

Knowledge, perceptions, attitude and educational needs of physicians to evidence based medicine in South-Western Saudi Arabia

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ABSTRACT

الأهداف: معرفة المستوى المعرفي والإدراكي والسلوكي والحاجة التعليمية لأطباء أبها نحو المعوقات التي تحول دون ممارسة الطب المبني على الأدلة EBM- أبها - المملكة العربية السعودية.

الطريقة: أجريت دراسة مقطعية باستخدام استبيان تم توزيعه ذاتيا على 290 طبيب خلال الفترة من 1 إلى 30 يوليو 2008م. أجريت الدراسة بقسم طب الأسرة و المجتمع - جامعة الملك خالد - كلية الطب - أبها - المملكة العربية السعودية.

النتائج: بناء على الاستبيان المكتمل أجاب 210 من 290 بنسبة (72.4%). وبصفة عامة فإن الأطباء لديهم موقف ايجابي نحو الطب المبني على الأدلة EBM (متوسط التسجيل = 8/10)، ونصفهم أيد الانتقال من الفردية إلى الطب المبني على الأدلة. ولقد بينت الإجابات المستوى المعرفي المقبول عن علم المصطلحات في الطب المبني على الأدلة EBM و التقييم الشامل للأوراق العلمية و لدى المتخصصين والاستشاريون المعلومات الأفضل عن الطب المبني على الأدلة EBM عند مقارنتهم بالأطباء المقيمين. كانت المعوقات الأساسية في ممارسة الطب المبني على الأدلة EBM كما تم توضيحها من قبل الأطباء هي عدم توفر الوقت، والمصادر.

خاتمة: برغم أن الأطباء أظهروا مستوى معقول من المعرفة عن الطب المبني على الأدلة EBM ومع ذلك يوجد فجوة بين معرفتهم وبين ممارستهم وهذه الفجوة يمكن أن تعود إلى ما كانت عليه موجهة من قبل الأطباء حيث كانت توجد معوقات تواجه ممارستهم نذكر منها، القصور في الوقت وتعذر الوصول إلى الإنترنت في أماكن عملهم. إن المعرفة الأفضل نسبيا للأطباء المدربين عن غير المدربين يمكن أن تسلط النظر إلى الحاجة لدورات تدريبية ذات صلة بالطب المبني على الأدلة EBM وفائدتها.

Objectives: To define the knowledge, perception, attitude, educational needs, and barriers in practicing Evidence Based Medicine (EBM) among physicians in Abha city, Kingdom of Saudi Arabia.

Methods: This is a cross-sectional study using a self-administered validated questionnaire distributed to 290 physicians between 1st July to 30th July 2008. This study took place in the Family and Community

Medicine Department, King Khalid University, College of Medicine, Abha, Kingdom of Saudi Arabia.

Results: Completed questionnaires were received from 210 (72.4%) of 290 physicians. Most physicians had a positive attitude towards EBM (median score=8/10). Half of them support the shift from daily based practice to evidence based decision. They showed acceptable level of knowledge on the terminologies used in EBM and critical appraisal. The consultants and specialists had a better knowledge toward EBM compared with residents. The main barriers facing the respondents in practicing EBM as indicated by the physicians were lack of resources and time.

Conclusion: The physicians showed acceptable level of knowledge on EBM. There was a gap between their knowledge and practice. This gap could be attributed to what was addressed by the physicians, namely, inadequacy of time and unavailability of access to internet in their working place. The better knowledge of the trained than the untrained physicians could draw the attention towards the importance of training courses relevant to EBM.

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Evidence Based Medicine (EBM) define as a new philosophy of clinical practice and a process of long life learning, which emphasized a systematic and rigorous assessment of evidence for decision making in healthcare. It involves integrating evidence with the

expertise of decision makers and the expectation and value of patient.¹ Historically, the EBM first appeared in the information brochure of McMaster University Internal Medicine Residency Programmed in 1970. However, the work, which led to its origin, may be traced back in late 1970s.² Evidence Based Medicine has one main goal: to improve the health of people through decision that will maximize their health related quality of life and life span. The decision may be related to public health, healthcare, and clinical care, nursing care, or health policy.³ The rapid spread of EBM has arisen from 4 realizations encountered in clinical practice:⁴ first, our daily need for valid information. Second, the inadequacy of traditional sources for this information. Third, the disparity between our diagnostic skills and clinical judgments. Fourth, our inability to afford per patient for finding and assimilating this evidence. The practice of EBM can be divided into the following components (steps):⁵ 1) Identify a problem or area of uncertainty. 2) Asking a relevant, focused, and clinically important question that is answerable. 3) Acquire and selecting the most likely resources to search. 4) Appraising the evidence found. 5) Apply the clinical evidence. 5) Assessment the outcome of the actions.

