

Assessment of Evidence Based Practice (EBP) among graduate Radiographers

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Abstract— Evidence-based practice (EBP) offers the integration of the best research evidence with clinical knowledge and expertise and patient values. EBP is considered to be an essential component of clinical service delivery in health care. The aim of the study was to assess the knowledge, attitude and practice about EBP among graduate radiographers.

A descriptive cross sectional study was carried out using an interviewer administered questionnaire among all (20) graduate radiographers who practice at National Hospital Sri Lanka. Data regarding demography, current EBP activity, perceived EBP skills, recognition of EBP terminology and search strategies, beliefs and attitudes to EBP and local barriers to EBP were obtained. Most survey items included four and five response options (4 and 5-point Likert scales). All data analyses were done using SPSS statistical software version 14.0 (SPSS Inc, Chicago, USA). P-value<0.05 was considered as statistically significant.

A response rate of 100% was obtained. 60% of them were females. 60% of them mentioned that EBP is new to them, 65% of participants were reading research literature related to clinical practice on a monthly basis. 50% of participants rated their knowledge and skills in EBP as "fair". 65% of participants agreed with the statement regarding the value of EBP, and that such an approach improves patient care. 75% of them reported that "insufficient time" was the primary barrier to the application of EBP in their clinical practice. Most of them (92%) did not understand the terms "systematic review" and "validity". 75% of them were able to understand the basic terms used in research methodology. Female radiographers were able to score well compare with males (P=0.032). Also, we found that radiographers' knowledge about EBP did not show

any significant difference with their experience (P=0.112).

Knowledge, attitude and practice about EBP among graduate radiographers were poor.

Hence, this is time to introduce the term "Evidence-Based Radiography" in Sri Lanka. Sample was inadequate because of less number of graduate radiographers are practising in Sri Lanka. Further research is needed to compare these results with other radiographers.

Keywords: Evidence Based Practice, Radiography, Research

I. INTRODUCTION

Evidence-Based Medicine(EBM) was introduced in 1992 and defined as the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients(Sackett et al, 1996). This name has been defined in various forms such as Evidence Based Decision Making(EBDM), Practice of Evidence Based Medicine(PEBM) and Evidence Based Health Care(EBHC) with all of its definitions inculcating similar core concepts(Harald, 2000).

This definition did not pay enough attention to the traditional determinants of clinical decisions. Then, contemporary definition of EBM was established and defined as simply "the integration of the best research evidence with clinical expertise and patient values" (Sackett, et al. 2000). Clinical expertise means to the clinician's cumulated experience, education and clinical skills. The patient brings to the encounter his or her own personal preferences and unique concerns, expectations, and values. In other terms, EBP uses research information to help in recommending to patients the best next step in their health care.

Evidence-based practice (EBP) is the conscientious and judicious use of current best evidence in conjunction with clinical expertise and patient values to guide health care decisions.(Sackett et al 2000; Cook D 1998; Jennings BM and Straus SE 2001)

It can be practiced in any situation where there is doubt about aspects of clinical diagnosis, intervention, or management(Harald O 2000). For examples; in medicine, dentistry, and Allied Health Professions(AHP). It is one step toward making sure each patient gets the best diagnosis and treatment possible. It also helps to keep health professionals' knowledge up to date, supplements clinical judgment, can save time and can improve care and even save lives. It is a way to balance their own views with large scale research evidence.

