



Received on 14 March 2023; received in revised form, 08 May 2023; accepted 31 May 2023; published 01 November 2023

A QUESTIONNAIRE STUDY ON KNOWLEDGE AND ATTITUDE TOWARDS EVIDENCE BASED MEDICINE AMONG INTERNS AND POSTGRADUATES IN A TERTIARY CARE TEACHING HOSPITAL

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Keywords:

Evidence based medicine (EBM), Compulsory rotatory residential internship (CRRIs), Postgraduates (PGs), Knowledge, Attitude

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ABSTRACT: Background: Evidence based medicine (EBM) integrates the best available data from clinical research into clinical practice. Residents (PGs & CRRIs) are at the frontiers of healthcare who are still struggling to adapt the paradigm shift in the practice of medicine. This study aims to explore the knowledge and attitude of EBM among residents in a tertiary teaching hospital. **Materials and Methods:** After IEC approval, this cross-sectional questionnaire study was conducted among PGs and CRRIs in Melmaruvathur Adhiparasakthi institute of medical sciences & Research for 3 months. All the 81 CRRIs and 51 PGs were enrolled. Written informed consent was obtained. The pre-validated, 20 questionnaires, designed based on McColl questionnaire has been used to obtain information about the knowledge (10 questions) and attitude (10 questions) of EBM. SPSS 21.0 was used for data analysis. **Results:** Out of 132 participants, 63.81% had formal EBM training while, 21.21 % had no previous exposure. Regarding the knowledge of some commonly used technical terms in EBM, 84.31% (43) of PGs and 11.11% (9) of CRRIs responded that they know and can explain the term 'relative risk'. The participants reported that, they could interpret and explain the terms, such as "Absolute risk" (37.87%), "odds ratio" (41.66%) and "Attributable risk" (35.6%). Majority (62.12%) of them were unfamiliar with Forest plot. The mean (\pm SD) attitude score of PGs 41.90 ± 4.36 and CRRIs 40.11 ± 4.38 showed an overall favorable attitude towards EBM. **Conclusion:** Formal EBM training and integration of EBM in undergraduate programs considerably promotes EBM practice, enhancing the opportunity for ideal clinical decision- making.

INTRODUCTION: Evidence based medicine (EBM) is the process of systematically reviewing, appraising and using clinical research findings to aid the delivery of optimum clinical care to patients. It is the conscientious, explicit and judicious use of current best evidence in making decisions regarding the care of individual patients.

EBM includes the integration of best research evidence with clinical experience and patient values¹. The practice of EBM includes five steps: formulate answerable clinical questions, search for evidence, appraise your evidence, implement the valid applicable evidence and evaluate².

The collection and evaluation of evidence are a significant stumbling block³. It is imperative that, doctors should have an understanding of, how evidence is documented, analyzed and interpreted⁴. To make it simple and easier, most of the studies focused the importance of incorporating EBM in medical education and health care^{5, 6}. Such educational intervention will significantly enhance

<p>QUICK RESPONSE CODE</p>	<p>DOI: 10.13040/IJPSR.0975-8232.14(11).5306-10</p> <p>This article can be accessed online on www.ijpsr.com</p>
<p>DOI link: https://doi.org/10.13040/IJPSR.0975-8232.14(11).5306-10</p>	

EBM skills in future doctors. In a tertiary care hospital, the medical residents are usually the first level in the healthcare team. Studies have shown that most residents fail to look up answers to clinical questions due to various reasons^{8,9}.

There is a strong need to propagate EBM among residents so that it is inculcated in day-to-day practice. Hence, a questionnaire-based study to assess the knowledge and attitude of interns and postgraduates towards EBM will give a snapshot about the level of awareness and thus guide to design methods for better promotion of EBM.

Objectives:

1. Primary objective is to assess the knowledge and attitude towards EBM among interns and post graduates in a tertiary care Hospital.
2. To aid effective implementation of EBM in healthcare delivery system.

MATERIALS AND METHOD: After obtaining IEC approval (ECR/1487/Inst/TN/2020), this cross-sectional questionnaire study was conducted in Melmaruvathur Adhiparasakthi institute of medical sciences & Research among the postgraduates and interns. The duration of the study was 3 months. All the 81 CRRIs and 51 PGs were enrolled. Written informed consent was obtained. The 20 pre-validated questionnaire designed, based on McColl EBM questionnaire has been used to obtain information about the knowledge and attitude of EBM¹⁰.

