

Knowledge of physical therapy students and professionals about pain: a systematic review

Conhecimento dos acadêmicos e profissionais da fisioterapia sobre dor: uma revisão sistemática

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ABSTRACT

Studies show that physical therapy students and professionals have limited knowledge about various aspects of the subject “pain”. This may result in inadequate approach and increases the patients' suffering. Thus, it was aimed to review studies that investigated the physiotherapy students' and professionals' knowledge about pain, as well as to propose strategies for changing it. This is a systematic review in which EBSCOhost, LILACS, PubMed, REDALYC and SciELO databases were consulted by crossing the following keywords and its matching terms in Portuguese: “pain”, “knowledge”, “education”, “curriculum”, “physical therapy specialty”. Cross-sectional or experimental studies addressing knowledge about pain clinical and pathophysiological aspects, and management were eligible. Studies that tested strategies to modify knowledge about pain were also qualified. Screening by title and abstract resulted in 84 studies. However, only five studies were included, which analyzed the knowledge about general aspects of pain and were published between 2003 and 2016. Only 60% of studies investigated volunteers from the field of physical therapy, whereas 100% of them had their knowledge verified in self-reported questionnaires. Four studies used validated questionnaires. Only 20% of them tested strategies to modify the knowledge about pain. The results of this review are that the topic “pain” is addressed as sub-topic only. Although it allows learning, it is not enough to ensure it. Physical therapy professionals are inconsistent as to theoretical knowledge and practice on pain management and human assistance. Teaching and learning strategies may improve students' knowledge about pain.

Keywords: physical therapy specialty; pain; knowledge; education; curriculum.

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RESUMO

Estudos demonstram que acadêmicos e profissionais da fisioterapia apresentam limitações no conhecimento sobre diversos aspectos do tema “dor”. Isso pode implicar em abordagens inadequadas e em maior sofrimento dos pacientes. Assim, objetivou-se revisar estudos que investigaram o conhecimento de acadêmicos e profissionais da fisioterapia sobre dor, bem como os que propuseram estratégias para modificar tal conhecimento. Trata-se de uma revisão sistemática, e foram consultadas as bases de dados EBSCOhost, LILACS, PubMed, REDALYC e SciELO, por meio do cruzamento das palavras-chave: “pain”, “knowledge”, “education”, “curriculum”, “physical therapy specialty” e os seus correspondentes em português. Foram considerados elegíveis os estudos observacionais ou experimentais que analisaram o conhecimento sobre aspectos clínicos, fisiopatológicos e manejo da dor. Também foram elegíveis os que testaram estratégias para modificar o conhecimento sobre dor. A triagem pelos títulos e resumo resultou em 84 estudos. Contudo, apenas cinco foram incluídos. Esses analisaram o conhecimento sobre aspectos gerais da dor, sendo publicados entre 2003 e 2016. Apenas 60% dos estudos investigaram participantes da fisioterapia, sendo que 100% deles verificaram o conhecimento por meio de questionários autoaplicáveis. Quatro estudos utilizaram questionários validados. Somente 20% testaram estratégias para modificar o conhecimento sobre dor. Os resultados desta revisão indicam que o tema “dor” é abordado apenas como subtema complementar, o que, embora permita o aprendizado, não tem sido suficiente para garanti-lo. Profissionais da fisioterapia apresentam inconsistência entre o conhecimento teórico e os seus papéis no manuseio e na assistência humanizada da dor. Estratégias de ensino-aprendizagem ativas podem aprimorar o conhecimento acadêmico sobre dor.

Palavras-chave: fisioterapia; dor; conhecimento; educação; currículo.

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INTRODUCTION

Both national and international studies point out that health students and professionals have a deficit on knowledge about physiopathological mechanisms, evaluation and treatment of pain¹⁻³. These findings may reflect the negative results of studies indicating that pain, whether acute or chronic, is underdiagnosed, poorly assessed, has low resolution and at times is neglected at several levels of health care⁴⁻⁶.

