

Development of learning material to complement pain education of physiotherapists in Indian universities: A synthesis of an action research study

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Submitted: 02 February 2020 | Accepted: 03 December 2020 | DOI: [10.14426/art/1126](https://doi.org/10.14426/art/1126)

Abstract

Background and purpose: It is necessary to bring the current understanding of pain to undergraduate, postgraduate, and academic faculty of physiotherapy in all the universities and independent institutions in India. Approximately 15,000 students graduate every year from various physiotherapy institutions in India. More than 20,000 physiotherapists teach or practice in various institutions, hospitals, and universities. The current pain curriculum for physiotherapy education is outdated and scanty. Physiotherapists are first-line managers of pain and it is important to understand the current advances in pain management to effect competent practice. **Methods:** An action research methodological concept (three phases) has been adapted to identify the missing areas of pain science from the physiotherapy curricula of universities of India (n=30). Instructional Digital Versatile Discs (DVD) was developed in these areas by experts through consensus methods. The reach of the study was evaluated through Google forms and email responses received from the participating institutions. **Results:** Pain lectures (22 hours) were recorded and four DVDs were commercially produced and duplicated. The DVDs were sent to all the universities and individual institutions (n=469) by post and recommended that they incorporate the information into the undergraduate and postgraduate curricula. The lecture series was also made available online via the institutional library depository system. **Conclusion:** This project has created a snowball effect by imparting current understanding and knowledge in young therapists and teaching faculty as the lectures are available on the website of the participating institution. Cultural and other characteristics are similar across the countries of South Asia (India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh, Maldives, and Myanmar) and all of these countries use English as the medium of higher education. Hence a regional impact is also anticipated.

Keywords: pain curriculum, pain education, pain learning, pain lecture series

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Introduction

Pain, a symptom with the potential to alter the quality of life of an individual, often restricts daily activities that bring a person to a healthcare professional, seeking relief (Dueñas, Ojeda, Salazar, Mico & Failde, 2016). Physiotherapists (PTs) are often primary contact clinicians in pain management (Holm, Ljungman, Åsenlöf, Linton & Söderlund, 2016; Mills, Torrance & Smith, 2016). Inadequately managed pain can lead to physical and psychological adverse outcomes in individuals and families (Sinatra, 2010). The pain experience is shaped by biomedical, psychosocial, and behavioural factors (Darnall, Carr & Schatman, 2017). Comprehensive evaluation and critical thinking of these three domains are required to identify the underlying cause, which is essential to plan treatment and to facilitate better outcomes in individuals suffering from pain (Jones, Edwards & Gifford, 2002).

A clear understanding of current concepts of pain and related areas is required for establishing a standardised and consistent assessment, and formulation of an appropriate treatment plan. The International Association for the Study of Pain (IASP) has developed a well-explained pain curriculum for physiotherapy education, which was revised in 2012 (Slater, Sluka & Söderlund, 2018). The content and construct of pain education in PT curricula vary across countries and institutions (Vijayanand, 2016). Studies from the UK and Finland have underpinned the differences in pain curricula across undergraduate physiotherapy programmes (Ehrström, Kettunen & Salo, 2018; Jones & Hush, 2011). More so, education on the topic of pain is still fragmented and inadequate in the undergraduate and postgraduate physiotherapy curriculum in India (Bhatnagar, Patel & Raja, 2018; Raja, 2017).

According to the Indian Association of Physiotherapists (IAP), there are 223 recognised (under the registration of IAP)

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institutions that offer undergraduate (UG) and postgraduate (PG) programmes in physiotherapy, under various private and government universities (<http://physiotherapyindia.org>, 2016). Many more institutions operate that are not affiliated to the IAP through universities. The total estimated number of physiotherapy institutions providing undergraduate education is 469 (IAP registered and non-registered). The current understanding of pain is not adequately represented in the teaching curriculum of most of these universities and the absence of a central statutory council for the profession makes it difficult to establish standardised curricula nationally (Raja, 2017). Changing concepts and understanding of pain are covered only in a limited fashion in both UG and PG levels of education in many universities. Integration of an internationally standardised pain education curriculum would expose UG and PG students to current concepts in pain assessment and management, and potentially improve their competence, thereby benefiting their patients and clientele. Also, this will pave their career pathway to acquiring a postgraduate degree from any other country or internationally recognised institution. The standard delivery of a pain curriculum is warranted for building up the basic knowledge and understanding of pain science during the primary degree course.