There are 3 limitations that are unique to the practice of EBM:⁶ First, the need to develop new skills in searching, and critical appraisal can be daunting; second, busy clinician has limited time to master and apply these new skills, and third, limitation is referred to the inadequate resources required for instant access to evidence. The main challenge in practicing EBM as identified by a study conducted in the USA was the gap between what is known and what was carried out.⁷ In a study conducted in Riyadh, Kingdom of Saudi Arabia (KSA), it was found that there were barriers in assessing the attitude and performance of physicians towards practicing EBM.⁸ The same findings were also observed in another study that includes consulting physicians working in governmental health institutes in Al-Taif city, where it was ascertained that there were still many barriers to lead physicians perspectives concerning EBM practices.

In a study conducted in Dammam city, KSA, for assessment of primary health care centers (PHCCs) and general hospitals physicians' attitudes towards EBM, it was elicited that there was an overall positive attitude among physicians towards EBM, and there was a proportional relation between the knowledge of EBM and attitude towards it.¹⁰

Methods. This cross-sectional study was conducted in the Family and Community Medicine Department, King Khalid University, College of Medicine, Abha, Kingdom of Saudi Arabia. Ten physicians were involved

and this is not subject to any modification. Written permission from the authority to conduct the research was obtain beforehand. Questionnaires (*Appendix) were given to physicians with a covering letter and the confidentiality and anonymity will be preserved. The questionnaire was adopted from McColl et al⁹ who used the same questionnaire for the same study purpose in south England at the same time Al-Ansary and Khoja⁸ used it in their study, which was carried out in primary care physicians practicing at the Ministry of Health Primary Health Care Centers in Riyadh region, KSA in October 1999.⁸ The questionnaire written in English was 25 items and 4 sections, including demographic data such as age, gender, nationality, specialty, name of the university they graduated, and number of years of practice and previous EBM education. The main outcome measures were respondents' knowledge, attitude towards EBM, ability to access and interpret evidence and perceived barriers to practicing EBM.^{8,9,11} The questionnaires were distributed to all governmental physicians working in Abha city (1-30 July 2008). The data collection time that considered eligible was included in the study. Approximately 350 physicians were working in the governmental hospitals and PHCCs in Abha city. Of these, 290 physicians were available at the time of the study and were all invited to enrol. The overall response rate was 72.4% (n=210).

Data were entered into a personal computer by the researcher and were analyzed by SPSS version 14. For descriptive analysis of the characteristics of the study group, we used the frequency distribution. For scores reflecting attitude and knowledge of the physicians we used the Median central tendency provided that these observations are ordinal in nature; thus, we compared the knowledge and attitude according to the different sub groups, Mann Whitney and Kruskal Wallis. For the categorical variables, we performed the Chi square test. P value less than 0.05 indicate significant differences.

Results. More than half (58.6%) of the physicians enrolled in the study (age <40 years), and mostly were men (85.7%). Almost equal percentages of consultants, specialists, and residents from each subspecialty (surgery, medicine, and primary healthcare center) were presented in the study. It was remarkable that half of the physicians (50%) had postgraduate board certificates. The physicians who had a formal training in the search strategy were 15.7%, and 18.1% stated that they had previous formal training in critical appraisal. It was noted that there was a significantly consistent increase in the attitude of the physicians towards EBM as they are getting older. The median score ranged between 7/10 for those aged ≤ 30 years and 9.5/10 for older physicians (≥ 50 years) ($p < 0.007$). No statistically significant

difference was found among the respondents according to their gender, job title nor postgraduate qualifications (Table 1). The results of current study indicated that physicians perceived importance of practicing EBM on patients' care increases significantly towards older age. The median score ranged between 7/10 for the physicians aged <30 years to 9/10 among physicians in the age group (≥40 years) ($p<0.003$). It was noted that the primary healthcare center consultants pointed out to the higher scores (9.5/10) followed by the surgery and medical consultants (9/10), and the lowest score was recorded among medical specialists (median score= 7.5) and this difference is statistically significant ($p<0.0034$). However, gender and postgraduate certification had no significant impact on perception of the physicians on the importance of EBM on patients' care (Table 2). Seeking

and applying evidence based summaries was significantly higher among the physicians working in the medical departments (68.6%) than those working in primary healthcare center (40.8%) and surgery departments (40.6%) ($p<0.05$). It was noted that using evidence based practice guidelines or protocols was significantly has a higher percentage of the physicians working in PHC center (63.4%) than those working in the surgery (49.3%) and medical departments ($p<0.05$) (Table 3). The main barrier considered by the physicians was the lack of distributed updated clinical letters, journals and guidelines (51%), which was followed by absence of internet access (50%). The least considered barriers were the expenses (19%) and consumption of time (17.6%) (Table 4). More than one third of the physicians (37.6%) indicated that one of the main barriers was the non-

