

# KNOWLEDGE, ATTITUDE AND PERCEPTION TOWARD EVIDENCE BASED MEDICINE AMONG MEDICAL STUDENTS IN SHENDI UNIVERSITY- SUDAN



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**Abbreviations**

EBM, Evidence-based medicine;  
EBP, Evidence-Based Practice ; UK, United Kingdom; RCR, Randomized Controlled Research ; SPSS, Statistical Package for Social Sciences; WHO, World Health Organization.

**ABSTRACT**

Evidence-based medicine (EBM) is the “conscientious, explicit, and judicious use of current best evidence (Thamer Z. et al. 2018 .It is the evolving science of clinical care. It is the judicious use of the best current evidence in making decisions about the care of the individual patient. It also integrates clinical expertise, patient desires, values, and needs . (Michael LeFevre.2014 )

The current study intended to assess Knowledge, attitude and perception toward EBM among medical students in Shendi University in Sudan. It was descriptive cross-sectional one, from October to December 2020; It included one hundred and twenty one (121) medical students. Data was collected employing structural self –administered questionnaire and the data collected was analyzed by SPSS.

The findings of the study described the current status of level of awareness and use of EBM .More than half of students have poor knowledge toward EBM. Approximately half or less have good attitude compared with their poor knowledge, while the perception of the importance of evidence based medicine was good (72%).

## 1. INTRODUCTION

Innovation in information technology alongside massive increase in biomedical research has given rise to changing biomedical literature varying in quality and clinical relevance. Also the increasing utilization of social media in reflective peer-to-peer learning and the media manipulation encountered. This has led to the adoption of evidence-based medicine (EBM) as the new paradigm for medical practice (Francisco Jose Grajales, et al .2014 ;Jens R. Chapman, et al 2018).

The term EBM was coined by Gordon Guyatt in 1992, which is based on the integration of research, patient preferences, and clinical experience. EBM's placing the practice of medicine on a solid scientific basis (EBM Working Group. 1992). It promotes the development of more sophisticated hierarchies of evidence, the recognition of the crucial role of patient values and preferences in clinical decision making, and the development of the methodology for generating trustworthy recommendations (Benjamin Djulbegovic & Gordon H Guyatt. 2017). David Lawrence Sackett a clinical epidemiologist, and founding Chair of the Cochrane Collaboration is widely regarded as a pioneer and the father of EBM. Sackett and his colleagues focused on the need to not only teach methods to understand the scientific literature but also to teach the application of new information to the physicians. It has been described as one of the most important medical advancements in the past one hundred and fifty (150) years, alongside the discovery of vaccines and antibiotics.

The Cochrane Collaboration is a non-profit organization established in (1993) in the UK. (H V Worthington, et al 2013). It comprises over ten thousand (10,000) scientist worldwide. Its main mission is to go through and prepare systematic reviews of new research that is being published every day in various specialties based on the strongest evidence available, in order to help make informed decisions on healthcare interventions for the best possible patient outcome (J Taylor, et al .2017).

EBM represents integration of clinical expertise, patient's values and best available evidence in process of decision making related to patients health care (Izet Masic, et al. 2008). It is one of these essential elements of practice becoming part of medical curricula around the world (Mylene Lévesque, et al 2018).

EBM has thus become an impetus for incorporating a critical appraisal of research evidence alongside routine clinical practice. The acquisition of knowledge and skills for EBM is becoming a core competence for all doctors. There is an increasing emphasis on the teaching of EBM skills in undergraduate, postgraduate, and continuing medical education programs (Thamer Z. et al 2018).

The main reason for practicing EBM is to improve quality of care through the identification and promotion of practices that work, and the elimination of those that are ineffective or harmful. EBM promotes critical thinking, and important for health care professionals to develop key EBM skills, including the ability to find, critically appraise, and incorporate sound scientific evidence into their own practice (A K Akobeng. 2005)

The practice of evidence-based medicine is a process of lifelong, self-directed, problem-based learning in which caring for one's own patients creates the need for clinically important information about diagnosis, prognosis, therapy and other clinical and health care issues. Its good application brings cost-effective and better health care. The key difference between EBM and traditional medicine is not that EBM considers the evidence while the latter does not. Both take evidence into account; however, EBM demands better evidence than has traditionally been used (Izet Masic, et al .2008)

As EBM is a "conscientious, explicit and judicious use of current best evidence in making decisions about the care of an individual patient, its teaching is recommended as an essential part of medical/clinical education (van Buljan, et al 2018).