On the other hand, it is noteworthy that, for more than a decade, pain has come to be considered as the fifth vital sign; thus, its appropriate assessment and control are the patient's right and health teams' duty⁷. Another relevant point is that pain is an important global public health problem, characterized as a multidimensional phenomenon that is directly influenced by individual, cultural, social, psychological, environmental, and physical factors. And also, according to the International Association for the Study of Pain, it is an unpleasant sensorial and emotional experience, associated with real or potential lesions⁸.

Therefore, based on the reasoning presented and on the high complexity of this phenomenon, with disastrous biopsychosocial impacts and elevated financial cost to public and private safes, the real and current need for health students and professionals, including those of the physical therapy field, to be properly trained for pain prevention, assessment and treatment is evident in all areas of health care⁸⁻¹⁰. It is noteworthy that more than half the patients who look for physical therapy services feel pain as their main symptom, and this impacts directly on their daily living, work activities, and quality of life¹⁰⁻¹².

Evidence shows that physical therapy is an efficient non-medication resource for the treatment of pain and resulting functional alterations. In fact, many mechanisms and effects may be influenced by environmental, cognitive, and physical techniques of physical therapy when treating patients¹³. However, the selection of the best approaches depends on high technical knowledge, along with the best scientific evidence^{13,14}. The lack of studies addressing the level of knowledge of health professionals and students about pain and therapeutic approaches to it is real, and this study had the objective of reviewing researches that investigated the knowledge of physical therapy students and professionals about pain, as well as publications proposing strategies to change such knowledge.

METHODS

Type of research

This is a systematic review of original studies aimed at analyzing the knowledge of physical therapy students and professionals about pain and the therapeutic approaches to it, as well as those that tested teaching-learning and continuing education strategies capable of changing this knowledge.

Search strategy

The search for potential studies was developed by two independent authors, from December 2015 to March 2016. Electronic databases consulted were: EBSCOhost, LILACS, PubMed, REDALYC, and SciELO. Articles were selected after a search performed with the following keywords: "pain", "knowledge", "education", "curriculum", "physical therapy specialty", and corresponding terms in Portuguese. They were combined as follows: "pain AND knowledge AND physical therapy specialty"; "pain AND education AND physical therapy specialty"; and "pain AND curriculum AND physical therapy specialty".

Eligibility and exclusion criteria

The eligibility criteria were: original studies with observational or experimental design that analyzed the knowledge of physical therapy students and professionals about overall aspects of pain, such as pathophysiology, assessment methods, and therapeutic approaches; and studies that applied teaching-learning or continued education strategies to improve physical therapy students' and high-education professionals' knowledge about pain. Studies to be included should be available in full and published in Portuguese or English language up until March 2016. The following aspects were adopted as exclusion criteria: being published in non-indexed journals; methodology for pain assessment not described; number of participants of the physical therapy area not described; and being reviews.

Selection of studies and data collection

Articles retrieved from the databases' search were initially screened by title. Then, studies in duplication were excluded and titles were read again, along with abstracts, in order to verify whether they met the eligibility criteria or not. As shown in Chart 1, those meeting the criteria established were selected for full reading, new evaluation as to eligibility, and data collection regarding:

- author and year of publication;
- objective;
- population;
- methods (instruments for knowledge, continuous education and teaching-learning strategies' assessment); and
- main conclusions.

Finally, the references of the studies included in the review were analyzed so we could check the existence of other eligible articles not identified in the search on databases. Figure 1 summarizes the process of studies' selection, making up the scope of this systematic review.

RESULTS

The searches in selected databases retrieved 84 references, which were initially screened by their titles and abstracts. However, 28 articles were excluded for being duplicated and 51

for not meeting the selection criteria adopted. Therefore, only five studies were eligible to take part in this systematic review^{2,3,15-17}. No articles were found through manual search in reference lists of studies selected.

