



Transformation of Mandatory Physiotherapy Internship into A Structured Competency-Based Program: A Pilot Study

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Abstract

Introduction: Health professions education is challenging in terms of developing ways to construct and assess the amalgamation of knowledge, skills and attitudes that result in novice graduates to be self aware and confident to practice without supervision. Currently, the Physiotherapy internship program in India does not have a comprehensive competency-based framework. With the current batch of interns facing the wrath of the COVID-19 pandemic during their undergraduate training, it is a matter of concern to ensure they have developed the required competencies to treat patients independently.

Methods: This is a single-group interventional study using convenience sampling. A competency framework inclusive of a comprehensive assessment and training module was developed and introduced to 27 physiotherapy interns. Every intern underwent 10 training sessions along with 8 competency assessments during 6 months of internship training. A pre-post indigenous questionnaire was used to assess their self-perceived competency along with feedback questionnaire taken at the end of the module.

Results: Implementation of the competency framework revealed a statistically significant difference in the self-perceived competency ($\text{pre}=84.36 \pm 10.98$, $\text{post}=98.55 \pm 8.74$, $P \leq 0.000$). Having uniformity in assessment techniques among the faculty, being exposed to challenging cases during assessment, having training module at the beginning of the internship were some of the suggestions given by the participants.

Conclusion: Competency based education offers to be an effective technique in health professional program. Incorporating a competency-based training would help the learners to understand their strengths and weaknesses that would go a long way to develop competent health-care professionals. Developing such framework in curriculum will emphasize standardization of learning outcomes, thereby resulting in quality education, further enhancing patient care, and improving the health outcomes worldwide.

Keywords: Internship and residency, Physical therapist, Curriculum, Surveys and questionnaires, Feedback

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Introduction

Health professions education is challenging in terms of developing ways to construct and assess the amalgamation of knowledge, skills and attitudes that result in novice graduates to be self aware and confident to practice without supervision. Competency was defined by a team of international collaborators as an observable ability of health professional, integrating multiple components such as knowledge, skills, values and attitudes. Competencies are measurable and assessable in nature and can be a base to facilitate progressive development (1). Competency-based education is an outcome based educational approach which is organized around a framework of competencies (2).

In medical education, interest in Competency-Based Medical Education (CBME) has grown dramatically in the last decade (1). CBME is a learner-centred approach which ensures accountability from the new graduates to discharge their duties as health care professionals (3). In fact, there is an increased awareness of the need for competency-based programs, even in alternate medicine and AYUSH curriculum (4).

Physiotherapy, which is a widely recognized healthcare profession, is described by World Physiotherapy as concerned with the assessment and treatment of human function and movement, thereby maximizing the physical potential of an individual. Physiotherapists are supposed to undertake a comprehensive assessment of the patient or group of patients seeking it, evaluate and correlate to deduce a clinical judgment, thereby formulating a diagnosis and prognosis following which they are expected to plan and provide advice as per expertise and whenever required. With such a skill-oriented technical role in patient management, there is a need for a comprehensive competency-based evaluation in the first step of clinical practice viz internship. If we look at the global scenario of physiotherapy curriculum, there are various countries like Canada that do have an entry level competency-based assessment in the field of physiotherapy recognizing seven roles of a physiotherapist viz an expert, a communicator, a collaborator, a manager, an advocate, a scholarly practitioner, and a professional (5). Likewise, New Zealand has identified nine core competencies and 36 sub-competencies, thereby highlighting the importance of competency-based assessment (6). However, physiotherapy internship program in India does not have a comprehensive competency-based assessment framework.

Bindawas et al.'s study on the clinical competency assessment of physiotherapy

interns of Saudi Arabia over four major domains viz clinical examination, patient evaluation, diagnosis and prognosis, and intervention re-emphasized a need for improvement of certain competencies as assessed by both academic and clinical physiotherapists indirectly pointing towards the need for thorough competency assessment (7, 8). Likewise, a study done in Italy by Tondo et al., as a comparison of competency in physiotherapy professionals and students, showed that students had a lower self-assessed competency as compared to professionals. However, students had better confidence when it came to International Classification of Functioning (ICF) domains or even evidence-based practice for that matter. Thus, it is cited that internship, being the transition between student and professional life, needs robust competency assessment programs to ease the progression into the professional world (9).