The need and demand for evidence based practice in health care is growing rapidly because of information overload, rising patient expectations, new and advanced technologies and aging population.. The practice of EBM involves formulating answerable clinical questions, finding, appraising and applying the evidence and evaluating performance (Farley library research guides. 2020, Centre for EBM. 2020).

Therefore, EBM is a conceptual approach of the physician in making decisions related to the individual patient. Unlike this, evidence-based health care is somewhat broader concept that includes advanced approach to understanding the patients, families and doctors' beliefs, values and attitudes. It also relies on evidence, but primarily those on population level (Izet Masic, et al .2008).

Evidence needs to realize that it is a tool in the toolbox to inform doctors but to have any credibility it needs to be used on a scale and in a way which generates real confidence (Editorials.2017). Therefore evidence levels can be classified into evidences obtained from:

- 1) (1a) Meta-analysis of several randomized controlled research (RCR).
- 2) (1b) Only one randomized controlled research RCR.
- 3) (2a) Well-designed controlled research RCR.
- 4) (2b) One quasi experimental research.
- 5) (3) Non-experimental studies (comparative research, case study), according to some, for example Textbooks.
- 6) (4) Experts and clinical practice (Dang, D. & Dearholt, S.L. 2018 ).

Hierarchy of evidence is the levels of evidence assigned to studies based on the methodological quality of their design, validity and applicability to patient care (Darrell .W.2020). It provides a framework for ranking evidence that evaluates health care interventions and indicates which studies should be given most weight in an evaluation where the same question has been examined using different types of study (Elizabeth Ayetley, et al 2016).

Evidence-based practice (EBP) is believed to be associated with improved health, safety, and cost outcomes. Most medical practice in low- and middle-income countries is not evidence-based (Getenet Dessie, et al 2020).

Healthcare decisions are increasingly being based upon research-derived evidence, rather than on expert opinion or clinical experience alone, although Interpreting and understanding evidence synthesis, systematic reviews and other analytic literature is a difficult task. (Laxmaiah Manchikanti-, et al 2007; J C Craig, et al .2001 )

## 2. RATIONALE

EBM is an essential method of teaching that is applied in clinical decision making, therefore studying of knowledge, attitude and perception of EBM among medical students help to evaluate their knowledge and ability to use EBM to improve the quality of health care.

This research will help emphasize the importance of applying EBM in the curriculum of medical students.

The objective of this study to evaluate Knowledge, attitude and perception toward EBM among medical students in Shendi University in Sudan.

## 3. METHODOLOGY

The current study was descriptive cross-sectional one, carried out from October to December 2020 in the Faculty of Medicine in Shendi University in Sudan. It included one hundred and twenty one (121) medical students, as non probability convenience sample. Data was collected by individual interviewing, self- administrated questionnaire and analyzed by the soft ware SPSS for windows version (22).The references were managed manually using Harvard style.

## 4. ETHICAL CONSIDERATION

The study was approval by the department of community medicine in the Faculty of Medicine - Shendi University.

## 5. RESULTS

**Table 1:** The knowledge statements

Statement (1.1): Clinical expertise is one of the three components of Evidence-based medicine. (No. 121)						
Frequency	Famous text books	WHO reports	Senior opinions	Evidences	Patient's choice	Multiple options
Percentage	14%	10 %	9%	9%	1%	57%
Statement (1.2) : Strongest evidence' in the EBM concept. (No. 121)						

Frequency	Systematic Review	Cross sectional Study	Cohort Study	Longitudinal Study
Percentage	35%	33%	26%	6%
Statement (1.2) : Knowing Cochrane library. (No. 121)				
Frequency	Yes	No		
Percentage	25%	75%		

**Table 2:** The attitude statements

Statement (2.1): Discover that recent evidence contradicts clinical judgment. (No. 121)				
Frequency	Evaluate the evidence	Follow the evidence	Discard the evidence	
Percentage	49%	39%	12%	
Statement (2.2) : If there is a discussion in any medical information, How to know the answer. (No. 121)				
Frequency	Using books	Any website	Latest article	Asking consultant
No/ Percentage	37%	36%	17%	12%
Statement (2.3) : Interest in searching for medical updates				
Frequency	Sometimes	Always	Often	Never
Percentage	46%	30%	22%	2%
Statement (2.4) : Interest to know the sensitivity and specificity of any signs, symptoms or lab result. (No. 121)				
Frequency	Sometimes	Always	Often	Never
Percentage	30%	52%	16%	2%

**Table 3:** The perception statements

Statement (3.1): Agreement of important of EBM during undergraduate medical education. (No. 121)			
Frequency	Agree	Neutral	Disagree
Percentage	72%	27%	1%
Statement (3.2) : Believe in patients willing to participate in clinical decision making. (No. 121)			
Frequency	Sometimes	Always	Never
Percentage	66%	26%	8%

#### 4. DISCUSSION

This study was cross-sectional descriptive, conducted in Shendi University to assess evidence based medicine knowledge, attitude and perception among students; the study population were medical students.

