KNOWLEDGE AND PERCEIVED BARRIERS IN THE APPLICATION OF EVIDENCE BASED MEDICALRADIOGRAPHY IN NORTH EASTERN NIGERIA

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Abstract

Evidence Based Medical Radiography (EBMR) is the conscientious and explicit use of information based on the combination of clinical expertise and the best available research evidence and resources available. This study is a survey design aimed at evaluating the knowledge and perceived barriers of Radiographers in the application of Evidence Based Medical Radiography. Forty (40) questionnaires were administered among Radiographers practicing in various states in North Eastern Nigeria out of which 32 (80%) were retrieved. The participants were required to fill a 20 item, self-administered and pretested questionnaires comprising of two sections with questions on demographic data, knowledge, and barriers to the application of EBMR among radiographers. The respondents were between 20 and 56 years, majority were between 26-30 years 56.3%, while 6.3% had the least response.87.5% were males while 12.5% were females. The location of respondents were Yobe15.6%, Gombe 21.9%, Bauchi 9.4%, Adamawa 6.3% and Borno 46.9%.Respondents qualifications were 3.12% Diploma, 90.62%Bachelor's degree while 6.25% had Master's degree. 87.5% had good knowledge of EBMR and apply it in practice while 46.9% considered lack of ready access to EBMR resources as important barriers to the use of EBMR in clinical practice. The study showed that radiographers practicing in North Eastern Nigeria had good knowledge of evidence based medical radiography.

Keywords: knowledge, Barriers, Evidence- based Practice, Medical, Radiography

INTRODUCTION

Evidence based medical radiography (EBMR) is described in terms of evidence–based medicine (EBM) and is defined as radiography informed ,updated and based on the combination of clinical expertise and the best available research based evidence, patient preferences and resources available. (Hafslund et al.,2008). EBMR offers the integration

of the best research evidence with clinical knowledge, expertise and patient values. (Bjorg et al., 2008). EBMR is being debated and radiographers are discussing the challenges of implementing EBMR in both academic and clinical practice. However, EBMR need to be a basis for radiography curriculum and an integral part of radiography practice. (Bjorg *et al.,* 2008).The concept of EBM marks a Paradigm shift among health care professional from a traditional emphasis on actions based on opinions of experts to guide clinical practice to an emphasis on data based, clinically relevant studies and research.(Guyattetal.,2000).Any Medical imaging practice or education which is not based on current best evidence is unscientific and lacks the capability for sustainable quality and improvement.(Antony et al., 2009).

Radiography has evolved over the years and this had led to increasing demand for an interest in the use of evidence as a basis for making diagnostic care decisions. This demand for evidence-based treatment and cost effectiveness has challenged many practices and brought pressure to health care professionals to change attitudes and develop skills. (Christel, 2000). Over the past three decades, the medical community has increasingly supported the principle that clinical practice is based on the critical evaluation of the results obtained from medical scientific research. (Garcia, 2011). Today this evaluation is facilitated by the Internet resources which provide instantaneous online access to the most recent publications even before they appear in print form. More and more information is solely accessible through the Internet and through quality- and relevance-filtered secondary publications (meta-analyses, systematic reviews, and guidelines). EBMR, is increasingly expanding into healthcare and bringing a striking change in teaching, learning, clinical practice, and decision making by physicians, administrators, and policy makers. EBMR has entered radiology with a relative delay but a substantial impact of this approach is expected in the near future. (Francesco et al., 2002).

