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Perceived barriers to evidence-based practice among Physiotherapy students

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Abstract:

BACKGROUND: Evidence-based practice (EBP) is the integration of clinical expertise, patient values, and best research evidence into the decision-making process for patient care. Identification of barriers that refutes the use of EBP in day-to-day practice will go a long way in designing programs for inculcating EBP among physiotherapy students. Therefore, the aim of this study was to identify perceived barriers to EBP among physiotherapy students.

METHODS: A convenience sample of 429 participants were recruited from physiotherapy colleges affiliated to a State Health Science University as per the inclusion criteria. Participants were asked to fill the self-reported questionnaire that was developed by researchers based on possible items from previously developed surveys. Data collected were tabulated and analyzed by descriptive statistics. Response frequencies for the survey questions were determined and displayed in graphical formats.

RESULTS: The study comprised of 182 final year students, 112 interns, and 135 postgraduate students having a mean age of 21.29 (0.85), 22.30 (0.77), and 24.34 (1.45) years, respectively. Majority of participants reported insufficient time, poor understanding of statistical analysis, lack of research skills, lack of formal training, lack of access to paid article, poor ability to critically appraise articles, and inadequate infrastructure facilities as barriers towards practicing EBP.

CONCLUSION: Physiotherapy students perceived various organizational, training-related, and personal barriers toward the use of EBP. Effective education could prove to be the most powerful tool to overcome these barriers toward the use of EBP.

Keywords:

Evidence-based practice, physical therapists, surveys and questionnaires

Introduction

Evidence-based care is a global movement in all health science disciplines. It represents a philosophy in the approach to practice – a shift that emphasizes evidence over opinion and judgment over blind adherence to rules, thereby providing a bridge between research and patient care.^[1] The World Confederation of Physical Therapy at its general meeting approved several “Declaration of principles” related to evidence-based practice (EBP) since in the interests of best practice, physiotherapist and the students in this field have a duty and responsibility to use techniques and technologies that have been evaluated scientifically.^[2]

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The original EBP was based on Sackett *et al.*; definition as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available clinical evidence from systematic research.”^[3] According to the Sicily statement, the EBP consists of five steps: (1) Translation of uncertainty into an answerable question. (2) Search for and systematic retrieval of best evidence available. (3) Critical appraisal of evidence for validity, clinical relevance and applicability. (4) Application of appraised evidence to practice. (5) Evaluation of performance.^[1,4,5] Inability to carry out any of the above mentioned function

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may constitute a barrier towards use of evidence.^[4,6] Therefore, it is necessary to implement these steps into health-care student's clinical education; so that EBP becomes incorporated with life-long learning and patient care. It is learnt that there is a substantial gap between the best practice as determined by scientific evidence and the actual clinical care. Reflecting on the failure of implementation is now crucial to acquire good understanding about the barriers. It seems that students struggle with applying the principles of EBP in clinical settings. The students we train today are going to be future health-care professionals of the community. Knowledge of barriers to EBP could not only increase compliance with EBP initiative but also provide an insight into steps to design effective interventions for its successful implementation.^[7,8] Numerous studies have been carried out in nursing professionals,^[9,10] dental and medical graduates,^[3,11-14] pharmacy students,^[15] and physical therapists^[4,16-20] to study knowledge, attitude, and perceptions related to EBP. However, among the studies conducted on physiotherapists, very few studies have been conducted on students belonging to different training levels. Therefore, to achieve a better contextual understanding of necessary actions to ensure the use of EBP in clinical education, the present study aimed to explore physiotherapy students' perceived barriers toward the use of EBP.

Methods

The present study is a descriptive cross-sectional study. After seeking ethical approval from the Institutional Ethical Review Committee and written informed consent from participants, a convenient sample of 429 students (final year, interns, and postgraduate) were recruited from physiotherapy colleges affiliated to the Maharashtra University of Health Sciences (MUHS). Undergraduate students in the 1st, 2nd, and 3rd year of their bachelors' program along with those students who were unavailable at the time of conducting the survey and the ones who did not volunteer to participate were excluded from the study. A survey instrument was developed by the researchers based on possible items from previously developed surveys that was applicable for the target population.^[5,16,19,21-23] It was a 12-item self-reported measure broadly divided into three domains: training-related barriers, organizational barriers, and personal barriers. The responses were scored according to a five-point Likert scale ranging from strongly disagree, disagree, neutral, agree, and strongly agree. Content and face validity of the tool was obtained with the help of senior academicians who were experts in EBP teaching. A draft was forwarded to five senior academicians (four belonging to physiotherapy and one from medical background) for their comments on layout and content, and the survey tool was then modified and validated in

