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INTRODUCTION

Recent advances in health science and technology have dramatically changed the teaching and learning in the health professional course programs owing to the change in trends of health seeking behavior that the prospective professionals would face during their practice. There is increasing concern of morbidity related to lack of physical activity. Physical therapists are increasingly becoming the practitioners of first contact. The Post Graduate Physical therapy curriculum can be considered as the stem cells which have the capability of differentiation that enables post graduate Physical therapist to differentiate as academicians, reflective clinical practitioner and researchers. The validity of professional clinical practice should be based on sound scientific evidence that would contribute to professional development. There are not much research studies that scientifically validate the physiotherapy treatment modalities owing to academic inadequacies. Presently in India, the Graduate level entry in to Physical therapy education programs with broadened areas of clinical specialties provides scope for widening the horizon of knowledge base of Physical therapy.

ABSTRACT

The post graduate programs serves as the precursor for graduate level entry professionals to undertake diverse professional roles. Despite pedagogical innovation in post graduate physical therapy programs in India, there is dearth of professional expertise in academic, research and evidence based clinical practice. The objective of this article is to identify, describe and evaluate curriculum development and review curricular issues. There exist diversity in the curricula development, design, content, delivery, assessment, evaluation and review process among all the Government and Deemed universities offering postgraduate physical therapy programs in India. The review focuses on those issues in relation to the requirements of new areas in physical therapy education, which include multidisciplinary practice, broadening of specialty areas and information and communications technology keeping in mind the realistic learning outcomes. In order to streamline the curriculum processes in physical therapy, the article outlines the need for a national council for physical therapists that has significant implications for curriculum development at the national level. The article emphasizes for a dynamic & common Physical therapy curriculum across India as well as the need for a regulatory council that licenses Physical therapy practice so that physical therapy postgraduates are increasingly likely to begin professional life as practitioners of first contact, academicians as well as researchers in the field of physical therapy. In this review, the role of learning outcomes in Physical therapy pedagogy and curricula is critically appraised. The review suggests for the need of comprehensive, articulated & complimentary learning outcomes and objectives in post graduate Physical therapy pedagogic and curricula.

Key words: Curriculum development, Pedagogy, Learning objectives & Outcomes, Regulatory council.

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Key points and pre-publication history of this article is available at the end of the paper.
Professional discussion

The academic post graduate physical therapy curriculum which is primarily intended to provide skills and expertise in academic, research and evidence-based clinical practice has failed that is evident with lack of specific knowledge outcomes. The professional education is influenced by several factors that would affect the professional outcomes\(^4\). In order to cope with the changing trends of the health care needs there is a need for the continuous evaluation of curricula of Post Graduate Physical therapy education programs and to update with recent advances in health care needs, knowledge base of Physical therapy and also with changes in cultural trends. The updating of curriculum should take in to consideration not only the present trends but also prospects in the future.

The objective of this article is to throw light on crucial issues prevailing in post graduate physical therapy education program in India. As Indian Association of Physiotherapists (IAP) is not a council, it is facing challenges in improving the standards of Physical therapy education and practice. The role of IAP, in the context of lack of council status, is overseen by educational institutions and do not comply with guidelines and recommendations prescribed by IAP to run post graduate physical therapy programs. To rope in more education institutions accreditation and thereby increasing the professional membership, the Indian Association of Physiotherapists has virtually compromised the process of accreditation that is affecting the quality of learning experiences of prospective professionals. The physical therapy post graduates feel that there is no much difference in KAP (Knowledge, Attitude & Practices) on completion of post graduate physical therapy program. Time has come to critically review the process of accreditation and to evolve a dynamic curriculum that contemplates with the learning objectives and outcomes. Persistent efforts of IAP has resulted in the proposal of council bill for allied health professions that was ratified by the standing committee of the Indian parliament and pending for resolution in the Lok Sabha.