Traditional approaches of assessment focus on learner-based performance on what has been taught, while competency-based assessment ensures that the person is assessed in terms of expectations beyond the realms of education and in real life practices after acquiring the professional degree (7). Furthermore, with the ongoing batches of interns having to face the wrath of the COVID-19 pandemic during their undergraduate clinical training, it is a matter of concern to ensure they have developed the required competencies to handle patients independently. Competency is defined as the skills and qualities a healthcare professional needs to treat the patients safely and effectively (8), thereby ensuring safe and competent practice by the healthcare professionals. The 2008 National Education Framework places a high emphasis on the need for procedural skills to have a stronger presence among competencies in order to effectively support intellectual skills and practices. Although competency and competency-based teaching and evaluation have been well studied in the medical field, it has received less attention in physiotherapy (7, 9, 10). Hence, there is a dire need for an authentic and robust framework for student assessment. This pilot study aimed to develop a competency framework that could be implemented in a physiotherapy internship program to assess improvement in the overall competencies of the graduated physiotherapists.

Methods

This was a single-group interventional pilot study recruiting the recently enrolled physiotherapy interns belonging to the same academic year from a single physiotherapy college

of a state-run health science university using the convenience sampling method. The participants had completed four years of undergraduate studies from the same college and were enrolled in the internship program at the time of recruitment. All the qualified interns were enrolled in the study, using the census method of sample size calculation. The research was conducted from December 2021 to May 2022 over six months. Before commencing the study, there was a need to develop a questionnaire to assess the self-perceived competency of the participants as well as design the competency framework which would consist of both a competency assessment tool and a training module to be incorporated.

a) Development of a questionnaire to assess self-perceived competency

After doing a thorough literature search, we developed a semi-structured questionnaire with the help of researchers trained in the field of health professionals' education. The questionnaire comprised of two domains: a) Level of confidence and self-perceived competency and b) Perception of the adequacy of undergraduate training. The first domain largely tried to seek answers about the confidence of interns in carrying out clinical tasks, namely documentation, bedside manners, communication skills, interpretation of commonly employed diagnostic tests, treatment skills in various set-ups ranging from out-patients units to the intensive care units, etc. It was inclusive of twenty-two items. The second domain was an attempt to explore their satisfaction with the training offered during their undergraduate program including eight items. The compiled questionnaire was then content validated using Lawshe's Content Validity Index by experts from within and outside the institute. Experts were senior academicians with experience ranging from five to more than ten years, with expertise in the health profession's education. After subsequent cycles of revision, the validated questionnaire was then pilot-tested on five interns to assess the comprehensibility of the tool. The final questionnaire had 30 questions scored using Likert scale ranging from Definitely No, No, Somewhat Yes, to Definitely Yes.

b) Development of a Competency framework (Competency assessment tool and a Training module)

Competency assessment sheets were tailor-made and developed for all four specialty subjects namely Musculoskeletal Physiotherapy, Neuro-Physiotherapy, Cardiovascular and Respiratory Physiotherapy, and Community Physiotherapy

with the help of experienced faculty members from the respective specialty. Assessment sheets graded students under the following headers: (i) Bedside manners, (ii) Patient interaction, (iii) Case-specific assessment, (iv) Performance of appropriate treatment strategies, and (v) Interpretation of case-specific investigation reports of patients. They were to be assessed by two faculty members at two different timelines within the same posting on a 4-point scale ranging from 1-poor, 2-fair, 3-good, and 4-excellent. After reviewing the scores of both assessors, the head of the department would give a final remark on whether that student demonstrated excellent performance, satisfactory performance, or needed more hands-on practice.

Development of Training Module: The training module consisted of scheduling different discussions and interactive sessions ranging from interpretation of investigation reports, handling complicated cases, workshops/role play on professional ethics and communication skills, and demonstration of challenging skills throughout their internship period. Two hourly sessions were conducted weekly for ten weeks. Overall, the training module was covered in 20 hours.

c) Assessment

Pre- and post-assessment using the self-perceived competency questionnaire was taken after incorporating the competency framework. Additionally, feedback about the entire competency exercise was obtained towards the end wherein the students were asked to share their feedback about the helpfulness of the task, their preference for the timing of the sessions to be scheduled, advantages and disadvantages, and also their level of satisfaction of assessment and training module.

Data Analysis

Data were compiled and tabulated in Microsoft Excel and analyzed further using Statistical Package for Social Sciences Version 23. For analysis of self-perceived competency, the Likert scale response was converted into scores: Definitely Yes:5, Yes:4, Somewhat Yes:3, No:2, Definitely No:1. Comparison of the pre and post test scores was done using the paired t-test. Feedback questions and other items in the questionnaire were analyzed using descriptive statistics and reported as percentages. For all statistical tests, the level of significance was determined with $\alpha=0.05$.

Ethical Consideration

The study was commenced after approval

from Institutional Review Board of MGM's College of Physiotherapy, Maharashtra, India. The work was carried out in accordance with the Declaration of Helsinki alongside guaranteeing the anonymity of the participants.

Results

The study comprised 27 participants including 92.6% (n=25) females and 7.4 % (n=2) males with a mean age of 21.81 ± 0.75 years. Implementation of the competency framework showed a statistically significant change (pre: 84.36 ± 10.98 , post: 98.54 ± 8.74 , $P \leq 0.000$) in their self-perceived competency. The participants' perception of the adequacy of undergraduate training is presented in Table 1.

