

## **Knowledge Attitudes and Practices of evidence based medicine among residence doctors in Sudan**

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### **Abstract:**

**Objectives:** The aim of this cross-sectional study was to determine the awareness and attitude of hospital resident doctors towards evidence-based medicine (EBM) and their related educational needs.

**Methods:** A cross-sectional descriptive study was performed on a randomly selected sample of 141 hospital resident doctors from teaching hospitals. Awareness and Attitude towards EBM, accessing to internet and Midlines and perceived barriers to practice EBM among participants were the main outcome measures.

**Results:** 92.1% strongly welcomed introduction and promotion of EBM in daily management of patients. About one-third of respondents (32.7%) thought that the most appropriate way to move towards EBM was by seeking and applying EBM summaries. Most of the participants had access to internet (82%) and those who were never heard or had a course on EBM were (85%). Only 10% who used EBM in 50% to 100% of their clinical practice. The major barriers to practicing EBM were no time due to patient overload (85%), lack of libraries (65%) limited resource (62%) and lack of training (60%). Most of the participants (79%) agreed to be one of the requirements of full registration in Sudan Medical Council.

**Conclusions:** Although there is a high support among doctors for the promotion of EBM, there is a deficit in knowledge and lack of skills of EBM. Hence, the time is suitable for planning and implementing an effective EBM educational programme for both undergraduate and postgraduate doctors. Evidence-based medicine has limitations, and more efforts need to be directed toward improving doctors' skills and access to evidence at the point of care.

**Keywords:** educational, EBM.

The concept of evidence based medicine or integrating the best research evidence with clinical expertise and patient values to achieve the best possible patient management, is a new and emerging area of practice, that needs knowledge and skills, to be grasped by health professionals in order to update and improve their daily practices on recent valid research outcomes<sup>1</sup>. Teaching of evidence-based medicine (EBM) principles and skills have become core concepts of undergraduate, postgraduate, continuing medical education, courses and workshops offered to health professionals worldwide<sup>2</sup>.

Practicing EBM requires a positive attitude, resources and facilities for communication technologies for searching strategy, availability of relevant guidelines and relevant skills in critical appraisal<sup>3</sup>.

Studies in different countries revealed that 30–40% of patients do not receive care according to present scientific evidence and 20–25% of care provided is not needed or is potentially harmful<sup>4</sup>.

In Sudan, there is no formal training on EBM, that resulted in gaps in knowledge, awareness, skills and practice of EBM and therefore most of medical professionals build their decision on their clinical experiences, consultation of colleagues and the common sense.

This study is necessary to provide information on the extent of the awareness, knowledge, skills and practice of EBM among practicing residence doctors and to identify the

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perceived barriers for practicing EBM, to show the educational needs to implement EBM into clinical practice.

### **Methodology:**

The study was a cross-sectional descriptive study, which was conducted among residence doctors of different specialty in Sudan Medical Specialization Board (SMSB), during August 2008.

The residency programme in SMSB is divided into four levels, starting from residence at starting level that called R0, up to the end level of residence that called R3, which is final year of the training. The total number of residence registered in SMSB at the time of the study was 1453 candidates at different levels in different specialty. The study population included residents who were in their final year training programme, i.e. R3, where the major clinical responsibility and load in hospitals were laid on them. 140 residences were randomly selected across different specialties from a total of 414 residence doctors at R3, who attended clinical activities in SMSB on different days of the week for a period of one month. The data were collected by direct interview using questionnaire,

The questionnaire was designed to assess doctors' personal and professional characteristics, their awareness attitude and practicing of EBM and perceived barriers. The questionnaire was divided into three sections. The first section sought information about personal and professional characteristics of respondents, including gender, age, practicing hospitals, number of years in practice, medical specialty and participation in EBM workshops. The second section assessed the beliefs and attitude of doctors towards EBM. Respondents were asked to describe their attitude towards the current promotion of EBM and towards the use of research findings in management of patients using a 5-point scale ranging from 'Extremely not welcoming' to 'Extremely welcoming'. In the third section of the questionnaire, the participants were asked

about their opinion about barriers in practicing EBM and the role in helping management and about EBM value in general practice and its applicability to their culture. This section also included their opinions about performing national programme for teaching EBM and introducing EBM into curriculum for medical studies and as a requirement in issuing Sudan Medical Certificate.