**NEED TO DERIVE AN IDEAL CURRICULUM:**

The Physical therapy education in India has undergone multitude of changes. As the post graduate physical therapy curriculum determines the prospective physical therapy academicians, clinicians and researchers, there is a need to derive an ideal curriculum that affects all domains of learning experiences specific to the areas of interest. Presently there are numerous Government and Deemed universities offering physical therapy education programs. Interestingly, in India we don’t have such an autonomous body to regulate educational institutions offering Physical therapy education programs.

**CURRENT STATUS OF PHYSIOTHERAPY POST-GRADUATE CURRICULUM:**

1. **ENTRY LEVEL KNOWLEDGE OF LEARNER:**

**Ideal Curriculum:**

The knowledge of the entry level graduate for a post graduate physical therapy program should be evaluated on standard protocols and objective measures.\(^5\) The evaluation should be done at the **Indian Post-graduate PT Curriculum**

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**Figure 1: Conceptual framework representing the factors affecting professional education.**

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**PROFESSIONAL OUTCOMES**
- Professional competence / attitude

**PROFESSIONAL EDUCATION**
- EXTERNAL INFLUENCES
  - Societal & Professional Community
    - Societal needs
    - Workforce issues
    - Salary
    - Student application
    - Public image
    - Governmental influence
  - Program influences
    - Mission
    - Intermittent support
    - Financial support
    - Governance
  - Continuing education

**INTRA ORGANIZATIONAL INFLUENCES**
- Institution influences
  - Academic / professional leadership
  - Mission
  - Evaluation / audit
  - Program structure
  - Continuing education

**INTERNAL INFLUENCES**
- Program influences
  - Mission & staffing
  - Program structure
  - Continuing education
Professional discussion

National level and admission to the program should be done based on the merit list. While evaluating the knowledge, the interest areas of the candidate should be taken in to account. The clinical experience of the candidate after graduation should be taken in to account during admission.

Issues:
No national or state level examination by the Government or Statutory body (IAP). At the institute level, examination is not specific to interest areas. Selected candidates called for counseling have less option in choosing specialty (usually candidates who appear for counseling at last). Certain institutions have reservations or quotas. In institutes where entrance examination is not held, entry to PG program is not based on merit. Clinical Experience is not taken in to account for entry to Master programs.

2. PROCESS OF CURRICULUM DEVELOPMENT:
Ideal Curriculum:
National body for physical therapy education should involve with other health care professionals and Government bodies in the process of curriculum development. In the process of curriculum development, the views of physical therapy academics, clinicians, researchers, authorities of Government bodies, other health care professionals, experts in the field of health education should be included. National body should be empowered to regulate physical therapy educational programs that accredits and monitor accredited institutes at regular intervals to check for compliance.

Issues:
There is no national statutory body governing the process of curriculum development for Physiotherapy educational programs and do not involve the stakeholders. There is lack of coordinated curriculum committee in the IAP. There is no documented philosophical statement and curriculum design. There is much variability of course duration, curriculum design, content and sequence. The educational institutions offering post graduate physical therapy programs does not provides the detailed curriculum in their websites. The institutes and colleges accredited by Indian Association of Physiotherapists do not have the common PG curriculum.

3. FACILITIES & INFRASTRUCTURE:
Ideal curriculum:
The institution that offers post graduate educational programs should fulfill the unique needs of such a program by providing appropriate facilities and infrastructure that enhances the learning experiences of prospective candidates. The nature of such fulfillment shall include recruiting and retaining core faculties duly qualified to administer the academic program. The institutions should involve in faculty development program that enables the faculties to update the knowledge and clinical skills. The institutions that offer PG Physical therapy education should have facilities for research activities. The Core faculty should be encouraged to involve in research activities and should be provided funds for conducting such research activities.

Issues:
Many Colleges offering post graduate physical therapy programs do not have a teaching hospital. Even if there is a teaching hospital, it is located in a remote place distant from the educational institution. Basic amenities of teaching and learning are not provided (Audio Visual aids, Libraries without Scanner, Photocopier, journals, books etc).