light of their comments. The validated survey tool was then handed over to 15 students (five from each group of final years, interns, and postgraduate batches) to check for clarity and understanding of the questions asked. Final modifications were made after which the final validated version was forwarded to participants majorly through personal contacts and few through mailing address. They were asked to fill the questionnaire with ample of time and privacy given to answer each question. Reminder mails were sent to participants who failed to return the completed questionnaire within a span of 2 weeks. Data collected were then coded, tabulated, and analyzed by descriptive statistics. For items with a five-point Likert scale and a positive response set (i.e., agreement with the statement suggested positive regard for EBP), the "strongly agree" and "agree" categories were combined, as were the "neutral," "strongly disagree," and "disagree" categories, so that responses fell into 1 of 2 categories: "agree" or "disagree." Likewise, for items with a negative response set, the "neutral" category was combined with the "agree" and "strongly agree" categories. Response frequencies for the survey questions were determined and displayed in graphical formats.

Results

Out of the 520 participants approached, 429 students submitted the completed survey questionnaire, response rate being 82.5%. Few of them did not respond to mails despite repeated reminders. Only completely filled questionnaire was considered for data analysis. The characteristics of the participants are shown in Table 1.

Training-related barrier

Overall, the three groups of participants (final year, interns, and postgraduate) reported similar perceived training-related barriers such as lack of formal training and lack of research skills as depicted in Graph 1. The final years (92%) reported a lack of research skills to be a major training-related barrier compared to interns (84%) and postgraduates (84%). Understanding of statistical analysis and ability to appraise literature was considered as a barrier by majority of final year and interns compared to postgraduate students. Interns (72%) reported in majority regarding lack of interest generated by faculty as a barrier toward the use of EBP.

Table 1: Characteristics of participants

Variable	Categories	n (%)	Mean age (SD) in years
Age	Group 1 (final years)	182 (42.22)	21.29 (0.85)
	Group 2 (interns)	112 (26.10)	22.30 (0.77)
	Group 3 (postgraduates)	135 (31.46)	24.34 (1.45)
Gender	Males	30 (7)	
	Females	399 (93)	

SD=Standard deviation

Organization-related barriers

All three groups reported lack of organizational support, inadequate infrastructure, and lack of access to paid articles as a barrier towards EBP. Compared to interns (76%) and postgraduates (77%), only 68% of final years reported lack of well-resourced library as a barrier [Graph 2].

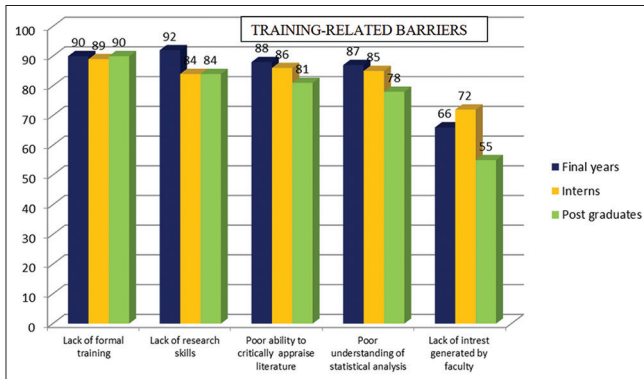
Personal barriers

Insufficient time was reported as a barrier by majority of participants. Very few participants from all three groups reported lack of personal interest as a barrier towards the use of EBP as shown in Graph 3.