Studies from Israel and Spain have reported the positive impact of specific pain-related education on physiotherapist knowledge, attitudes and practices (Jacobs, Guildford, Travers, Davies & McCracken, 2016; Springer, Gleicher & Hababou, 2018). We received an IASP project in 2015 titled 'Imparting the IASP Pain Curriculum to Physiotherapists through Distance Mode: A Study of Impact on Knowledge Attitudes and Beliefs about Pain', through which we conducted a one-year intensive mixed-methods coaching programme through online and residential methods. Although well-received, this was able to reach only a fraction of the physiotherapist community (Mani, Engheepi, Gupta & Raja, 2016). We apprehend that this intensive online education or a face to face webinar is neither adequate nor feasible to bring about meaningful changes at a national level. Hence, a more far-reaching method of instruction was required. A limitation of the programme was the inconsistency of the internet in various parts of India. A method to overcome these difficulties was envisaged as pre-recorded lectures. Hence, the objectives of this study were:

1. To develop a series of lecture recordings of the missing topics from the Indian physiotherapy pain curriculum compared with the IASP recommendations.
2. To distribute the lecture DVDs to institutions and universities free of cost through post or online links, anticipating that this would lead to wider reach of the study outcomes.

Methods

This study employed an action research methodology to identify and develop pain education learning material for physiotherapy professionals in India (Feldman & Minstrell, 2000; Robertson,

2000). A three-phase framework has been incorporated for methodological conceptualisation and organisation (Robinson, Sparrow, Clegg & Birdi, 2007).

Phase 1 – Curriculum review and topic identification

The experiences from the project funded by IASP 2015, were used to guide this project. The main limitation of that project was the centralised format that was used where participants have to travel from various parts of the country for two blocks of the residential programme. Another challenge was poor internet connectivity for online classes for various parts of the country. This project was therefore conceived in a rigorous format that would be integrated into existing curricula and delivered simultaneously across the country.

Undergraduate and postgraduate physiotherapy pain curricula of all the universities across India (n=30) were identified and stored in the institutional central library data sharing system under the guidance of the senior subject librarian. A checklist was developed using the IASP pain curriculum for physiotherapists and the curriculum of each university was matched against this checklist. The curriculum was critically analysed by comparing it with the IASP curriculum for physiotherapy by the Institutional Review Committee (IRC). The IRC included 10 senior academic faculty members and two research associates from the research institution.

Missing areas of pain science were identified and listed. A consensus meeting of the IRC members was convened to finalise these topics (Jones & Hunter, 1995; Waggoner, Carline & Durning, 2016). On approval of the project from IASP an invitation to participate in the project was sent to all the universities and institutions of India. Interested colleges and universities were included in the project for developing the methodology and review processes. An external expert review committee (EERC) of 10 members was established from the selected members of the board of studies (BOS) of participant universities.

The previously identified topics and estimated hours were circulated to the EERC members for validation through institutional email using a Google form. Members were requested to give a detailed opinion on the project objectives and suggest methods and experts who would be willing to volunteer to deliver lectures. Members of the EERC were requested to define learning objectives for the planned lectures. The consensus was obtained through email and video conferencing. Expert speakers for each topic were identified and invited for lecture recording. All the identified experts had a minimum of 10 years of clinical, academic, and research expertise in the specified topic.