Table 1 - Response of the physicians to the items reflecting their attitude towards Evidence Based Medicine.

| Characteristics | Median score | P-value |
|--|--------------|---------|
| <i>Age (years)</i> | | 0.007 |
| <30 | 7 | |
| 30-39 | 8 | |
| 40-49 | 8 | |
| ≥50 | 9.5 | |
| <i>Gender</i> | | 0.708 |
| Males | 8 | |
| Females | 7 | |
| <i>Job</i> | | 0.425 |
| Surgery consultant | 8 | |
| Surgery specialist | 8 | |
| Surgery residents | 8 | |
| Medical consultant | 9 | |
| Medical specialist | 8 | |
| Medical resident | 9 | |
| Primary Health Care consultant | 8 | |
| Primary Health Care specialist | 8.5 | |
| Primary Health Care resident | 8 | |
| Overall score | 8 | |
| <i>Having postgraduate board certificate</i> | | 0.159 |
| Yes | 8 | |
| No | 8 | |

Table 2 - Perspectives of the physicians about the usefulness of practicing Evidence Based Medicine on patients' care.

| Characteristics | Median score | P-value |
|--|--------------|---------|
| <i>Age (years)</i> | | 0.003 |
| <30 years | 7 | |
| 30-39 Years | 8 | |
| 40-49 Years | 9 | |
| ≥50 | 9 | |
| <i>Gender</i> | | 0.507 |
| Males | 8 | |
| Females | 8 | |
| <i>Job</i> | | 0.034 |
| Surgery consultant | 9 | |
| Surgery specialist | 8 | |
| Surgery residents | 8 | |
| Medical consultant | 9 | |
| Medical specialist | 7.5 | |
| Medical resident | 9 | |
| Primary Health Care consultant | 9.5 | |
| Primary Health Care specialist | 8 | |
| Primary Health Care resident | 8 | |
| <i>Having postgraduate board certificate</i> | | 0.375 |
| Yes | 8 | |
| No | 8 | |

Table 3 - Perspective of the physicians on the preferable ways (3 in the Table 1, 2 and 3) of moving to evidence based practice according to their specialty.

| Preferable ways of shifting from opinion base to EBM | Department | | | Total | P value |
|--|------------|-----------|-----------|------------|---------|
| | PHC | Surgery | Medical | | |
| <i>By learning the skills of EBM</i> | | | | | 0.058 |
| Yes | 24 (33.8) | 15 (21.7) | 12 (17.1) | 51 (24.3) | |
| No | 47 (66.2) | 54 (78.3) | 58 (82.9) | 159 (75.7) | |
| <i>By seeking and applying of EBM</i> | | | | | 0.001 |
| Yes | 29 (40.8) | 28 (40.6) | 48 (68.6) | 105 (50.0) | |
| No | 42 (59.2) | 41 (59.4) | 22 (31.4) | 105 (50.0) | |
| <i>EBM developed by colleagues</i> | | | | | 0.000 |
| Yes | 45 (63.4) | 34 (49.3) | 16 (22.9) | 95 (45.2) | |
| No | 24 (33.8) | 35 (50.7) | 54 (77.1) | 115 (54.8) | |

*Based on Chi-square. EBM - Evidence Based Medicine, PHC - Primary Health Care

Table 4 - Perspective of the physicians about the major barriers to practicing EBM in General Practice according to their specialty.