AHP such as nursing and physiotherapy have developed Evidence-Based Nursing(EBN) (Youngblut JM and Brooten D 2001)and Evidence-Based Physiotherapy(EBP)(Iles R and Davidson M 2006) and databases (evidence based nursing BMJ and Physiotherapy Evidence Database) exists within their professional fields. Unfortunately, radiography profession is yet to queue into this practice due to many challenges. Several studies conducted in developing the profession of radiography(Upton et al 2006; Nixon 2001;Sola et al 2005; James et al 2011). Their results validate contribution of EBP in radiography. Several studies proved that greater use of valid research evidence from the literature provides better quality health care specially in radiography field.(Carlo 2004) Good knowledge and attitude towards research is essential in implementing the paradigm shift from the traditional model of practice to EBP.(Chin Chin Ooi 2012)

Worldwide, Evidence Based Practice in radiography is being debated and academicians and radiographers are discussing the challenges of implementing EBP in both academic and clinical practice. (Bjorg et al 2008)

In radiography in Sri Lanka, this is a relatively new concept and it is highly dependent on the web resources. In the past few years, radiography in Sri Lanka has experienced a wealth of changes, involving the introduction of degree programme,

continuing education, training programmes and public expectations. EBP must become a familiar term in the radiography profession and health care system of Sri Lanka. From literature review, there has not been any structured or empirical research to assess the knowledge, attitude and perceptions of radiographers about EBP in Sri Lanka.

With these facts in our mind, we conducted this study to assess the knowledge, attitude and practice of EPB among graduate radiographers in Sri Lanka.

II. METHODS AND MATERIALS

The study was designed as a descriptive cross sectional study. Following the approval, questionnaires were distributed to the study population comprising graduate radiographers following training at National Hospital, Colombo(NHSL) The study was carried out between the period of January and March, 2014.

The population was 20 and it was considered as sample. We didn't exclude anyone in the study. There was no obligation for the radiographers to take part in this study and no funding was sought for this study.

The instrument used in this study was interviewer administered questionnaire. There were four components in the questionnaire; demography, current EBP activity, perceived EBP skills, recognition of EBP terminology and search strategies, beliefs and attitudes to EBP and local barriers to EBP. Most survey items included four and five response options (4 and 5-point Likert scales).

To test for face validity, the questionnaire was pre-tested among two graduate radiographers working at private hospitals. They stated that they had no difficulties in understanding or answering the questions and therefore no changes were made.

Written information about the study was given and oral consent was obtained from the participants. All participants were given enough time to respond the questionnaire without access to any radiological resources.

Outcomes of all the tests were recorded in the MS office spread sheet(excel). All data were analyzed by using the statistical software SPSS (PASW version 18.0,2009). Parametric tests were used to

analyse the data. All analyses were two-tailed, and P value less than 0.05 was considered as statistically significant.

III. RESULTS

A response rate of 100% was obtained. 60% of them were females. 60% of them mentioned that EBP was new to them, 65% of participants were reading research literature related to clinical practice on a monthly basis.

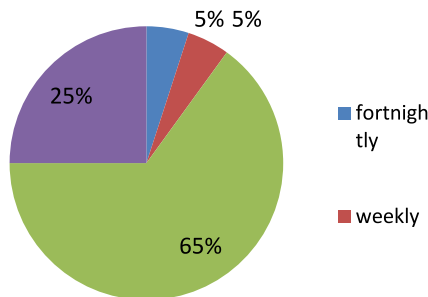


Figure 2. Reading research literature related to radiography practice

50% of participants rated their knowledge and skills in EBP as “fair”.

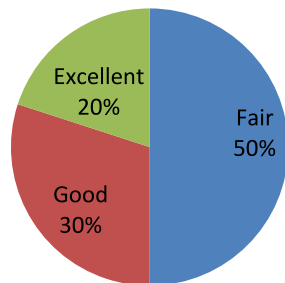


Figure 4. Self-rated EBP knowledge and skills

65% of participants agreed with the statement regarding the value of EBP, and that such an approach improves the patient care. 7% of them reported that “insufficient time” was the primary barrier to the application of EBP in their clinical practice.

