] have MBBS qualification, and 42% have Board degree or its equivalent. The interviewed physicians were mainly working as residents [45.3%], while specialists formed 18.9% and consultants constituted 21.8%. The majority of the physicians have experience for 10 years or less [76%], with almost one quarter [28.2%] had experience for less than three years [Table 1]. The average scores reflecting frequency of practicing of the physicians for different domains of EBM, out of a maximum of seven scores, the highest score was reported for sharing information with colleagues [mean \pm SD; 4.6 \pm 1.80], while the least practiced domain was the critically appraising literature using previously set criteria [mean \pm SD; 3.4 \pm 1.76]. On the same line, out of a total score of 28, the overall mean score accounted for [mean \pm SD; 25.1 \pm 7.63] [Table 2].

The highest overall practice scores were recorded for male physicians [mean \pm SD; 26.1 \pm 7.71], non-Saudis [mean \pm SD; 29.5 \pm 5.57], aged 40-50 years [mean \pm SD; 28.0 \pm 7.41], who are Board certified [mean \pm SD; 27.4 \pm 7.07] and those who are working as

consultants [mean \pm SD; 28.6 \pm 6.71] [Table 3]. Also, result shows that there was a consistent increase in the overall mean score of EBM practice with increasing years of experience, it ranged between 23.0 \pm 7.50 in physicians who had experience for less than three years up to 27.6 \pm 7.65 in those who had experience for more than 20 years; these differences are statistically significant $p < 0.05$. Linear regression, presented in Table 4 shows that being a male, non-Saudi and having higher qualification degrees were the significant predictors for practicing of physicians evidence based medicine $p < 0.05$. These predictors explain almost 10% of the tendency of physicians to practicing EBM. Table 5 and Figure 1 demonstrate that the highest agreement scores for important barriers facing physicians from practicing evidence based medicine were lack of training in EBHC [mean \pm SD; 3.8 \pm 1.08] and lack of understanding of statistical analysis [mean \pm SD; 3.8 \pm 1.06], followed by poor ability to critically appraise the literature [mean \pm SD; 3.7 \pm 1.03] and insufficient time [mean \pm SD; 3.7 \pm 1.05]. While the least agreed barrier was lack of interest [mean \pm SD; 2.8 \pm 1.09].

DISCUSSION:

Evidence based medicine [EBM] practice in medical field is viewed as an ideal way for achieving the best known medical care and meeting the needs of the patients at individual levels. Our results showed that EBM is practiced in Jeddah, Saudi Arabia at suboptimal level. A number of previous studies discussed such findings and concluded that the reasons are so complex to attribute it for a single factors, [10-12] because effective practice of EBM entails many aspects start by positive attitude, adequate skills in searching database, interpretation and appraisal of the results and skills in applying it even at individual level. [1;13;14] The appropriate coverage of these domains necessitate availability of resources and arrangements which vary between different countries and regions, therefore, it is important to study the weak areas and barriers of practice at regional level. On the top of reported barriers in our study was the lack of training, the same was reported in previous studies in Saudi Arabia. [5;15] The role of training in improving skills of the physicians in practicing EBM was asserted by Barghouti F *et al* [2009], [8] lately, Bindawas [2013] addressed that monthly trainings add knowledge and positive attitudes in EBM among medical staff. [7] In this respect, the Saudi Council of Health Specialties in Saudi Arabia stipulated that the training is mandatory for all practicing doctors to renew their license, each physicians should have at least 20-40 CME hours annually; that could partially bridge the gap in training. [10] In the same line, most of our physicians