Suggestions received from the interns were having uniformity in assessment techniques among the faculty and being exposed to challenging cases during assessment. Almost 100% (n=27) of them found the competency-based framework helpful; of them, 85% (n=23) found both assessments as well training modules helpful, whereas 15% (n=04) of them found only the training module helpful. Almost 85% (n=23) of them felt that the sessions conducted were adequate. 71% (n=19) of them felt having a few

sessions throughout the internship period was beneficial, whereas 22% (n=6) felt having a major part of sessions during the first two months of the internship might help them.

Feedback analysis: As to the helpfulness of the competency exercise, almost 93% (n=25) of them felt it made them aware of the professional competencies required of physiotherapy interns and encouraged them to reflect on their current level of competencies. Around 71% (n=19) of them agreed that it enabled them to identify their own learning needs, whereas 93% (n=25) of them felt it helped them to understand where they needed to improve their skills/competencies. Case-based discussion was perceived beneficial by 93% (n=25) of them, while about 56% (n=15) felt practical demonstrations were more useful. About 71% (n=19) of them were satisfied with two assessments, whereas 59% of them (n=16) felt more than two assessments in individual postings would be helpful. In the open-ended feedback question, few students quoted that marks led to pressure and anxiety; instead, only receiving feedback would be more effective. Table 2 shows the advantages and disadvantages of the competency framework as perceived by students.

Table 1: Showing response to adequacy of undergraduate training as perceived by interns

	Yes % (n)	Somewhat % (n)	No % (n)
Exposure to various clinical cases was adequate during undergraduate course.	33.33 (n=9)	29.63 (n=8)	37.04 (n=10)
Undergraduate course prepared me well enough for clinical practice.	33.33 (n=9)	51.85 (n=14)	14.81 (n=4)
Undergraduate course taught me importance of documentation.	85.19 (n=23)	14.81 (n=4)	-
Undergraduate course taught me importance of bedside manners.	100	-	-
I feel I acquired limited hands-on experience during my under-graduate training owing to COVID pandemic.	74.07 (n=20)	22.22 (n=6)	3.7 (n=1)
Online lectures taken during the pandemic has affected my overall understanding of the subject matter.	40.74 (n=11)	37.04 (n=10)	22.22 (n=6)
I feel interns should be assessed during their internship for the clinical skills acquired.	70.37 (n=19)	25.93 (n=7)	3.7 (n=1)
I feel the internship period should be prolonged to improve our hands-on skills.	44.44 (n=12)	29.63 (n=8)	25.93 (n=7)
I am confident that the undergraduate course has trained me to develop my clinical decision-making skills.	55.55 (n=15)	25.93 (n=7)	18.52 (n=5)

Table 2: The responses to the advantages and disadvantages of competency framework as reported by the participants

Advantages	% (n=)
Practiced daily reading habits.	93 (n=25)
Became more mindful while treating patients.	71 (n=19)
Received constructive feedback from faculty.	93 (n=25)
Got confident while treating patients.	85 (n=23)
You did not see any advantages.	0
Disadvantages	
You were worried/ feared being judged by your peers.	43 (n=12)
Stress got the worst of you during the assessment.	36 (n=10)
There was a bias in assessment.	0
You didn't receive any feedback from the faculty.	22 (n=6)
There were no disadvantages.	22 (n=6)

Discussion

The present study was an attempt to explore the students' perception about their self-perceived competencies during their transition phase, i.e., after completing their final year undergraduate training and entering the professional field as interns. Incorporating a competency-based framework in their mandatory internship rotation brought about a positive change not only in their perceived competencies but also in the overall improvement of their skills, as reported by the participants themselves.

CBME approach, as discussed earlier, ensures an amalgamation of knowledge, skills and attitudes required for learners to transition successfully into diverse professional practice roles and vivid settings. Each competency assesses a task specific to a particular attribute. Therefore, there was a need to identify the competencies in individual physiotherapy specialty areas as per the patient's specific needs. This would help the students to rationally think, analyze, and plan the necessary assessment a patient needs and thereafter formulate tailor-made rehabilitation goals. The Medical Council of India has recently introduced a Competency-based Undergraduate Curriculum for the Indian Medical Graduates in 2019-20 and it was received well by the medical fraternity (11). It's high time physiotherapy professionals explore and implement the same. It is very important to make physiotherapy graduates self-directed learners so that students learn to take personal responsibility for learning instead of merely passive listening in a classroom set-up. Competency-based framework ensures that students are always on their toes, always vigilant and develop responsibility for their learning. Promptly, the feedback rendered during their assessment helps them to understand lacunae in their learning and take corrective steps to overcome the same. Fan et al. suggested that CBME helps to improve overall learning by ensuring improvement in cognitive capacity. It also enhances critical analysis and students are in a better position to realise their limitations and accordingly achieve an improvement in their learning outcomes (12). Literature has reiterated the efficacy of implementing a competency-based education framework largely focussing on students' clinical knowledge, technical skill, and/or clinical judgment in potentially outperforming traditional educational approaches (12, 13). Vleuten et al. in their review suggested that competency-based education is advantageous to professional development, by promoting relevant skills for medical training, better healthcare, and better curriculum governance (14). It has been

suggested by Harrington et al. that it also helps students understand what level of performance they are expected to achieve during their training and on which aspect of learning they must focus (15).