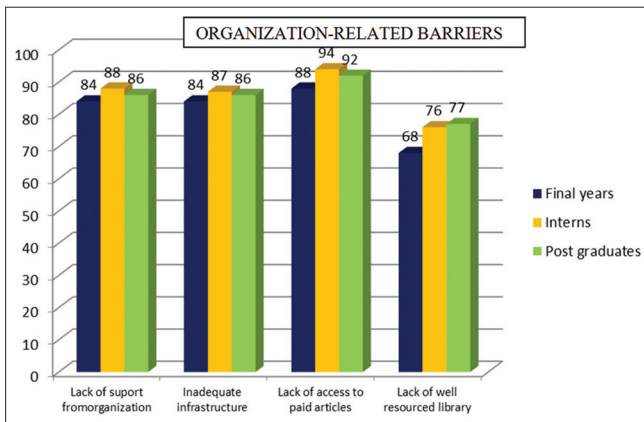
Discussion

The present study targeted final year, interns, and postgraduate physiotherapy students affiliated to the MUHS to assess their perceived barrier toward the use of EBP. Largely, all three groups of participants had similar opinions about training, organizational, and personal barriers toward the use of EBP. However, postgraduate students showed some favorable attitude in certain items such as interest generated by faculty members and understanding of statistical analysis compared to other two groups.

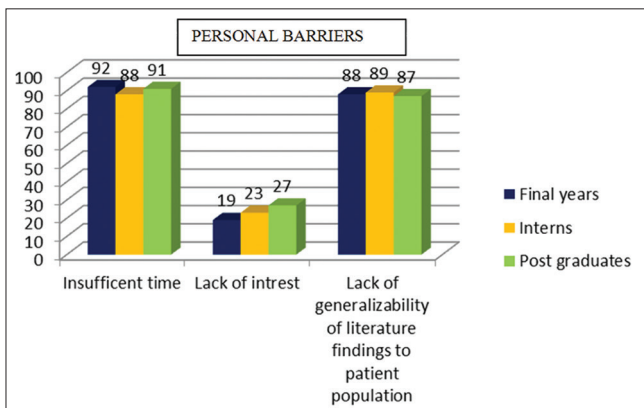
In terms of training-related barriers, it is surprising to note that despite research methodology and biostatistics being introduced as a subject in the final year curriculum, with final year students undertaking research project mentored by faculty members and also appearing for 40 marks theory examination to be deemed eligible for final university examinations, they reported lack of research skills and statistical analysis as a barrier. It raises a question whether research as a subject should be included in university examination and whether students follow proper research guidelines when they undertake research projects. This highlights that teaching research methodology is supposedly inclined toward equipping students with the skills to conduct research rather than use research for EBP as reported by Burger and Louw.^[1,24] Similar study on final year undergraduate students reported that students have an awareness of the concept of EBP; however, they do not seem to be implementing it completely in clinical practice.^[5] Although postgraduate students showed some positive responses in questions related to knowledge about statistical analysis and ability to critically appraise an article, the near comparable percentages with those of final years and interns outweigh the years of rigorous research training in terms of seminars, journal clubs, mandatory attendance of research methodology workshop, and 2 years of intense efforts they put in to submit their research work as a part of postgraduate training under the MUHS curriculum. Ilic^[25] in a review of randomized and nonrandomized trials had highlighted that an important aspect concerning the common practice of teaching EBP content in the form of “one-off” workshops or short duration courses does not lead to significant improvement in EBP-relevant skills in nonmedical undergraduate students. This clearly supports the findings of the present study wherein postgraduates were not seen to have been considerably superior to their undergraduate counterparts in view of the perception of training-related barriers. Furthermore, postgraduate students devote more contact hours interacting with their faculty regarding various case scenarios and research updates; they present recent



Graph 1: Training-related barriers as reported by students (values in percentage)



Graph 2: Organization-related barriers as reported by students (values in percentage)



Graph 3: Personal barriers reported by students (values in percentage)

evidence during case presentations. All these could be the probable reasons why they disagreed to faculty generating less interest toward EBP. The most frequently reported barriers in physiotherapy practitioners have been lack of familiarity with the research process and with statistics, poor literature searching skills, and an inability to appraise the quality of the research.^[16]

Contrary to the fact that final year students reported poor understanding of statistical analysis and poor research skills, they did not perceive lack of well-resourced library as a barrier. This could probably mean that they are not aware of the role of the library in terms of providing various research-related facilities like access to paid articles, institutional subscribed research journals apart from regular textbooks. Consistent with the identified barriers in previous studies,^[16-19] participants in this study also reported lack of access to paid articles and insufficient time which hinders the use of EBP. Lack of time as reported by students might be linked to busy schedule owing to clinical postings that students are expected to manage alongside attending regular lectures and other academic activities. Hence, students might find it difficult to search and appraise a valid evidence in relatively quick time as they are not fully equipped with the skills and knowledge to do such practice.