The nature and purpose of the study was explained. Appropriate instructions about filling the questionnaire were elaborated. The participants were asked to fill up the questionnaire in one hour time. 10 questions regarding Knowledge about EBM were mainly assessed by the respondents' level of familiarity with the different EBM terminologies, concerned with statistical implications. The 10 questions for attitude were assessed using 5 point Likert scale. Attitude towards EBM was scored as "strongly disagree =1", "disagree =2", "don't know =3", "agree = 4", "strongly agree =5". The scores pertinent to each choice were then summed to yield an overall attitude score which, therefore ranged from 10 to 100. SPSS 21.0 was used for data analysis.

Descriptive statistical analysis was done to obtain frequency and proportions. Medians and 25–75% interquartile ranges (IQR) of attitude scores were reported and compared using the non-parametric Mann–Whitney test.

RESULTS: Out of 132 participants, the 51 postgraduates belonged to the age group of 30.31±2.53 in which 22(43.13%) were male and the rest, 29 (56.86%) were female. Among 81CRRIs, 31 (38.27%) were male and 50 (61.72%) were female. The mean age of CRRIs was 22.87±1.36 as shown in **Table 1**.

TABLE 1: DEMOGRAPHIC PROFILE

	PG (n=51)	CRII (n=81)
Male	22 (43.13%)	31 (38.27%)
Female	29 (56.86%)	50 (61.72%)
Mean Age	30.31±2.53	22.87±1.36

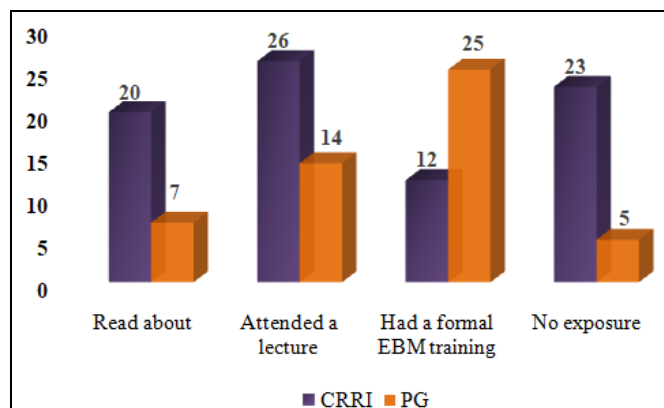


FIG. 1: PREVIOUS EBM EXPOSURE

Fig. 1 depicts the previous EBM exposure of the participants where, 25 (49%) PGs and 12 (14.81%) CRRIs had formal EBM training while, on the whole; 28 (21.21 %) had no exposure. 26 (32%) CRRIs and 14 (27.45%) PGs had attended a lecture on EBM, whereas; only 27 (20.45%) had read about EBM.

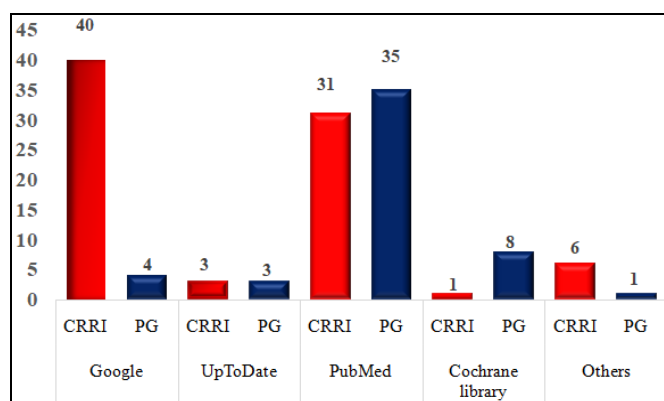


FIG. 2: FIRST SOURCE SOUGHT FOR EVIDENCE

Fig. 2 represents first source sought for evidence, in which 31(38.2%) CRRIs and 35(68.6%) PGs preferred PubMed. On the whole 6.8% of the

respondents choose Cochrane library and UpToDate equally. Most of CRRIs (49.3%) opted Google.