Physiotherapy graduates reported more advantages as opposed to disadvantages due to the recently introduced competency framework. They took their responsibility to practice daily reading habits and became more mindful while treating patients. Ongoing assessments carried out during clinical postings are known to have their benefits in terms of learners being more responsible. Antonoff reported an improvement in the task-specific confidence, especially seen from the written and technical skill examination scores in the competency-based education system among senior medical students from the University of Minnesota Medical School (16). Dijkstra also reported that this competency-based education mediated a relationship between educational innovations and preparedness of practice (17). This automatically boosted their confidence in handling patients independently, rendering the highest level of quality patient care.

Along with the advantages, the participants also perceived some disadvantages of the whole competency exercise in terms of the feelings of anxiety and fear experienced during the assessment. Many preferred only training modules over ongoing assessments. Internship is a relaxed phase where students enjoy not having to take exams. In the beginning, they become complacent and might tend to make unintentional errors. When marks come into the picture, they tend to be more self-aware which is a very important quality when you are expected to handle and treat patients independently (18). Peer pressure is always a factor that students are worried about, resulting in unhealthy competition. Having been assessed throughout the internship period, they were worried about being judged by their batchmates for not being good enough. This can be taken care of by the clinical supervisors or in-charges by giving constructive feedback to the students so they take the whole process as a learning experience instead of focusing on the fear of being judged and feeling unworthy. Clinical trainers can highlight the positives presented by students in front of the whole class that could boost the student's confidence while at the same time encouraging other fellow learners to perform better.

Unfortunately, the flipside to this task was that few faculty members failed to give feedback and this was reported by the participants. Faculty motivation and involvement go a long way in the

successful implementation of any learner-centric training program (19-21). Despite training the faculty, few will take it as an additional workload in their existing chain of duties (21-23). Very few have the flair to be a role model for change whom the students see and learn from. This raises an important question - whether recruiting faculty members who have the innate passion to mentor young minds play an important role in shaping a competent student?

Limitations

This pilot study was the first of a kind with no prior references to consider while developing assessment modules. Development and validation of assessment and training modules was done by internal faculty members possibly resulting in bias. Having subject experts from both within and outside the physiotherapy field could have possibly made it more robust. Having said that time constraint to implement this module early in the six months of the internship was the major barrier to ensuring external validation. Faculty members were informed about what needed to be done but a separate training session was not conducted which proved to be a major limitation and hence generated the need for further studies incorporating robust faculty training before the internship period starts. Presence of higher clinical workloads in the available limited time were the common barriers for healthcare practitioners to engage in research activities. Scodras et al. suggested receiving input, feedback, or discussion from all stakeholders implying the valuable source of knowledge through their professional opinions to be considered in competency identification (9). Furthermore, there could be issues with generalizability of the findings, since the participants were recruited from a single institution thereby limiting the sample size. Owing to different clinical cases allotted to students during the assessment, it was beyond the scope to analyze the change in assessment scores taken during competency assessment. Besides lack of uniformity in assessment because of multiple faculties involved could lead to bias in assessment; hence, the scores were not considered during statistical analysis.

Results from these studies can be used by academicians for curriculum development as well as training physiotherapists to know their strengths and weaknesses while they treat the patients (9). Developing such a framework in the curriculum of professional courses will emphasize standardization of learning outcomes and ensure implementation of the same by all colleges as opposed to only a few colleges adopting quality

measures. This would overall improve quality education, thereby enhancing patient care and improving health outcomes worldwide.

Conclusion

Competency based education offers to be an effective and promising technique in health professional program. With competency-based education becoming more and more common in medical and nursing schools, the results of this study will give physiotherapy academicians a starting point for streamlining and improving the current curriculum. Incorporating a competency-based framework during the transitioning internship period brought about a significant change in the self-perceived competencies of physiotherapy interns. This would go a long way to developing competent healthcare professionals. It is necessary to conduct additional research using a longitudinal approach to assess how well students are achieving and retaining the fundamental professional competences included in the CBE model.

Authors' Contribution

All authors contributed to the discussion, read and approved the manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated resolved.

Conflict of Interest

The authors declare no conflicts of interest.

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