4. PHYSICAL THERAPY PEDAGOGY:
Ideal curriculum:
The core faculty should provide the learner with enhanced learning experiences using different teaching methodologies. The core faculty should keep pace with the advancing educational technology that has revolutionized the process of thinking and learning of the learner. The core faculty should establish academic, clinical and professional ethical standards throughout the educational program. The core faculty should play a role model in continuing professional development and also to encourage prospective candidates in updating the recent advances in specialty areas. Should engage the candidates in different context to play specific roles that are inherent objectives of the curriculum like micro teaching sessions, group discussions that moulds as an academician and case presentation, discussions that moulds as a clinician and to collect, document, analyze and to make inferences from the data of the research subjects that moulds as a researcher. The regulating body should conduct a national level examination for the post graduate Physical therapist who wishes to pursue his career as academician.

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This will help set standard in teaching methodologies and better learning outcomes in educational programs. Imparting of knowledge shall include identification, selection and utilization of appropriate teaching modality to maximize the understanding of concepts in specific areas.

**Issues:**
An inconsistency exists in teaching methodology either due to lack of infrastructure or due to lack of skills. No involvement of core faculty in research and professional activities either because of lack of funds or due to lack of demand from the regulating body to involve in such activities. The academic skills of the post graduate Physical therapist are doubtful that attributes to inadequate learning experiences. Most of the core faculty has got dependency on audio visual aids and are not using other forms of teaching modalities.

5. EVALUATION:

**Ideal curriculum:**
The universities conducting examination should have a uniform pattern of evaluation. The number of subjects included in a question paper and number of question papers included in each year should be the same. The blue print of the question paper should give equal importance to all subjects that are present in that question paper especially in the basic sciences paper where there are four or more subjects included in the first year of post graduate study. Changes in the evaluation pattern especially the number of subjects included in a question paper and number of question papers included in each year should be based on the continuous evaluation of the process of curriculum development.

**Issues:**
Examination question pattern is different in different universities. Number of question papers included in each year differs from universities to universities. The blue print of the question paper does not include questions from few subjects that are part of curriculum content especially in the Basic Sciences paper. This makes the candidates learn implicitly that those subjects are not important. Numerous regulations in number of subjects included in a question paper are in existence and essentially it is not the outcome of continuing evaluation process of the curriculum. Ironically the changes are attributed to administrative reasons. The internal mark awarded is subjective and usually decided by one evaluator and is not disclosed before the university examinations. There is a difference in eligibility to appear for Theory & Practical exams if a candidate fails in either of the two besides difference in evaluation of dissertation.

6. CURRICULUM DESIGN:

6.1. Course Content:

**Ideal curriculum:**
The course content should cover all domains specific to the area of interest. The core domain, supportive domain, interdisciplinary domain and elective content should be framed. The sequence of the course content presented should be generic in the first year of study and in the second year it should be very specific to the area of interest. Importance should be given to pedagogic innovations in physical therapy education so that best academicians are produced as one of the learning outcomes of the post graduate program.

**Issues:**
Imbalance exists in the domains of course content included. Importance is seldom given to Educational technology and pedagogic innovations in Physical therapy education. At the end of the program the candidates submits the thesis of his research work which is always pertaining to the elective area which he has chosen. The core faculty never accepts the thesis work on pedagogic innovations in Physical therapy education.

6.2. Course Duration:

**Ideal curriculum:**
The duration allocated for the course content and program as a whole should be optimal. The duration should specify number of hours that should be spent for different domains of course content. The duration thus allocated should specify number of hours spent for theory, practical and demonstrations. The specialty training in the third year should lead to a transitional degree for higher studies.

**Issues:**
The duration of the post graduate Physical therapy program varies from university to university and it changes owing to administrative reasons. While few universities offer post graduate program for three years, other universities offer such post graduate program for two years only. Additional learning and training in area of elective requires the 3rd year of training leading to a specialty in that area equivalent to M. Phil or Doctorate in physiotherapy as suggested by IAP is contradictory.