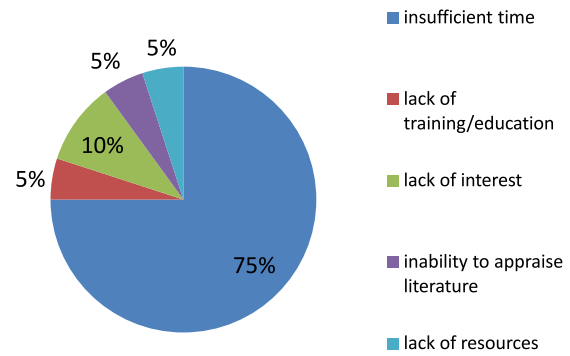


Figure 1. Barriers to the applications of EBP

Most of them (92%) did not understand the terms “systematic review” and “validity”. 75% of them were able to understand the basic terms used in research methodology.

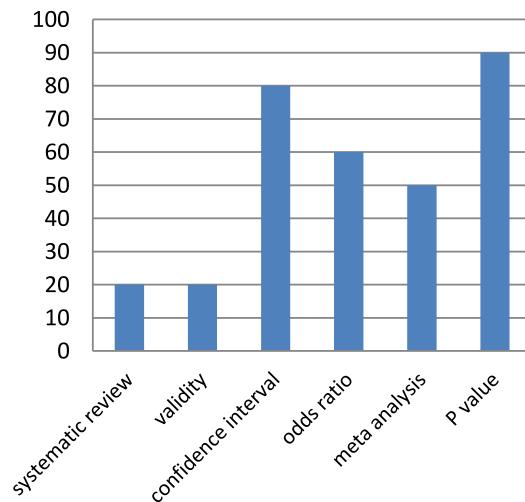


Figure 3: Awareness of common technical terms

Female radiographers were able to score well compare with males (P=0.032). Also, we found that radiographers’ knowledge about EBP did not show any significant difference with their experience (P=0.112).

IV. DISCUSSION

Any profession in medical related field which is not based on current best evidence is unscientific and lacks the capability for sustainable quality and improvement. Evidence Based Radiography is 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)

The radiographic knowledge base has for many years been built on research carried out by radiologists and physicists.(Adams J and Smith T., 2003) But, Radiographers may also play an active and important role in developing information material relating to imaging procedures.(Stolberg HO, 2001) Radiographers are responsible for developing practice within their profession and should have an obligation for doing research in their specific radiographic domain.

As an example, a study was carried out to implement Evidence Based Guidelines for radiography in acute Lower Back Pain(LBP) among chiropractic community in Canada. It suggests that the educational intervention strategy used in this study appeared to have an effect in reducing the perceived need for plain radiography in acute LBP. (Carlo A et al, 2004)

Hence, we have to think more about implementation of radiography and professionalism of radiography. Increasing number of research activities also contribute in developing radiography profession. According to Beverly Snaith's study, there has been a growth in number of research papers in UK radiography journal and radiographers who work in hospitals and universities are contributing to the evidence base through increased collaboration.(Beverly Snaith, 2012)

According to the study of Upton et al, podiatrists, radiographers, and orthoptists reported having less knowledge of EBP than physiotherapists, occupational therapists, dietitians, speech and language therapists, and psychologists.(Upton et al, 2006) Barriers to implementing EBP were similar for all groups, with lack of both time and money cited as the main issues. In most of the studies lack of time and lack of resources were mentioned as main barriers in the applications of EBP in radiography(Chin-Chin O et al,). But, in our study lack of time was mentioned as a main issue(75%). Anthony CU et al(2009) mentioned that 62% of radiographers didn't know about EBP in radiography in Nigeria. It was similar to our study (60%).

Research skills are essential to develop the professional activities in radiography. Primary research needs to be encouraged at university level. Newly graduated radiographers should be encouraged to undertake research once they enter the hospitals and they should publish their findings. Usually, quantitative methods are used in radiography related researches. But, Curtise KC et al suggests that some qualitative approaches, that are grounded theory, phenomenology and ethnography can also be applied in radiography related researches. (Curtise K.C.et al, 2008) In our study, we didn't ask anything about their undergraduate research. If we include them, those details could provide useful results related to this study.