EBMR is an integral part of our daily activity in Radiography practice to ensure effective health care delivery; it focuses on the use of current literature, well established, tested and approved guidelines from research findings in order ti identify best practices and to ensure effective care and management of patients. EBMR includes developmental and standardized plans of care specific to different conditions and utilizes ongoing measurable evaluation of outcomes to determine the efficacy and effectiveness of practical guidelines. It also involves detailed methods of scientific inquiry used to determine standardized medical care. In medicine, evidence based medical practice is the process of integrating research with practical methods of administering effective health care. Evidence based paradigm was first described about a decade ago, previous authors have described a framework for the application of evidence based medicine. (Tony, 2008). The concept of systematically using research findings in medical practice was first expounded in the mid to late 1990s. (Tony, 2008). Sackett et al . (1996), defined evidence based medicine as the conscientious, judicious and explicit use of current best evidence in

clinical decision making. However, medical Imaging Scientist and other clinicians should ensure that they only use diagnosis and treatments that have clinical research framework to prove their validity.(Antony et al.,2009). This aims to get rid of trial and error methods in patient care. All treatment, diagnosis and decision making by health professionals should be based on best available information that comes as a result of using good resources and constant critical thinking skills. Going on instincts or using outdated resources can lead to insufficiency at best and endangerment of patients at worst.

Application of the best available evidence gained from the scientific method to clinical decision making must be emphasized.

EBMR takes into cognizance various aspects of health care which depends on individual factors such as quality and value of life which are only based on scientific methods. However, it seeks to clarify those parts of medical practice that are in principle subject to scientific methods and to apply this method for best outcomes of medical treatment even as debate continues which outcomes are desirable for evidence of risks, benefits of treatments and diagnostic tests. This helps clinicians understand whether or not a treatment will do more good than harm. This has to do with tested and tried techniques to enhance patient care and to improve their condition. The purpose of this study was to determine the knowledge of Radiographers in Northern Nigeria towards the use of evidence based radiography and perceived barriers to the use of EBMR

Materials and Method

Registered and licensed Radiographers with Radiographers Registration Board of Nigeria and Association of Radiographers of Nigeria were recruited for this study. This study is a survey design conducted among radiographers in North Eastern Nigeria. A total 40 pretested questionnaires were administered among Radiographers practicing in various states in North Eastern Nigeria on one on one basis out of which 32 (80%) were retrieved. The questionnaire had two sections comprising of closed ended questions on demographic data, knowledge of radiographers towards EBMR and barrier to the application of EBMR among Radiographers. The questionnaire consists of questions seeking information on radiographer's definition of EBMR, attendance at EBMR courses, beliefs regarding patients' willingness and capability to participate in EBMR and their perceived barriers to use of EBMR. Data analysis employed descriptive statistics and theme analysis of suggestions made by radiographers. SPSS Version (21.0) for Microsoft windows was used for analysis.

Results

Demographic Characteristics

Out of the 32 respondents, 28(87.5%) were males and 4(12.5%)were females representing a response rate of 80% . The highest age range of respondents were between

26 to 30 years, 18(56.3%) then followed by 7(21.9%). 3(9.4%) respondents were older than 40 years and 2(6.3%) respondents each were between 31 to 35 and 36 to 40 years. The distribution of registered and licensed radiographers as at the time of study were Yobe 5(15.6%), Gombe 7(21.9%), Bauchi 3(9.4%), Adamawa 2(6.3%) and Borno 15(46.9%). The work experience of respondents were 28(87.5%) 1to 5years, 2(6.3%) 6 to 10 years, 1(3.1%) 11 to 15 years and 16 to 20 years respectively. Their various qualifications presented as follows1 (3.12%) had Diploma, 29(90.62%) had Bachelor's degree while 2(6.25%) had Master's degree.

Respondent's Knowledge and Practice of EBMR

Table 2 showed various responses on knowledge of EBMR.

Question 1 Response on definition of EBMR. Twenty eight (87.5%) responded correctly defined EBMR as systematically using research findings in radiography and medical imaging. Two (9.4%) defined it as using textbook knowledge in practice. While 1(3.1%) defined it as engaging in private and public service at the same time. Question 2 Response on application of EBMR. Twenty eight (87.5%) responded yes while 4(12.5%) responded no.

Question 3 Response to identification of justification and optimization as components of EBMR. Most 31(96.9%) of the respondents responded yes to the question on whether justification and optimization of practice are two key components of EBMR while 1(3.1%) responded no to the question.