SPSS version 10 was used to analyze the data, tables and charts were used to summarize the variables of the study. 95% Confidence Interval (95%CI) was computed to generalize the results.

### **Results**

All the study population completed the questionnaire i.e. response rate is 100%. From the total of the study population 77/141 (55%) were males. One hundred and seven, 107/141 (76%) of them were from Khartoum State. Majority of the study population (62.6% - 70.6%) were between the age of 30 – 39 years. Most of the participants were doing obstetrics and gynecology training 67/141 (47.5%), followed by medicine 34/141 (24%), pediatrics 16/141 (11.3%), surgery 13/141 (9.2%) and other specialties 11/141 (7.8%), Table 1.

Most of the participants 116/141 (82%) had personal access to the internet, and majority 75/116 (65%) used internet for searching medical information through Pub Med as a favored Medline search engine (95% CI 63.5 – 67.7), Table 2.

Less than half of the participants 56/141 (46%) heard about EBM. Those who heard about EBM and had a course on EBM were only 30/141 (21%), Table 3.

Those who strongly welcomed introducing of EBM in clinical practice were 130/141 (92.1%) of the study population. About two third of the study population agreed that EBM is applicable in clinical practice, where as 87/141 (62%) of the study population thought that EBM can be practiced only by those who have more time and 118/141 (86.6%) thought that EBM is helpful to their patients, Fig 1.

Table1: Distribution of study population by age and specialties, Sudan Medical Specialization Board – Khartoum August 2008

Age groups in years	Obstetrics & gynecology No (%)	Medicine	Pediatrics	Surgery	others
< 30	18 (27)	6 (17.6)	4 (25)	2 (15.4)	2 (18.2)
31 - 39	43 (64)	24 (70.6)	10(62.6)	9 (69.2)	7 (63.6)
40 - 49	3 (4)	2 (5.9)	1 (6.2)	1 (7.7)	1(9.1)
>50	3 (4)	2 (5.9)	1 (6.2)	1 (7.7)	1(9.1)
Total	67 (100)	34 (100)	16 (100)	13 (100)	11(100)

Table2: Access and use of internet among study population. August 2008

Usage of internet	Frequency (%)	95% CI
Pub Med	75 (64.6)	63.5 - 64.7
Others e. mails	32 (27.6)	11 - 33
	09 (7.8)	(-9.7 – 25.3)
Total	116 (100)	

Nearly one third the study population used did not practice EBM at all (zero practice), while only 1.1% uses EBM for 75% -100% of their clinical practice, Fig 2.

The major barriers to practicing EBM were patients overload 120/141, (85%) lack of libraries and information technology resources in the hospitals 92/141 (65%), and lack of time 85/141 (60%), Fig 3.

More than one third of the participants 62/141 (44%) thought that EBM, should be incorporated in undergraduate curriculum, and 111/141 (78.7%) insisted that EBM training should be a requirement for issuing the Sudanese Medical Council Certificate.

**Discussions:**

Although most of the study population had access to internet (82%) and nearly two third used it in searching for medical information, awareness and skills on EBM were deficient, only 46% of the study population heard about EBM, and only 21% of the study population had heard and had training on EBM. Unquestionably the practice of EBM requires the acquisition and development of new skills (in literature searching and critical appraisal).