7. EVALUATION OF ACCREDITATION:

**Ideal Curriculum:**
The regulating body should evaluate the performance of the candidates who have successfully completed the PG Physical therapy education program. Based on the evaluation and input from various...
Informed and quality needs of the post graduateIdeal curriculum:

The institutions impending regulations of the Government of India the regulating body should bring about changes in the curriculum keeping in mind the projected health care needs in the future. The regulating body should monitor the facilities and infrastructure provided by the educational institutions offering such education programs formally and informally. The post graduate Physical therapists who pursue their career as academicians should get enrolled with the education committee of Indian Association of Physiotherapists or the regulating body of Physical therapy education.

Issues:
The changes in the post graduate Physical therapy curriculum are mostly attributed to administrative reasons rather than actual learning outcomes. The cyclic process of curriculum development is seldom followed. The present curriculum doesn’t address the future health care needs. Presently the monitoring and evaluation of accreditation of educational institutions offering PG Physical therapy education programs are done formally and notice for the same is issued well in advance to such institutions. This makes the institution prepared for such an evaluation by hiring facilities, infrastructure and core faculties. As the academic Physical therapists are not enrolled with the regulating body, there are more chances of playing the role of core faculty in more than one institution. The institutions impeding accreditation with IAP hires core faculty who are full time worker in other educational institutions.

8. LEARNING EXPERIENCES:

Ideal curriculum:

Learning experiences in the due course of the post graduate Physical therapy education program should mould the prospective candidates as academicians, reflective clinical practitioner and researcher upholding professional ethical standards. The curriculum should not only specify the course content but also specify the appropriate teaching methodology that has to be chosen for teaching that course content so that learning becomes comprehensive. The learning environs should provide and enhance learning experiences in form of facilities, infrastructure and core faculties who will facilitate such process of learning experiences to occur. The core faculty should enhance learning experiences using multitude of teaching methodologies according to their effectiveness in communicating ideas. It enables the prospective candidates acquire intuitive knowledge in specific areas of interest. The ideal curriculum should enhance learning experiences in such a way that actual learning outcomes are closely associated with expected learning outcomes. Learning experiences should be both formal and informal.

Issues:
The curriculum does not specify the teaching methodology specific to the course content. The curriculum does not define the requisite academic skills of the core faculty. There is no evaluation by the regulating body on the academic physical therapist to establish or to determine such requisite academic skills. The learning environs are more often so formal and there is no encouragement of problem based learning. This hinders the prospective candidates to acquire the intuitive knowledge on specific areas of interest. More often the core faculty has difficulty in choosing appropriate teaching modality specific to the course content.

PROSPECTIVE CURRICULUM:

Professional education is the process of preparation for exacting, responsible service in the professional spirit that requires well-informed and disciplined insight and skill of a high order. The Responsibilities of Professional Education is to develop over-all principles and philosophy by which professional men should live and work. Fundamentals of Professional Education is that the foundation of professional education should be not only technical skill, but also a sense of social responsibility, an appreciation of social and human values and relationships, and disciplined power to see realities without prejudice or blind commitment. An increased sense of social responsibility requires a changing of professional education in method and spirit. In the present day, the Physical therapists are increasingly becoming as practitioners of first contact. The Physical therapists are increasingly recruited as consultants in fitness centers and in industrial setups for ergonomic advice apart from the demand in the hospital settings. The Physical therapists are included in the multidisciplinary team in national level health programs and disaster management. For physical therapy to continue to provide high-quality and effective health care services, physical therapists must initiate and participate in the research needed to substantiate current and future practices in the field.

Defining professionalism in Physical therapy:

Over the years the perceptions of being physical therapy professional has changed and the prospective curriculum should incorporate dimensions of specific knowledge and skills that attribute to changing perceptions.