Based on the studies included, 129 students and 217 professionals of the field were evaluated. All studies reviewed had conducted an analysis on the knowledge about aspects specifically related to pain^{2,3,15-17}. Thus, 60% of papers had investigated the knowledge of students in the first through the last period of the physical therapy course, enrolled at public and private higher education institutions^{2,15}. Only 40% of the studies addressed the knowledge of professionals about the subject. One of them² evaluated a probabilistic sample with 207 physical therapists in South Africa, with an average of 14 years of clinical experience in the field and 12 years in the treatment of athletes. The other one¹⁶ consisted of volunteers graduated in physical therapy for at least one year and who acted at a federal university hospital in the city of Aracajú, SE, Brazil.

In general, the analysis of academical knowledge was based on self-administered questionnaires containing 12 to 27 objective questions, considering that 40% of the studies added or removed questions from the original questionnaire. On the other hand, one study² conducted with professionals and all studies^{3,15,17} conducted with students used previously evaluated tools. They contained questions aimed at characterizing the sample, evaluating overall and therapeutic aspects of pain, in addition to getting to know the neurophysiological and psychological, development, evaluation/measurement, pharmacology, and cognitive/behavioral aspects of pain. Only one study¹⁷ performed with students checked their knowledge about pain and applied interventions to improve it. Studies carried out with professionals only suggested the need of new policies of continuing education to improve technical and scientific performance of the sample subjects^{2,16}.

The main findings of studies indicate that the theme “pain” is not approached as the key subject at schools where the research was carried out. Nevertheless, physiotherapy students were shown to have proper knowledge about pain physiology and evaluation. However, knowledge about aspects related to therapies in general, pharmacological, and non-pharmacological treatments of pain were proven inadequate^{3,15,17}. Professionals were inconsistent as to theoretical knowledge and their roles in the humanized care of pain¹⁶, and were also shown to have insufficient awareness to

guarantee adequate evaluation, measurement, and management of pain². The only study¹⁷ that attempted to intervene in knowledge was able to show that active teaching-learning strategies applied to a specific subject related to the theme (pain) were enough to improve the knowledge about pain neurophysiology. Chart 1 presents a qualitative synthesis of the original studies composing this review.

DISCUSSION

Although it is accepted by the academic and scientific community that pain is an important vital sign, and also the main symptom presented in over half the patients who look for the physical therapy services^{10,11}, it seems, *a priori*, that high-education institutions are having difficulties to develop a basic curriculum about this topic¹⁸. Based on the studies selected, the theme has only been approached in undergraduate courses as a complementary sub-theme among several subjects, which seems to not be enough for an adequate learning^{3,15,17}.

In fact, although the literature is limited in studies aimed at monitoring knowledge of students and professionals about themes

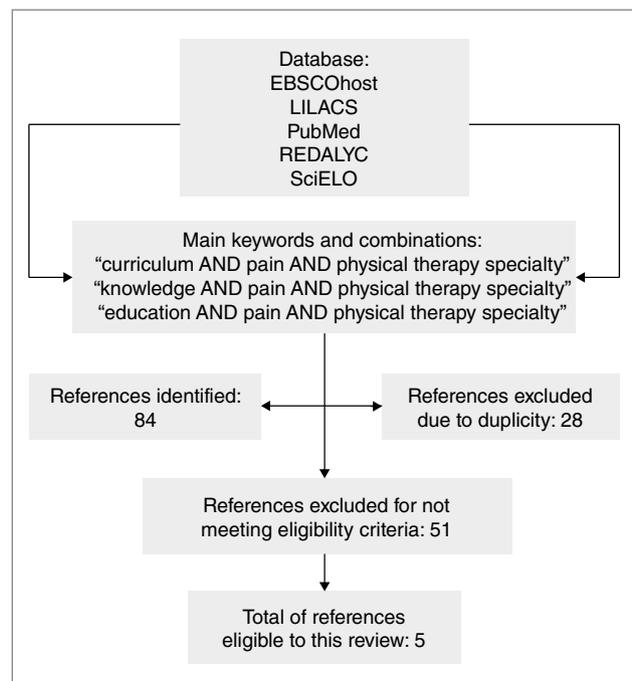


Figure 1: Flowchart of studies selection

Chart 1: Qualitative synthesis of studies addressing knowledge of physical therapy students and professionals about pain and approaches to it