Clinical expertise is one of the three components of Evidence-based medicine the answers were 14% for (Famous text book), 10% for (WHO reports), 9% for (senior consultant's opinion, Evidences,) and 9% for (Your patient's choice).The multiple options answers were 17% for (Evidence+ WHO reports), 10% for (Evidences+ the patient's choice), 9% for (Famous text books + senior consultant's opinion), 6% for (Famous text books + WHO reports), 5% for (senior consultant's opinion + Evidences), 3% for (Famous text book + Evidence), 3% for (WHO reports + the patient's choice), 2% for (senior consultant's opinion + Who reports), 1% for (Famous text books + the patient's choice) and also 1% for (Famous text books + senior consultant's opinion).

35% of the students know that systematic review is what provide the strongest evidence in 'Hierarchy of Evidence' in evidence based medicine concept In another study in Saudi Arabia in the same article 40.4% appreciated that the strongest evidence to EBP is systematic review (Thamer Z. et al 2018).

Students when asked if they know Cochrane library75% of them said no and 25% said yes, in comparison with students in Saudi Arabia when asked the same question 95% of the respondents were not aware of the Cochrane Library (CL), so regarding to that the level of knowledge about Cochrane library in Shendi university was good (Thamer Z. et al 2018).

When students asked if they discover that recent evidence contradicts clinical judgment what will they do 49% will (Evaluate the evidence), 39% said that they will(Follow the evidence) and 12% go with (Discard the evidence).

Using books was the choice of 37% of students and 36% said they will find out information from any websites, 15% said (Seeing the latest article) and 12% said (Asking your consultant) as an answer about If there is a discussion in any medical information, what will they do to know the answer, when the same question was asked to medical students of king Abdulaziz university in Saudi Arabia 7.1% said (Using books), 0% said (Find out from any website), 50% said (Seeing the latest article) and 42% said (Asking your consultant) (HussamAlbugami, et al. 2017).

Students were asked if they interested in searching for medical updates 46% said (Sometimes), 30% for (Always), 22% for (Often) and 2% for (Never), other study in the same article made in king abdulaziz university students respond to same question with different choices were 92.9% for (yes) and 7.1% for (no) (HussamAlbugami, et al. 2017)..

About the interesting of the students to know the sensitivity and specificity of any signs, symptoms or lab result 52% says they always interested about knowing it, in the other side 78% of king abdulaziz university students also have the interested to know (HussamAlbugami, et al. 2017).

72% of the students agree when they asked about their agreement of important of EBM during undergraduate education, 27% were Neutral and 1% disagree.

More than half of students (66%) think they (Sometimes) patients are willing to participate in clinical decision making, 26% said patient are (Always) in the other side 87.1% of medical students in deferent universities in Saudi Arabia says (Yes) for the participation of patients in clinical decision making(Thamer Z. et al 2018).

Students were asked if they have an account in any medical database library as question to assess their attitude and perception about EBM 59% said (No) and 41% said (Yes) (HussamAlbugami, et al. 2017).

The knowledge of the medical student of Shendi university about EBM was poor.

Their attitude toward it was good but not the best and that mostly because of the poor knowledge of them about EBM.

Their perception was significantly good especially about the important of the EBM and that may increase their interest to get more knowledge about it

## 5. CONCLUSION

The findings of this study described the current status of level of awareness and use of EBM among the medical students. More than half of students have poor knowledge toward evidence based medicine, and approximately half have good attitude compared with their poor knowledge, while the perception of the importance of EBM was good (72%).

## 6. RECOMMENDATIONS

It was recommended that EBM to be incorporated in medical schools curricula and to raise the awareness of the students about it, as new concept for contemporary and future medical practices.

### Authors contributions

- 1) Dr .Naba'a Alkhair ALshaikh: the principal investigator collected the data, interpreted the data generated.
- 2) Dr. Haghamaad Allzain : wrote and enriched the manuscript.
- 3) Dr. Bashier Eltayeb Shumo: the supervisor of the research, conceived the idea, provide critical suggestions, and follow up the course of the research.

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## CONFLICT OF INTEREST

The author have declared that no competing interests exist.

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