TABLE 2: KNOWLEDGE OF COMMONLY USED TECHNICAL TERMS IN EBM (PARENTHESIS INDICATE PERCENTAGE)

	Yes, and can explain		Yes, but can't explain		Not familiar	
	CRRi	PG	CRRi	PG	CRRi	PG
Relative risk	9(11.11)	43(84.31)	66(81.48)	8(15.69)	6(7.41)	0(0)
Absolute risk	10(12.35)	40(78.43)	65(80.25)	11(21.57)	6(7.41)	0(0)
Odds ratio	14(17.28)	41(80.39)	64(79.01)	9(17.65)	3(3.70)	0(0)
Attributable risk	9(11.11)	38(74.51)	30(37.04)	11(21.57)	42(51.85)	2(3.92)
Forest Plot	3(3.70)	20(39.22)	7(8.64)	20(39.22)	71(87.65)	11(21.57)

Regarding the knowledge of some commonly used technical terms in EBM, 84.31 % (43) of PGs and 11.11% (9) of CRRIs responded that they know and can explain the term ‘relative risk’. The participants reported that they could interpret and explain the terms, such as “Absolute risk” (37.87%), “odds ratio” (41.66%), “Attributable risk” (35.6%). Majority (62.12%) of them were unfamiliar with Forest plot as shown in **Table 2**. 20 (39.22%) PGs relied on Meta-analysis for evidence, while 29 (35.8%) CRRIs relied on Randomized

controlled trial. The least relied by the PGs (1.96%) and CRRIs (12.35%) were, case control studies as shown in **Table 3**.

TABLE 3: EVIDENCE YOU RELY ON (PARENTHESIS INDICATE PERCENTAGE)

	CRRi	PG
Randomized controlled trial	29 (35.80)	18 (35.29)
Meta-analysis	12 (14.81)	20 (39.22)
Systematic review	17 (20.99)	8 (15.69)
Cohort studies	13 (16.05)	4 (7.84)
Case control studies	10 (12.35)	1 (1.96)

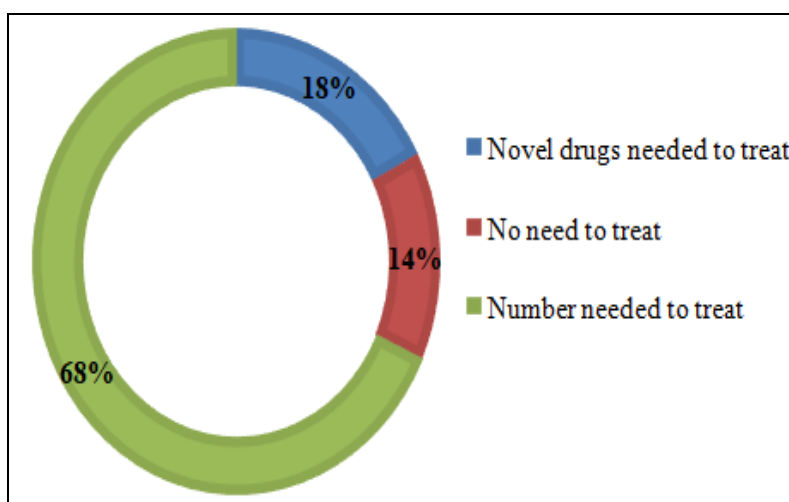


FIG. 3: NNT

On the whole 68% of the participants (55 CRRIs and 35 PGs) had knowledge regarding the abbreviation NNT as number needed to treat still, 14% misunderstood as no need to treat.

Attitude Towards EBM Table 4: The mean (\pm SD) attitude score of PGs 41.90 ± 4.36 and CRRIs 40.11 ± 4.38 showed an overall favorable attitude towards EBM. 38 (74.5%) PGs and 43 (53.08%) CRRIs strongly agree that EBM brings about quick knowledge update. 25 (30.85%) CRRIs don't know whether Health care cost can be reduced by EBM

while, 25.49% of PGs strongly agreed the same. The median attitude score was 5 (IQR for CRRIs - 4.34; IQR for PGs - 4.87) regarding, EBM brings about quick knowledge update was same amidst CRRIs and PGs. The PGs had highest median attitude score of 5 (IQR: 4.87) indicating the need to teach EBM and also no ready access to EBM resources. According to the attitude score, the postgraduates showed a significantly more positive attitude towards EBM (Mann–Whitney test P-value <0.01).