Question 4 Response to identification of barriers in the use of EBMR. 15(46.9%) of the respondent's considered no ready access to evidence based medical imaging resources as most important barriers to EBMR in clinical practice. This was immediately followed by a threat to clinical freedom and judgment 9(28.1%) while the least 3 (9.4%) important barrier to the use of EBMR in clinical practice was that do not believe in EBMR.

Question 5 When the respondents were asked what the will do if the discovered that their evidence contradicts their clinical judgment Most 18(56.3%) responded that they will evaluate the evidence while 4(12.5%) said they will discard the evidence. The majority 24(75%) of the respondents either disagree or strongly disagree the concept of EBMR is not applicable to them. Table 3

Table 1- Demographic data of Respondents

Characteristics	Frequency	Percentage
Sex		
Male	28	87.5
Female	4	12.5
Age		
20 – 25	7	21.9
26 – 30	18	56.3
31 – 35	2	6.3
36 – 40	2	6.3
>40	3	9.4
States		
Yobe	5	15.6
Gombe	7	21.9
Bauchi	3	9.4
Adamawa	2	6.3
Borno	15	46.9
Work Experience		
1 – 5 years	28	87.5
6 – 10 years	2	6.3
11 – 15 years	1	3.1
16 – 20 years	1	3.1
Qualification		
DCR	1	3.12
B.Sc\B.RAD	29	90.62
MSc	2	6.25

Table 2: Knowledge of EBMR

Questions	Frequency	Percentage (%)
How do you define EBMR		
Systematically using research finding in medical imaging	28	87.5
The use of textbook knowledge in practice	3	9.4
Engaging in public and private practice at the same time	1	3.1
Have you ever applied EBMR in practice		
Yes	28	87.5
No	4	12.5
Justification and optimization are two key components of EBMR		
Yes	31	96.9
No	1	3.1
Total	32	100.0

Table 3: Perceived Barriers in the Application of EBMR

Questions	Frequency	Percentage (%)
What do you consider as the most important barriers to your use of EBMR in clinical practice		
No ready access to evidence based medical imaging resources	15	46.9
Threat to clinical freedom/judgments	9	28.1
It is research and not applicable	3	9.4
Don't believe the evidence based medical radiography is universally applicable	1	3.1
It is difficult to understand	2	6.3
I have no time	2	6.3
If you discover that your evidence contradicts your clinical judgment, what will you do		
Discard the evidence	4	12.5
Follow the evidence	10	31.3
Evaluate the evidence	18	56.3
The concept of EBMR is not applicable to my profession		
Strongly agree	2	6.3
Partially agree	6	18.8
Disagree	16	50.0
Strongly disagree	8	25.0
Total	32	100.0

Discussion

Radiography profession is experiencing systematic growth in Nigeria and Radiographers are increasingly involved in x-ray, Computed Tomography, Magnetic resonance imaging, ultrasonography and other clinical role extensions. It is therefore imperative that they possess more than basic clinical knowledge. The result in this study suggests that Radiographers working in North Eastern Nigeria have a positive attitude and good knowledge of the application of EBMR and they believe that the use of EBMR is necessary. The age of the respondents were between 26 years to 30 years, frequencies and percentages of the respondent's gender, the males were 28(87.5%) while females were 4(12.5%). This agrees with some studies which established majority of the respondents coming from this age range. And gender as well (Hafslung et al., 2008, Knops et al., 2009). This could be as a result of academic pursuit and research of most youths at that age range and their quest for new and current knowledge.

Majority of the respondents had at least a degree in Radiography showing that the professionals are gradually improving from the former Diploma to Bachelor's degree with increasing number of graduates from the North Eastern Nigeria.

Radiographers need to embrace EBMR to be up to date. The profession will benefit greatly from the improvement in practice that will result from this more rigorous approach to all aspects specialization. Wherever radiographers are involved in producing guidelines, refereeing manuscripts, publishing work or undertaking research, cognizance

of EBMR principles should be maintained. By making step-by-step change in our approach, we will improve radiology for future generations and our patients. EBMR should be promoted by Radiographers and all the subspecialty societies and associations.(Francesco *et al*, (2002).