There are several limitations to our study; one limitation relates to small sample size. Only 20 radiographers are practising at NHSL out of 45 graduate radiographers. Rest of them are working in either abroad or universities. Second we limited to our study to graduate radiographers only. We didn't assess non-graduate radiographers' knowledge about EBP. Third, we didn't ask any questions regarding their undergraduate research project. The large knowledge gap related to EBP in radiography suggests the need to incorporate structured knowledge into the curriculum of radiography and introduction of training programmes and workshops.

V. CONCLUSION

Knowledge, attitude and practice about EBP among graduate radiographers were poor. Hence, this is time to start to introduce the term "Evidence-Based Radiography" in Sri Lanka. Further research is needed to compare these results with other radiographers.

REFERENCES

- Adams, J. and Smith, T. (2003) Qualitative methods in radiography research: a proposed framework. *Radiography*,9,pp193-199.
- Anthony et al (2009) Evidence based medical imaging practice in Nigeria: A paradigm or a placebo? *European Journal of Radiography* 1(4), pp 169– 172.

- Beverly Snaith, (2012) Collaboration in radiography: A bibliometric analysis *Radiography*,18(4), pp 270– 274
- Bjorg Hafslund (2008) Evidence-based radiography *Radiography* 14, PP343 - 348
- Carlo, A. et al, (2004) Implementing Evidence Based Guidelines for Radiography in cute low Back Pain: A pilot study in a Chiropractic community, *Journal of Manipulative and Physiological Therapeutics* 7(3), pp170-179
- Chin Chin Ooi et al (2012) A survey on the research awareness and readiness among radiographers in Singapore General Hospital (SGH),*Radiography*, 18(4) pp264-269
- Cook, D. (1998) Evidence-based critical care medicine: a potential tool for change. *New Horiz*,6(1), pp20-25.
- Curtise K.C.et al,(2008) Establishing a method to support academic and professional competence throughout an undergraduate radiography programme *Radiography*,14(3) pp 255–264
- Database for Evidence Based Physiotherapy. Available from: <http://www.pedro.org.au/>
- Database for Evidence Based Nursing. Available from: <http://ebn.bmj.com/>
- Hafslund, B. et al (2008) Evidence-based Radiography. *Radiography* 14, pp343-348
- Harald, O. Stolberg (2000) Evidence-based Radiology: A New Approach to the Practice of Radiology The Evidence- Based Radiology Working Group. , accepted December 22,2000
- Iles, R. and Davidson, M. (2006). Evidence based practice: a survey of physiotherapists' current practice, *Physiother Res Int.*,11(2), pp93- 103.
- James, N.K. (2011)The uptake of Continuing Professional Development (CPD) by Ghanaian radiographers *Radiography*, 17(4), pp 332–344
- Jennings, B.M. and Loan, L.A. (2001) Misconceptions among nurses about evidence-based practice. *Journal of Nursing Scholarship*,33(2) pp121-7.
- Nixon, S. (2001) Professionalism in radiography, *Radiography*,7(1), pp 31–35
- Sackett, D. et al (1996). Evidence based medicine: what it is and what it isn't. *British Medical Journal*, 312, pp71-72
- Sackett, D. L. (2000). Evidence-based medicine: How to practice and teach EBM(2nd ed.). Edinburgh; New York: Churchill Livingstone
- Sola Decker (2005) Developing the profession of radiography: Making use of oral history *Radiography* 11(4) 2005, pp 262– 271
- Stolberg HO.(2001) Evidence-based Radiology: A New Approach to the Practice of Radiology. *Radiology*, 220, pp566-575.
- Upton et al (2006) Knowledge and Use of Evidence-based Practice by Allied Health and Health Science Professionals in the United Kingdom *Journal of Allied Health*, 35(3), pp. 127-133
- Youngblut, J.M. et al (2001) Evidence-based nursing practice: why is it important? *AACN Clin Issues*. 12(4),pp 468-76.

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