Phase 2 – Video recording of the lecture series

Efforts were made to ensure that the demonstration and didactic classes were recorded with the best available video

Mathew J., Rashid, M., Shirsath, P. & Raja, K. (2020). Development of learning material to complement pain education of physiotherapists in Indian universities.

recording system. A high definition (HD) video conferencing system (EVC150 point-to-point) by Aver Information Inc. was used for recording. The Aver EVC150 system offered full HD 720P content with a Pan-Tilt-Zoom camera and a microphone array. The lecture series was recorded according to a preset timetable over a period of two months in the organising institution. Video editing was done under the guidance of the experts to identify and cross-verify the content. Necessary editing and re-recording were completed by professionals. A master copy of the lecture series was made for commercial duplication and handed over to a professional audio-visual expert for associated labelling and commercial production for 469 colleges offering both UG and PG courses in physiotherapy.

Phase 3 – Distribution and institutional depository management

The lecture series consisting of 4 DVDs of various classes were produced. Under the guidance of IRC and institutional clerical staff, the DVDs were sent to all the 469 colleges (registered-223 and non-registered-246 institutions with IAP) and BOS heads through India Post registered parcel services with a return to sender service. The institutional office staff were instructed to record any return of undelivered DVDs. The set of DVDs was sent with a letter of appreciation for participating in the project, the importance of the project, and the recommendation of including the material in their teaching curriculum of pain science. All institutional heads were requested to keep the DVD set in the library, accessible to all the faculty and students of the institution as self-learning material. This is expected to enhance professional education through independent learning even before the expected curricular changes are effected. We foresaw the importance of understanding the ‘multidimensional nature of the pain’ and requested the institutional heads to conduct a small workshop on the ‘multidimensional nature of pain’ based on the information included in the DVDs.

A simple Google form survey was incorporated to measure the acceptance of the lecture series from two institutions of Southern India before circulating the DVDs to the rest of the institution. The form consists of 10 ‘yes’ or ‘no’ questions assessing the acceptance, and attitude towards learning experience consisting of self-regulated learning from recorded lectures on pain sciences.

The lecture series was also uploaded in the project online data drive (Microsoft OneDrive) with a sharable link for future distribution and research purposes. An online link to the lecture series was made freely available from the institutional website. The action research methodology of this project is illustrated in Figure 1 at the end of the article.

Data analysis

Descriptive statistical methods were used for constructing tables of means and quantiles, measures of variance and cross-tabulations including hours of each pain topic. Likewise,

descriptive statistics consisting of percentages were calculated for the questionnaire responses (via the Google form).

Results

Phase 1: The areas of pain education missing from mainstream curricula that were identified by the IRC consisted of eight major topics. After the review process it was estimated that 22 hours of lectures would need to be recorded. Identified topics and estimated hours for each topic are listed in Table 1 below.

SI. No	Identified topics	Estimated hours
1	Introduction to pain	2
2	Multi-dimensional nature of pain	3
3	Pain assessment and measurement	4
4	Management of pain	5
5	Cognitive-behavioural approach	2
6	Pain ergonomics	1
7	Electrotherapy in pain management	1
8	Low back pain and neck pain	2
9	CRPS and neuropathic pain	2

Phase 2: Based on the comments and recommendations received from the EERC members, the topics were modified, subdivided and recorded as per the decided methodology. A summary of the pain lecture series is illustrated in Figure 2 at the end of the article.

Phase 3: The overall response rate for the initial invitation to participate in the study across the country was 58.2%. Of the 469 institutions contacted, five universities responded to the email within a period of one month after the initial contact. Several universities had multiple colleges under them and thus a total of 25 physiotherapy colleges responded expressing an interest in participating in the study (see Figure 3 at the end of the article). Other colleges (n-10) expressed interest but would only consider including the curriculum during their next scheduled curriculum review. The board of studies of three universities have already included the course in their curriculum. Based on the recommendations from this project, four institutions conducted a pain workshop as an additional learning resource using the recorded lecture series.