❖ Worthingham, 1965 Ethics, communication, self-control
❖ Daniels, 1974 Problem solving

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- Carlin, 1977 Relevant knowledge, ongoing evaluation
- Moore, 1978 Clinical-educational integration
- Blood, 1979 Consumer advocacy
- Purtilo, 2000 Institutional advocacy
- Pinkston, 1986 Need to understand fundamentals.
- Bartlett, 1991 Unique knowledge and skills.
- Rothstein, 2001 Unique and essential identity.

Even though the knowledge base of Physical therapy profession has broadened, the role of Physical therapist in providing health care services is not well appreciated in India and the Physical therapist is regarded posing skills of technical knowledge, no matter the Physical therapist is a graduate or post graduate.

This is very evident from the fact that the eligibility criteria for the recruitment of Physical therapists in Government Hospitals in India are still at Diploma level and having a bachelor degree is desirable. The post graduate Clinical Physical therapist doesn’t have any scope in Government hospitals. The Private hospitals and the corporate sectors have recognized the need and knowledge of Physical therapists in the area of rehabilitation and are increasingly recruiting the Physical therapists.

**Why is this scenario prevalent?**

The reason for this adversity may be attributed to the lack of apex body regulating Physical therapy education and practice. Lack of documentation of clinical and research works has imposed the perception that Physical therapists have technical knowledge. To strengthen the Physical therapy profession, there is an acute necessity to revitalize the curriculum of post graduate Physical therapy education. As stated in the prologue, the post graduate Physical therapy curriculum are the stem cells that enables prospective post graduates to differentiate as academicians, clinicians and researchers.

**Curricular Plasticity:**

The knowledge base of Physical therapy stems from the process of education. To strengthen the knowledge base the curriculum that determines the prospective Physical therapists should be comprehensive and should be dynamic. In other words, the curriculum should be plastic. The process of curriculum development should be a cyclic process and should adapt to the changing health needs of the society. The process of curriculum development should set stage for developing professional ethical standards in academic, clinical and research areas.

**Apex body to regulate curriculum of post graduate Physical therapy education:**

The fact that Indian Association of Physiotherapists is not a council is overseen by the educational institutions offering post graduate Physical therapy programs. Presently the IAP provides recommendations and guidelines for accreditation of educational institutions offering post graduate Physical therapy programs and it cannot make it mandatory. The Government Universities and cropping of Deemed Universities offering such programs without basic facilities and infrastructure add to the adversity of the system of Physical therapy education. The outcome of such an education program is quantitative Physical therapist rather than qualitative Physical therapist. To weed this adversity, there should be an apex body regulating the Physical therapy education. The Indian Association of Physiotherapists should have a curriculum committee and in association with Government agencies and experts in health education should form the Central Board of Physical therapy Education (CBPTE) that should monitor the process of curriculum development and also accredit the educational institutions offering post graduate Physical therapy education programs.

**CONCLUSION:**

The present post graduate physical therapy curricula in India is diversified and is disarticulated with learning objectives and outcomes. There is an acute necessity to improve the skills and expertise of prospective post graduate students as academicians, reflective clinicians and researchers.

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**CONFLICTS OF INTEREST**

None declared.
Professional Discussion

REFERENCES:


Chief Editor’s note:

The article throws light on the most important aspect of issues in evaluation, planning and development of post-graduate physical therapy curriculum. Though the issues reported were for India, the professional community would for sure agree that similar scenario if not in total but in parts do exist in countries around the world.

Key points:

**Past:** The post graduate physical therapy program serves as the precursor for graduate level entry professionals to undertake diverse professional roles. In India, the program had seen expansion with diverse specialty and elective subjects.

**Present:** In India, owing to the lack of regulatory body, there exists diversity in post graduate physical therapy curriculum that adversely affects learning outcomes.

**Future:** The Government of India has contemplated National Council for Higher Education and Research (NCHER) and National Council for Human Resource in Health (NCHRH) for accreditation and professional licensing respectively. It is expected that the councils once empowered, would evolve a dynamic and articulated post graduate physical therapy curriculum.