| Characteristics | Specialty | | | Total | P value |
|---|-----------|-----------|-----------|------------|---------|
| | Surgery | PHC | Medical | | |
| <i>No time available</i> | | | | | 0.026 |
| Yes | 34 (49.3) | 26 (36.6) | 19 (27.1) | 79 (37.6) | |
| No | 35 (50.7) | 45 (63.4) | 51 (72.9) | 131 (62.4) | |
| <i>No computer</i> | | | | | 0.003 |
| Yes | 16 (23.2) | 33 (46.5) | 34 (48.6) | 83 (39.5) | |
| No | 53 (76.8) | 38 (53.5) | 36 (51.4) | 127 (60.5) | |
| <i>No internet access</i> | | | | | 0.000 |
| Yes | 21 (30.4) | 38 (53.5) | 46 (65.7) | 105 (50.0) | |
| No | 48 (69.6) | 33 (46.5) | 24 (34.3) | 105 (50.0) | |
| <i>No distributed updated clinical letters, journals, or guidelines</i> | | | | | 0.000 |
| Yes | 27 (39.1) | 56 (78.9) | 24 (34.3) | 107 (51.0) | |
| No | 42 (60.9) | 15 (21.1) | 46 (65.7) | 103 (49.0) | |
| <i>Expensive</i> | | | | | 0.043 |
| Yes | 9 (13.0) | 11 (15.5) | 20 (28.6) | 40 (19.0) | |
| No | 60 (87.0) | 60 (84.5) | 50 (71.4) | 170 (81.0) | |
| <i>Time consuming</i> | | | | | 0.039 |
| Yes | 17 (24.6) | 14 (19.7) | 6 (8.6) | 37 (17.6) | |
| No | 52 (75.4) | 57 (80.3) | 64 (91.4) | 173 (82.4) | |

*Based on Chi square, EBM - Evidence Based Medicine, PHC - Primary Health Care

availability of time. The percentage among residents (44.2%) was significantly higher than the specialists (36.7%) and consultants (13.3%) ($p < 0.043$) (Table 4). It was noticed that most of the consultants (73.3%) reported that the absence of distributed updated clinical letters, journals or guidelines were the main barrier for conducting EBM compared to 55% of the specialists and 43.3% residents and this difference is statistically significant $p < 0.000$ (Table 4). The total percentage of physicians who reported that they either understand only or they understand and explain EBM to others was significantly higher among physicians who had formal training courses in research strategy compared to those physicians who had no training ($p < 0.000$).

Discussion. The current study showed that the physicians had a positive attitude towards EBM, which come in accordance to the findings of a study conducted in other settings worldwide namely in Poland,¹² Iran,¹³ and Malaysia.¹⁴ In addition to the positive attitude towards EBM, our study showed that almost half of the studied physicians supported the to shift from old daily based practice to evidence based decision. This notion was ascertained in a study conducted in the USA.¹⁵ These findings are of utmost importance for future planning of training and disseminating the practice of EBM to our physicians. In general, it was evident that almost two-thirds of our physicians understand the items reflecting their knowledge on EBM. In contrast to what was found in a study conducted in Poland, where it was reported that the general practitioners respondents'

knowledge of epidemiological and statistical terms and of the valid study results was low.¹² This difference might be explained by the variation in composition of the study groups in the 2 studies. In addition to the training status of the physicians of the current study, it shows that almost one fifth of the physicians had previous formal training items pertaining to EBM criteria. In the same context, and as expected, the study revealed that the physicians who have previous formal training in search strategy and training in EBM had significantly better understanding compared to those who reported that they never attended such courses. The same findings were found in a study that was conducted in Iran, where it was reported that the knowledge score was higher in those with prior EBM training.¹³ The impact of training on the ultimate outcome of the clinical practice might represent another facet of EBM practicing. This issue was investigated in a study, which was conducted in Sweden which revealed that to change in the behavior of the physicians regarding the shift from individual to evidence based decisions require a consistent periodic booster training and the trainees should be convinced on the actual benefits gained from practicing EBM in their clinical sessions.¹⁶ The respondents of the study addressed that there were barriers facing them in practicing EBM. These barriers were lack of internet access at the work proximity, no time available, and shortage of handled scientific educational materials namely, updated magazines and journal. In an attempt to disseminate the concept and practicing EBM, several studies had been conducted

to elaborate the obstacles that hinder its practice. In the study conducted in Riyadh city,⁸ it was cited that there were barriers facing the physicians in practicing EBM. The same findings were found in Taif city, KSA.⁹ The findings of the current study was in accordance with what was found in a study conducted in Malaysia where it was found that the main barriers to practicing EBM were lack of personal time and lack of Internet access in the primary care clinics.¹⁴ Also, in England¹¹ and Canada,¹⁷ they reported similar findings. While the barriers indicated by the physicians in the current study and its comparable studies were mostly related to the resources empowering EBM practicing. Those who had available resources they articulated another in depth obstacles which were represented by difficulties in the fundamental approaches for practicing EBM as formulating clinical questions and critical appraisal,¹⁸ which ultimately mean that the challenge of barriers that facing EBM practicing is prevailing regionally and internationally in various health institution and in various aspects of EBM.