perceived lack of skills in critical appraisal as a significant barrier, which support what had been argued by Nasr *et al* [2018] who argued that “without doubt, more should be done to develop how best to improve critical appraisal skills of physicians”, they recommended residency programs that should suffice to build on search for more evidence on local barriers to EBM on critical appraisal skills. [16] Also, the lack of ability in understanding statistical analysis was reported as a crucial barrier by our physicians. To overcome lack of adequate research skills and statistical analysis some investigators engage the services of statisticians to develop on their behalf, procedures of research and analysis. As such, there can be a disconnect between research from a physician undertaking EBM investigation and what a statistician actually does. It is therefore recommended that investigators should train and have basic understanding of study rationale of selecting a particular method of analysis if there is more than one method that can be applied. Moreover, such knowledge would enable investigators to carry out supervision of what a statistician does when analyzing data to make informed decisions. [17-19] Another related barrier reported by our physicians was the lack of research skills, In this respect Hamdan [2012] argued that many efforts are put to ensure that EBM implemented successfully; but, its incorporation in curriculum of medical students is still below expected. The gap in knowledge is brought about by lack of adequate incorporation of research skills into curriculum. Many learning institutions do not teach the skills even after recommendations from medical councils. As such, there should be no expectation that medical students would have knowledge of how to undertake EBM to initiatives quality improvement as basic principle in healthcare services, [20] he added that medical students are unwilling to learn about critical appraisal and other research-related skills because they hold the view that such skills do not translate into their clinical practice, hence, it is vital to develop curriculum or trainings that teach EBM as a clinical knowledge and how to improve service delivery as clinical translation. An important limitation of our study need to be borne in mind is the low response rate, although we attempted to address this issue within the design.

CONCLUSION AND RECOMMENDATIONS :

The overall Physicians’ practicing of EBM in general hospitals is suboptimal, mainly due to lack of training. Being a male, non-Saudi and having higher qualification degrees were the significant predictors for practicing evidence based medicine. Efforts are

needed to plan for training of physicians on EBM during their practice.

Table 1: Demographic characteristics of the physicians [n=386].

Characteristics	No.	Percentage
Gender:		
Male	159	41.2
Female	227	58.8
Nationality:		
Saudi	369	95.6
Non Saudi	17	4.4
Age categories:		
<30 years	125	32.4
30-<40 years	179	46.4
40-<50 years	54	14.0
50+ years	28	7.2
Qualification:		
MBBS only	171	44.3
Diploma/Master	53	13.7
Board/equivalent	162	42.0
Current job:		
General practitioner	54	14.0
Resident	175	45.3
Specialist	73	18.9
Consultant	84	21.8
Years of experience:		
<3 years	109	28.2
3-5 years	102	26.5
6-10 years	82	21.3
11-20 years	55	14.2
>20 years	38	9.8

Table 2: Average scores for practicing EBM by physicians [n=386].

Practice	Mean	SD
How often have you formulated a clearly Answerable question as the beginning of the process towards filling this gap?	4.2	1.55
How often have you tracked down the relevant evidence once you have formulated the question?	4.3	1.53
How often have you critically appraised, against set criteria, any literature you have discovered?	3.4	1.76
How often have you integrated the evidence you have found with your expertise?	4.3	1.70
How often have you evaluated the outcomes of your practice?	4.3	1.67
How often have you shared the information with colleagues?	4.6	1.80
Overall mean score	25.1	7.63

Table 3: Practicing EBM according to demographic characteristics of the physicians [n=386].

Characteristics	Mean±SD	P
Gender:		
Male	26.1±7.71	0.033* ^a
Female	24.4±7.50	
Nationality:		
Saudi	24.9±7.65	0.015* ^a
Non Saudi	29.5±5.57	
Age categories:		
<30 years	23.7±7.74	0.006* ^b
30-<40 years	25.1±7.44	
40-<50 years	28.0±7.41	
50+ years	26.1±7.34	
Qualification:		
MBBS only	22.8±7.68	<0.001* ^b
Diploma/Master Board/equivalent	25.6±7.04	
	27.4±7.07	
Current job:		
General practitioner	25.3±8.37	<0.001* ^b
Resident	23.2±7.13	
Specialist	25.8±7.80	
Consultant	28.6±6.71	
Years of experience:		
<3 years	23.0±7.50	0.005* ^b
3-5 years	25.3±7.62	
6-10 years	25.7±7.92	
11-20 years	26.5±6.58	
>20 years	27.6±7.65	

^a Based on independent sample t test

^b Based on ANOVA test

* Statistically significant

Table 4: Backwards linear regression for predictors of practicing of physicians evidence based medicine .

	Unstandardized Coefficients		Standardized Coefficients	t	p	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
[Constant]	19.070	2.435		7.830	.000	14.281	23.858
Gender	1.732	.752	.112	2.302	.022	.252	3.211
Nationality	4.086	1.804	.110	2.265	.024	.539	7.632
Qualification	2.299	.398	.280	5.781	.000	1.517	3.081

$R^2=0.104$

Variables excluded from last model: Age, current job and years of experience

Table 5: Agreement of the physicians about barriers for practicing evidence based medicine.