500 students and 50 academicians responded to the Google form evaluating the acceptability of the lecture series. A

Mathew J., Rashid, M., Shirsath, P. & Raja, K. (2020). *Development of learning material to complement pain education of physiotherapists in Indian universities.*

majority (88.2%) believed that the recorded lectures should be incorporated into the existing curriculum.

Discussion

The conception and conduction of the programme were feasible in terms of time and human resources. We have received a significant response to the invitation sent to the universities and physiotherapy institutions across the country. Approximately 15,000 students graduate every year from different institutions in India and more than 20,000 faculty and practising physiotherapists teach or practice in various colleges, hospitals, and universities (Grafton & Gordon, 2019; Raja, 2017). This project is expected to have a snowball effect by imparting current understanding and knowledge to young therapists and teaching faculty. Moreover, cultural and other characteristics are similar across the countries of South Asia (India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh, Maldives, and Myanmar) and all of these countries use English as the medium of higher education.

The number of participants who attended the course as part of our last study (2015) was limited to 25 physiotherapists from all over India, representing different institutions or universities. The current study reached a wider population with a target audience of 500 students per year from the universities and 2500 from the 25 individual institutions every year. The lecture series and associated study materials are freely available from our institutional website and will be available to many more. Thus, this project has achieved much greater reach than the initial programme.

Conclusion

We have developed a set of pain lectures based on the identified missing topics from the existing pain curricula for physiotherapy students in India. The developed resources are freely available from the institutional website and have already been sent out to all the physiotherapy institutions and affiliated universities. Evidence-based pain knowledge and its multidimensional nature is a key domain for a physiotherapist for clinical reasoning and tailoring of patient-specific interventions. We believe that the available resources will enhance curriculum revision and self-directed learning for the UG and PG physiotherapy students in India and other South Asian countries. The developed resources have a wider acceptance and we have received acknowledgement and appreciation from other institutions indicating their interest to take part in future pain education research and incorporation of the resources available in their institutional libraries.

Future perspectives

The impact analysis of this project must be evaluated in the future using the knowledge, attitudes, and practice of physiotherapy graduates. This is a future aim of this study and is expected to be carried out for the next two years. The lectures

that were recorded consist of selected areas and, based on feedback from users, we plan to incorporate more topics in the series over time.

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Mathew J., Rashid, M., Shirsath, P. & Raja, K. (2020). Development of learning material to complement pain education of physiotherapists in Indian universities.

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Funding

This study has been funded by the 2019 IASP Developing Countries Project: Initiative for Improving Pain Education grant.

Acknowledgements

The authors acknowledge Dr. Akkamahadevi P, Dr. Prabhleen Jaggi Singh, Dr. Saumen Gupta, Dr. Twinkle Dabholkar, Ms. Anushee Narekuli, Mr. Vijay Samuel Raj and Mr. Nityal Kumar Alagingi for their expertise in creating the pain lecture series. We also acknowledge the office staff, librarian and student council members (2018) of the institution for their active support and help throughout the project.

Peer review reports

Ben Ellis (B.Ellis@bham.ac.uk)

Reviewed: 08 June 2020

Citation: Ellis, B. (2020). Review - Development of learning material to complement pain education of physiotherapists in Indian universities. *OpenPhysio*. DOI: [10.14426/opj/20200608](https://doi.org/10.14426/opj/20200608)

Danelle Hess (dhess@uwc.ac.za)

Reviewed: 12 June 2020

Citation: Hess, D. (2020). Review - Development of learning material to complement pain education of physiotherapists in Indian universities. *OpenPhysio*. DOI: [10.14426/opj/20200612](https://doi.org/10.14426/opj/20200612)

Mathew J., Rashid, M., Shirsath, P. & Raja, K. (2020). Development of learning material to complement pain education of physiotherapists in Indian universities.