TABLE 4: ATTITUDE TOWARDS EBM (INDICATES NO OF PARTICIPANTS)

Questions	1 - strongly disagree		2 - disagree		3 - don't know		4 - agree		5 - strongly agree	
	CRRIs	PGs	CRRIs	PGs	CRRIs	PGs	CRRIs	PGs	CRRIs	PGs
EBM brings about quick knowledge update	0	0	2	4	9	0	27	9	43	38
There is a need to teach EBM to CRRIs & PGs	0	1	6	1	4	0	34	7	37	42
Quality of care is improved by practicing EBM	1	1	2	0	9	5	43	25	26	20
Health care cost can be reduced by EBM	0	0	6	2	25	21	25	15	25	13
EBM is focused on patient's values	0	1	3	1	18	13	33	25	27	11
The adoption of EBM places another demand on already overloaded CRRIs & PGs	1	5	4	4	20	1	35	26	21	15
Clinical experience is more important than evidence	3	1	3	2	16	3	33	29	25	17
Patient desires are more important than medical evidence	3	0	5	1	16	1	37	33	20	16
Systematic reviews important in decision-making	0	0	2	1	18	1	42	18	19	31
There is no ready access to EBM Resources	0	1	5	3	19	3	31	26	26	18

DISCUSSION: This cross-sectional questionnaire study, gives an insight about knowledge and attitude of EBM among CRRIs and PGs. Several studies advocated the implementation of EBM as a mandatory educational intervention in under and postgraduate medical curriculum^{11,12}. In this study 49% of the participants had previous EBM exposure, which was in line with Ulvenes LV *et al* where, 31% of the respondents had participated in EBM courses¹³. The majority of the study participants continued to use traditional resources of knowledge, in spite of, availability of various resources. They do not use evidence-based resources sufficiently.

Though, Cochrane Library is the main source of systematic reviews and meta-analysis. However, it was least referred source of knowledge by this study participants¹⁴. This underuse of evidence-based sources can be overcome by creating awareness about the advantages and disadvantages of each resource. Understanding the concepts and methods commonly used is the key element in EBM. A large proportion of residents (62.12%) indicated that they were not familiar with Forrest plot. This lack of understanding with the different EBM terminologies concerned with statistical implications could be due to the inadequate EBM training courses and workshops, which was in line

with Aiman Al Wahaibi *et al.*¹⁵ 27.27% of participants strongly agreed that, the adoption of EBM places another demand on already overloaded CRRIs & PGs. This could be due to as a result of clinical and academic activities. Similar findings were also reported in studies by Ghanizadeh *et al.*¹⁶ from Iran and Amin *et al.* from Bahrain¹⁷. The results of the present study were in accordance with the results Ahmadi-Abhari *et al.*¹⁸ surveys conducted in Tehran indicating overall positive attitude towards EBM, especially among the PGs. In highlighting the attitude of residents towards EBM, the data indicates that, 37.87% of the respondents agreed systemic reviews are important in decision making and summaries that EBM plays a major role in clinical decision-making as per Sackett DL and Emwowed D¹⁹⁻²¹.

This study results propel the EBM movement towards; new more challenging terrain, whether residents will employ these new skills in taking care of patients. The major limitation in our study is the small sample size and the strength is use of a new questionnaire that has been previously formally validated, adopted from McColl.

CONCLUSION: Acquisition of knowledge and skills for EBM is becoming a core competence for all medical residents. This study confirms the

significance of teaching EBM to medical residents thereby strengthening the critical and logical thinking. Formal EBM training and integration of EBM in undergraduate programs considerably promotes EBM practice, guiding them in making ideal clinical decision.

ACKNOWLEDGMENT: The authors thank all participants for sparing their valuable time in conduct of this study.

CONFLICTS OF INTEREST: None declared.

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How to cite this article:

Razia AR, Reddy RV, Senthil G, Vijayalakshmi S, Raja TAR, Sridevi R and Krishnakishore M: A questionnaire study on knowledge and attitude towards evidence based medicine among interns and post graduates in a Tertiary Care Teaching Hospital. *Int J Pharm Sci & Res* 2023; 14(11): 5306-10. doi: 10.13040/IJPSR.0975-8232.14(11).5306-10.

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