Barriers	Agree N[%]	Neutral N[%]	Disagree N[%]
Inability to apply research findings to individual patients with unique characteristics	205[53.1]	137[35.5]	44[11.4]
Insufficient time	250[64.8]	75[19.4]	61[15.8]
Lack of collective support among my colleagues in my facility	228[59.1]	99[25.6]	59[15.3]
Lack of generalizability of literature findings to my patients population	213[55.2]	118[30.6]	55[14.2]
Lack of information resources	154[39.9]	95[24.6]	137[35.5]
Lack of interest	106[27.5]	105[27.2]	175[45.3]
Lack of research skills	217[56.2]	86[22.3]	83[21.5]
Lack of training in EBHC	254[65.8]	72[18.7]	60[15.5]
Lack of understanding of statistical analysis	264[68.4]	68[17.6]	54[14.0]
Poor ability to critically appraise the literature.	238[61.7]	92[23.8]	56[14.5]

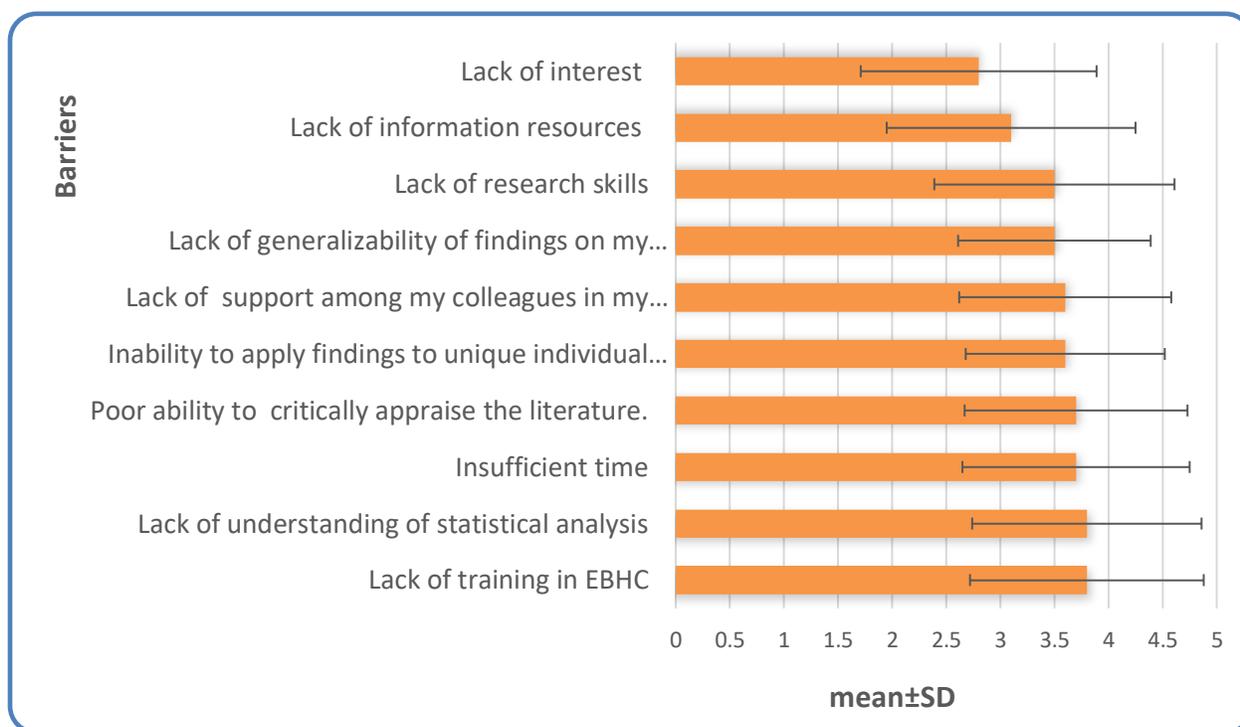


Figure 1: Mean score for agreement of the physicians about barriers in practicing evidence based medicine.

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