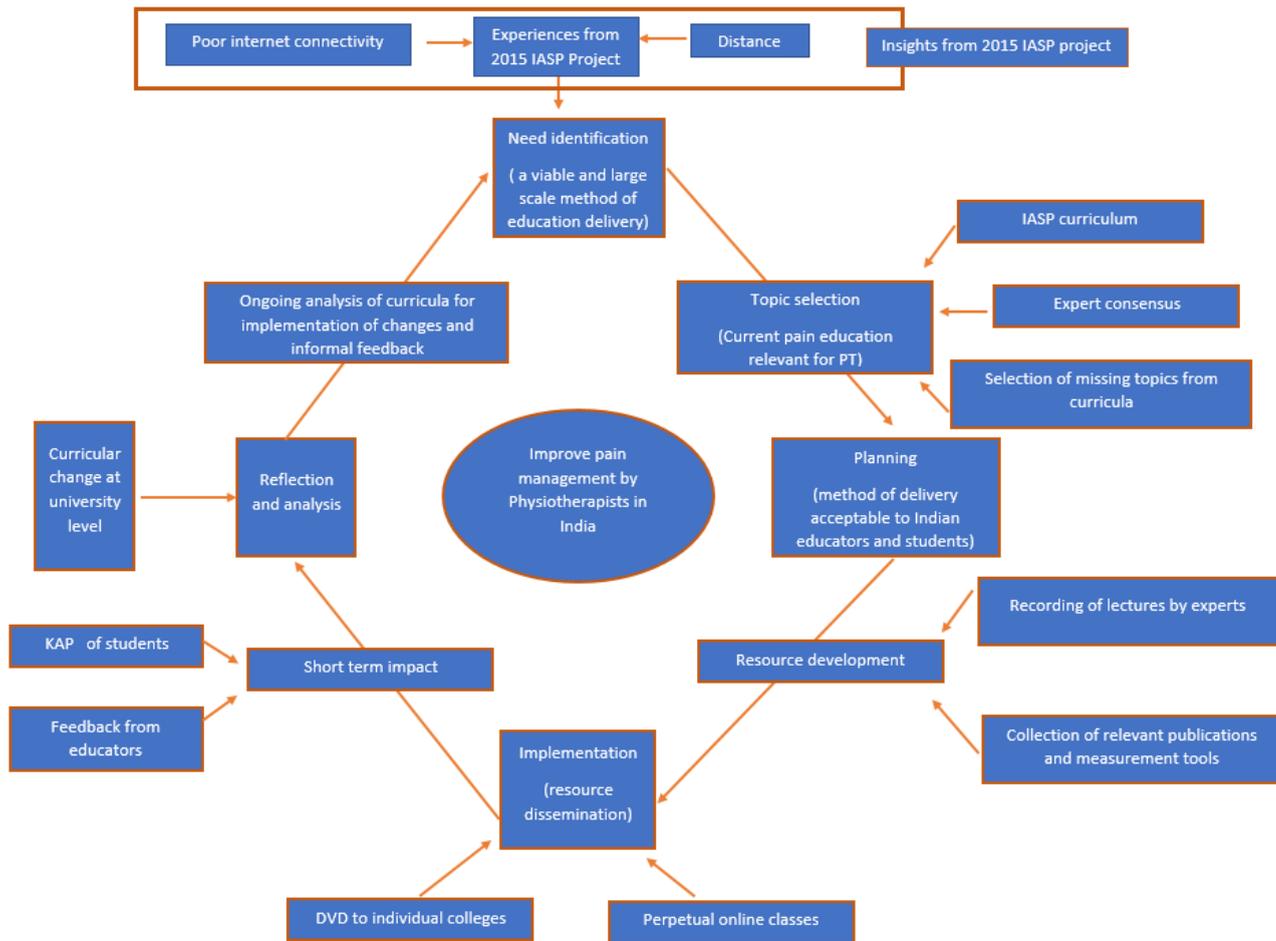


Figure 1: Summary of the methods.

Mathew J., Rashid, M., Shirsath, P. & Raja, K. (2020). Development of learning material to complement pain education of physiotherapists in Indian universities.