This study identified that majority of Radiographers 28(87.5%) responded correctly by defining EBMR as systematically using research findings in radiography and medical imaging. The knowledge of EBMR may be related to the training received by Radiographers at their undergraduate levels which incorporated EBMR concepts in teaching as a panacea for good practice. This findings agrees with that of Ugwu *et al.,* 2010.How ever this contrast with the response by few 3 (9.4%) use of text books in practice and a combination of both private and public practice 1(3.1%), their correct choice might have been guided by common sense. On whether the respondents received formal educational strategies for incorporating EBMR into practice, it was identified that most Radiographers apply EBMR in practice 28(87.5%). The respondents reported at least the understanding of technical terms used in in the literature to explain evidence from clinical findings. This agrees with the studies done by Ugwu *et al.,* 2010 in Nigeria and Kyei *et al.,* 2015 in Ghana. Most Respondents believe that Justification and optimization are two key components of EBMP 31(96.9%) against 1(3.1%). This agree with the study carried out by Antony *et al.* (2009) Bjorg *et al*. (2008) and Garcia, (2011). Majority of Radiographers 28(87.5%) defined EBMR correctly and have also apply it in practice. This disagrees with a study that reported poor knowledge and suggested that there is great need for structured curriculum for teaching which should include statistical modules, critical appraisal modules and practical approach (Anuradha *et al*., 2013). This study showed that Radiographers have good knowledge of evidence based medical Radiography by conscientious, judicious and explicit use of current evidence, search and research of evidence in Radiological practice. This concurs with the study by Ugwu *et al*., (2010).Majority of Radiographers 15(46.9%) consider no ready access to evidence based medical imaging resources as the most important barriers to your use of EBMR in clinical practice, 9(28.1%) believe it is a threat to clinical freedom and judgment.3(9.4%) of respondents believed that it is research and therefore not applicable,1(3.1%) Radiographer responded that he does not believe that the EBMR framework is universally applicable, 2(6.3%) responded that it is difficult to understand while 1(6.3%) had no time for EBMR. 15 (46.9%) Radiographers perceived that the most important barrier to the use of EBMR in Radiography practice as paucity or no ready access to medical Radiography resources. The skepticism by majority of respondents over their capability and willingness on access to EBMR materials indicates that medical imaging scientists underestimates their ability to research potentials.

Most Radiographers 18(56.3%), believe they will evaluate the evidence if they discover that evidence contradicts clinical judgment. 4(12.5%) will discard the evidence, while 10(31.3%) believe the best way is to follow the evidence. This disagrees with a study in

India on resident Doctors knowledge of Evidence based medicine which showed 50 -70% being unaware of the evidence to be applied for clinical judgement. (Anuradha *et al.*, 2013). Based on the application of EBMR to Radiography profession. 4(6.3%) strongly agree, 6(18.8%) partially agree, 16(50%) disagree while 8(25%) respondents strongly disagree. 16(31.3%) disagree while 8(25%) strongly disagree that the concept of EBMR is not applicable to them. This reveals that most Radiographers believe that the concept of EBMR is central and an integral part of their profession. This agrees with the study by Garcia, 2011. Radiographers show good knowledge of EBMR and agree that it is applicable to Radiography profession. The major barrier was no ready access to EBMR materials.

Conclusion

The study showed that radiographers practicing in North Eastern Nigeria have good knowledge of evidence based medical radiography. There is a need for Radiographers to stay abreast of published literatures in their field if they are to provide the best quality service to patients and to the community as a whole. The evidence based framework however, provides a model for efficient use of the literature to address specific clinical problems or areas where improvement is needed. Health professionals need to possess more than just their clinical expertise if they are to meet the demands of the changing health care system and the expectation of an increasingly aware and informed patient's population.

Finally, information fluency and ability to efficiently access and apply current best evidence in Radiography and medical imaging practice can no longer be regarded as optional but should be considered as essential component of health professionalism.

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