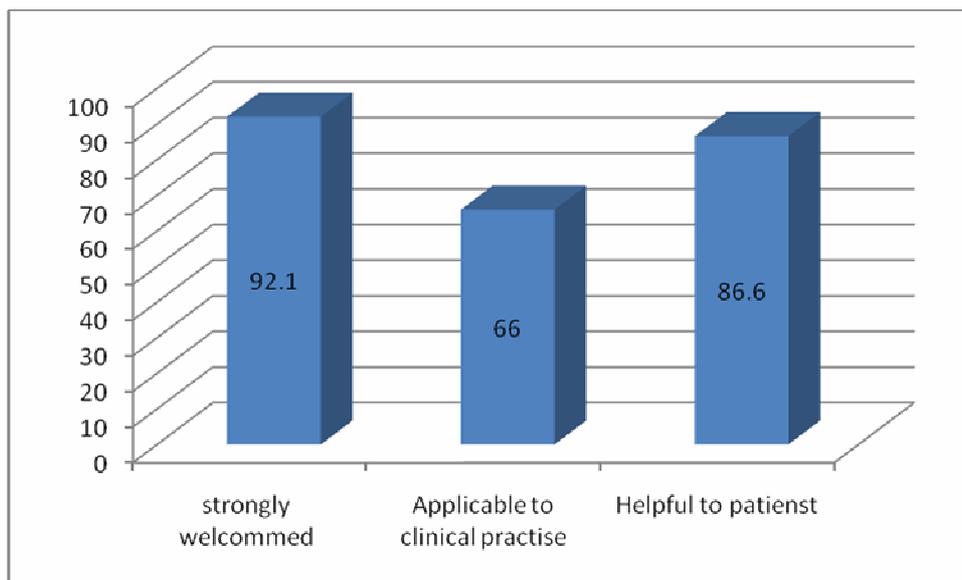


Figure 1: Attitude percentage of the study population towards EBM - August 2008

Their mastery and application are formidable tasks and should not be underestimated. However, the assertion of some critics that clinicians are not interested in learning such skills is contradicted by surveys of practicing clinicians in previous studies<sup>5-10</sup>. EMB skills can be acquired at any stage in clinical training. Incorporating their acquisition into the routine of grand rounds, postgraduate and undergraduate seminars, and "morning report" integrates them with the other skills being developed in these settings<sup>11</sup>.

Table 3 Knowledge and courses of EBM among study population – August 2008

Heard about EBM	Had a course on EBM n (%)	Never had a course on EBM n (%)	Total N (%)
Yes	30 (53.6)	26(46.4)	56(100)
No	0 (0)	85 (100)	85(100)
Total	30(21)	111(79)	141