The main limitation of this study was the small number of responding physicians and busyness, which is also found in previous study from Taif, KSA.⁹

In conclusions, the physicians showed acceptable level of knowledge on EBM. There was a gap between their knowledge and practice, and this gap could be attributed to what was addressed by the physicians that there were barriers facing their practice of EBM namely, inadequacy of time and unavailability of access to internet in their working place. The relatively better knowledge of the trained than the untrained physicians could draw the attention towards the importance of training courses pertinent to EBM.

Training courses related to EBM issues should be incorporated in the continuous medical education programs in an attempt to shift from the individual to evidence based practices. Essential resources needed for practicing EBM should be provided to all health institutes especially the computer sets, internet access, and subscription on reasonable sources of evidenced databases. Beside, bed access of EBM should be available to facilitate decision making.

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References

1. Prasad F. Fundamentals of Evidence-Based Medicine: Basic Concepts in Easy Language. *Postgraduate Medical Journal* 2004; 1: 2-16.
2. Hoppe DJ, Bhandari M. Evidence-based orthopaedics: A brief history. *Indian J Orthop* 2008; 42: 104-110.
3. Doane GH, Varcoe C. Knowledge translation in everyday nursing: from evidence-based to inquiry-based practice. *ANS Adv Nurs Sci* 2008; 31: 283-295.
4. Gordon G. Users Guide of essentials evidence based clinical practice. 2nd ed. Chicago (USA): American Medical Association; 2002.
5. Evidence based medicine Tool kit good fundamental from the university of Alberta. (Updated 2008 August; Accessed date 2008 August 27). Available from URL: www.meduAlberta.ca/ebm/ebmhtml
6. Howland RH. Limitations of evidence in the practice of evidence-based medicine. *Journal of Psychosocial Nursing and Mental Health Services* 2008; 38: 5.
7. Weaver CA, Warren JJ, Delaney C; International Medical Informatics Association; Nursing Informatics Special Interest Group (IMIA-NI); Evidence-Based Practice Working Group. Bedside, classroom and bench: collaborative strategies to generate evidence-based knowledge for nursing practice. *Int J Med Inform* 2005; 74: 989-999.
8. Al-Ansary LA, Khoja TA. The place of evidence-based medicine among primary health care physicians in Riyadh region, Saudi Arabia. *Fam Pract* 2002; 19: 537-442.
9. Doane GH, Varcoe C. Knowledge translation in everyday nursing: from evidence-based to inquiry-based practice. *ANS Adv Nurs Sci* 2008; 31: 283-295.
10. Al-Baghlie N, Al-Almaie SM. Physician attitudes towards evidence-based medicine in eastern Saudi Arabia. *Ann Saudi Med* 2004; 24: 425-428.
11. McColl A, Smith H, White P, Field J. General practitioner's perceptions of the route to evidence based medicine: a questionnaire survey. *BMJ* 1998; 316: 361-365.
12. Felcenloben J, Gerstenkorn A. [The level of Evidence Based Medicine rules' knowledge among GPs]. *Pol Merkur Lekarski* 2008; 24: 526-528.
13. Ahmadi-Abhari S, Soltani A, Hosseinpanah F. Knowledge and attitudes of trainee physicians regarding evidence-based medicine: a questionnaire survey in Tehran, Iran. *J Eval Clin Pract* 2008; 14: 775-779.
14. Martis R, Ho JJ, Crowther CA; SEA-ORCHID Study Group. Survey of knowledge and perception on the access to evidence-based practice and clinical practice change among maternal and infant health practitioners in South East Asia. *BMC Pregnancy Childbirth* 2008; 8: 34.
15. Enguídanos SM, Jamison PM. Moving from tacit knowledge to evidence-based practice: the Kaiser Permanente community partners study. *Home Health Care Serv Q* 2006; 25: 13-31.
16. Skoglund I, Segesten K, Björkelund C. GPs' thoughts on prescribing medication and evidence-based knowledge: the benefit aspect is a strong motivator. A descriptive focus group study. *Scand J Prim Health Care* 2007; 25: 98-104.
17. Tracy CS, Dantas GC, Upshur RE. Evidence-based medicine in primary care: qualitative study of family physicians. *BMC Fam Pract* 2003; 4: 6.
18. Shuval K, Shachak A, Linn S, Brezis M, Reis S. Evaluating primary care doctors' evidence-based medicine skills in a busy clinical setting. *J Eval Clin Pract* 2007; 13: 576-580.