Figure 2: Pain topics and duration of the lecture recording.

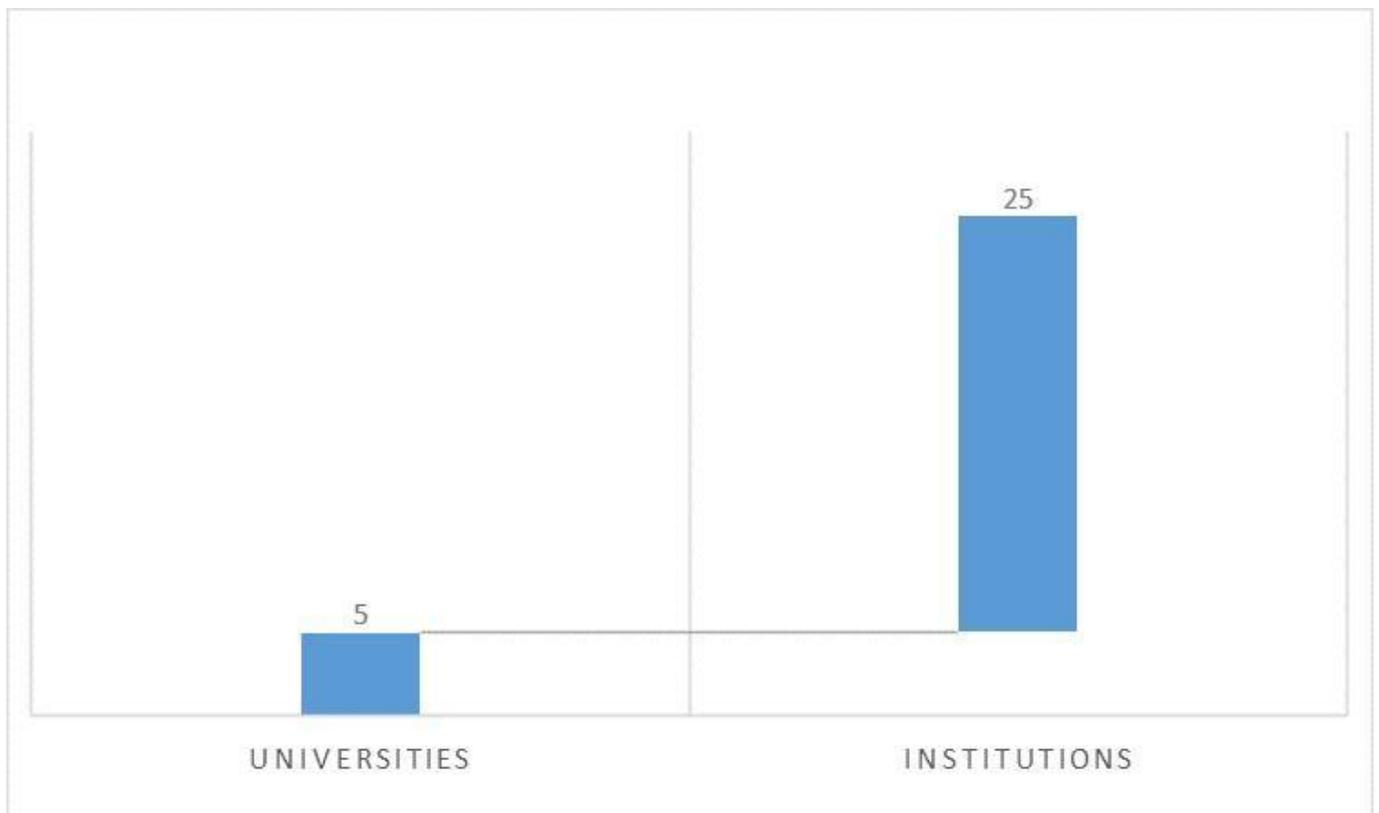


Figure 3: Initial response received within a month of email circulation.