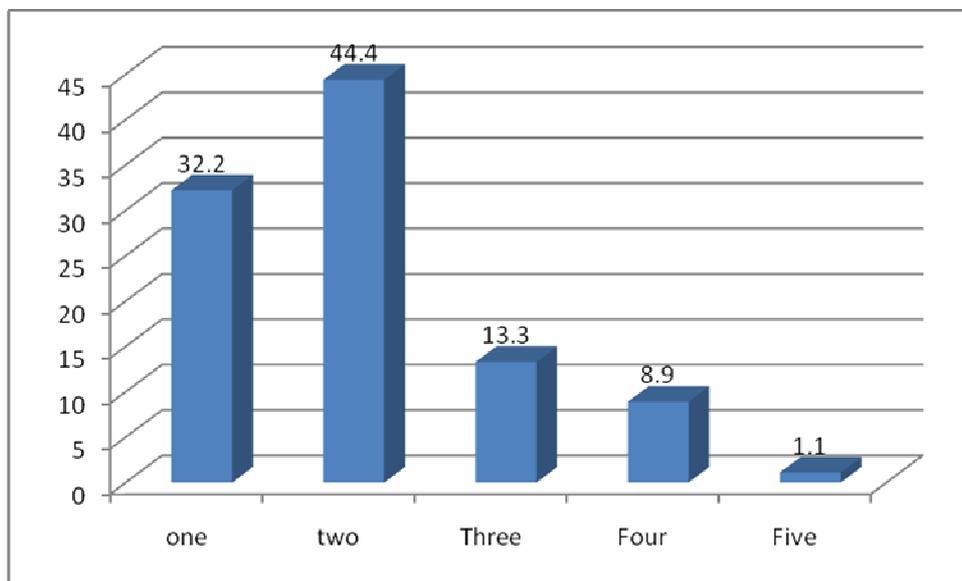


Fig 2: % of practicing of EBM among Study population – August 2008

- One =Zero practice
- Two= practicing < 25%
- Three= practicing 50 -74% EBM in clinical practice
- Four == practicing 25 – 49% EBM in clinical practice
- Five = = practicing 75-100% EBM in clinical practice.

Although most of the participants welcomed promotion of EBM (93%), about two third welcomed it's application in clinical practice, 40% agreed that EBM has to be introduced to undergraduates and postgraduates curriculum and 79% agreed to be included in the requisition of fulfilling full registration in Sudanese Medical Council. Lacking of time, resources and skills were the main barriers (patient overload was considered as the major

barrier which was 85%, lack of resources and time were, 65% and 60% respectively ) to practice EBM. The gap between the demand for health care and the resources available to meet that demand is growing and results in clinicians having to care for more patients in less time. This pressure impairs the ability of clinicians to apply any evidence, whether from basic or applied science, to their patients<sup>12</sup>.

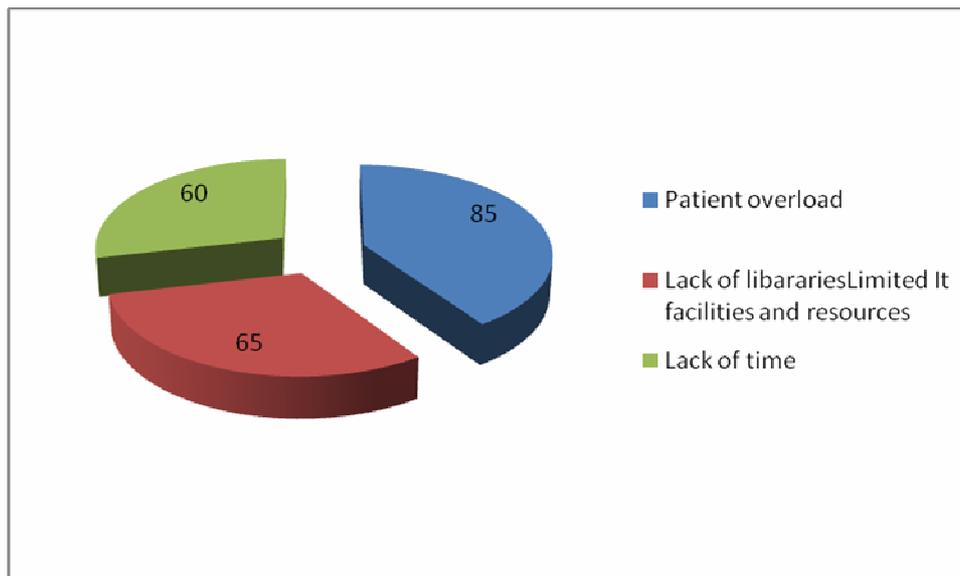


Figure3: Percentage of barriers to practicing EBM among study population, Sudan Medical Specialization Board, August 2008.

Although this study is limited to residence doctors, who use to conduct majority of clinical works in the hospitals, but its outcome could be generalized to other categories of doctors, as it includes different categories of specialty in medicine, but further study to include all categories of doctors is recommended.

#### Conclusion:

Evidence-based medicine has limitations, and more efforts need to be directed toward improving doctors' skills and access to evidence at the point of care. Further studies are needed to test whether and how evidence-based medicine affects processes of care and patient outcomes in Sudan.

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