Other barriers unanimously identified by all participants were an inability to apply research findings to the type of patients seen in practice. One of the reasons could be the mindset to use tried and tested methods toward patient care, thus not taking any possible risks that could arise out of trying newer evidence-based techniques.^[26] Haines and Jones^[27] had reported “cultural divide” among researchers, clinicians, and administrators to be an important factor working against the implementation of evidence in practice. In the current teaching hospitals, had the clinical educators essayed the role of a researcher, students would have possibly perceived lesser barriers toward using EBP in day-to-day practice.

The barriers identified in the current study have been reported previously by many researchers in different countries. It can be strongly stated that regardless of different geographical locations, different professionals, and different levels of experience, everyone perceives similar barriers such as insufficient time, lack of access to library sources, and poor understanding of research tools toward effective use of EBP.^[16-19,28] In addition, literature has reported several other barriers apart from the ones found in this study. Ahuja and Banerjee^[19] reported reluctance to change, funding from government-funded schemes, whereas Ramírez-Vélez *et al.*^[29] reported hours of work per week, current main role in therapy center, and understanding of the English in which articles are written as other barriers toward EBP. Another review by

Evans^[30] quoted time and workload pressure as the most common barrier to EBP implementation.

Effective education is the most powerful tool to overcome barriers to EBP and initiative like open access to paid articles should be taken into consideration, thereby providing students with ample opportunities to gain completely free access to scientific research.^[19]

Clinically integrated EBP teaching through clinical instructors should be the primary focus since students right from the final year spend a considerable amount of time in their clinical postings. Clinical instructors can be a role model for students where they encourage the use of recent evidence during their daily patient round, while discussing cases and during case presentations.^[16] Literature search should be viewed as a fundamental skill, similar to history taking and physical examination. This sort of practical training will imbibe positive attitude toward the use of EBP in day-to-day practice. However, numerous authors have reported that clinicians often do not incorporate evidence in their practice owing to limited time for retrieving and interpreting research and for applying it to individual patients.^[4] Few have also reported lack of expertise or knowledge in how to obtain relevant information limited their use of EBP.^[28,31] Hence, it is worth pondering whether training the trainers (clinical educators) in EBP would help students to develop favorable attitude toward its use. Evidence largely supports the training of physiotherapists in the EBP process.^[16] This was similar to the study in Norway where it was evident that although students value EBP and recognize it as a vital part of clinical practice, they continue to feel that they need more training in it.^[1] When knowledge about EBP is developed and conviction is strengthened, the individual will get motivated to get involved in EBP and work in evidence-based way.^[1] Students should be constantly encouraged to publish their research work and should be instilled with the value of what potential impact their research work could bring out.

Regular inspections of teaching institutes to assess facilities upgraded could play a huge role to strengthen library resources and research facilities thus aiding students to have easy access toward its judicious use. Institutes should take a step to conduct formal training, development programs on how to effectively apply evidence in clinical uncertainties to help students develop the necessary skills required in EBP.^[32,33] Rotor and Gorgon^[34] and Ilic^[25] reinforced that teaching EBP at multiple levels in an undergraduate curriculum is a promising tool toward enhanced attitudes and self-efficacy. Education should be tailored toward effective use of online resources, targeting sources of preappraised literature as reiterated by Iles and

Davidson^[16] Further, research is needed to develop and validate tools to assess EBP competencies in the undergraduate curriculums. A properly prepared and delivered teaching module of EBP would constitute a cornerstone in lifting EBP reality overcoming barriers associated with EBP.

The present study had few limitations in view of responses being collected from students affiliated to a single university. Physiotherapy students of few cities cannot actually represent the entire nation like India so limited generalizability is one drawback of this study. Self-reporting can also introduce social desirability bias where answers reflect an anticipated social norm, as the participants presume about their knowledge which in reality they do not possess. Further research with a larger sample from multiple settings and regions and that which includes students, clinical educators, and researchers may reveal other salient themes not reported in this study.

Conclusion

Physiotherapy students face many challenges in terms of training, organizational, and personal barriers toward the use of EBP. Lack of formal training, lack of research skills, lack of access to paid articles, and insufficient time emerged as top barriers.

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Conflicts of interest

There are no conflicts of interest.

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