Author	Objective	Population	Method	Main conclusions
Sereza and Dellarozza (2003) ³	To identify subjects and contents about pain, the concepts acquired by students regarding pain overall aspects, assessment and therapy.	170 students in health areas, 30 being students in the final period.	Self-administered questionnaire consisting of 27 objective questions, 12 on overall aspects of pain and 15 on pain therapies.	The theme of pain is approached in undergraduate courses as a complementary sub-theme in many subjects. Students demonstrate appropriate knowledge about pain physiology and assessment, however concepts regarding therapies were proven weak.

Continue...

Chart 1: Continuation

Author	Objective	Population	Method	Main conclusions
Alves <i>et al.</i> (2013) ¹⁵	To measure students' knowledge about pain and therapies, elucidating therapeutic approaches with the best knowledge on how to control pain, and determining the evolution of knowledge about the theme throughout the course.	85 students in the 1 st to the 10 th period.	Self-administered questionnaire proposed and validated by Sereza and Dellaroza ³ , consisting of 27 objective questions, 12 on overall aspects of pain and 15 on pain therapies. Researchers added five questions about physical therapy for control of pain to the original questionnaire.	The theme of pain is not approached as a main subject, but complementary to various subjects. Students show deeper knowledge in areas such as physiopathology, subjectivity, evaluation, non-pharmacological treatment, and physical therapy for pain situations. In aspects such as general pain therapies and pharmacological treatment with opioids, all groups had correct answers below 50%.
Clenzos <i>et al.</i> (2013) ²	To provide information on knowledge about pain among sports physical therapists and those specialized in orthopedic manipulation.	207 graduated physical therapists, 119 being undergraduate students, 33 Masters and 2 PhDs. A total of 191 participants were experienced in clinical practice, 15 years on average; 119 participants were experienced with athletes.	Evaluated by PKAQ, an appropriate instrument for health professionals. The questionnaire includes physiologic, psychological, development, assessment/measurement, pharmacology and cognitive/behavioral aspects of pain. The section on pharmacology was excluded from the study, considering the scope of action of physical therapy professionals in South Africa does not comprise it.	Physical therapy, sports, and orthopedic professionals may have inadequate knowledge about pain. Based on a minimum score of 75% in PKAQ, they could have appropriate knowledge to assess and treat pain. There was also a limitation as to assessing and measuring pain, as well as in other processes involved. In general, physical therapy professionals were shown to possibly have insufficient knowledge to ensure appropriate pain management and assessment.
Ribeiro <i>et al.</i> (2015) ¹⁶	To describe the knowledge of professionals about the theme of pain and analgesia in a multidisciplinary hospital team.	82 health professionals, 10 being physical therapists graduated for more than a year.	Self-administered questionnaire with questions regarding sociodemographic, academic, and professional data; basic concepts about pain; pain assessment and measurement; pharmacological and non-pharmacological treatments for pain relief; acquisition of knowledge about pain and analgesia.	Theoretical basis and actual practice of participants were shown to be inconsistent when it comes to handling pain in humanized care. Professionals state having acquired information about pain assessment and handling during graduation, although many of them consider that professional experience contributed more to such knowledge. This may be unfavorable to physical therapy care, once the practice based on experience alone, without the support of scientific evidence, may perpetuate erroneous clinical concepts. Need of a commission specializing in pain, and the creation of systematic evaluation protocols and continuing education about the subject.
Marques <i>et al.</i> (2016) ¹⁷	To evaluate the degree of neurophysiologic knowledge about pain of physiotherapy students, after using active teaching-learning strategies to approach the theme.	14 students in the 5 th period of the Physiotherapy course.	Neurophysiological Questionnaire of Pain, self-administered instrument, originally developed with 19 items aimed to evaluate knowledge about neurophysiology of pain, where each item presents 3 options of answers: true, false and undecided. After the evaluation of psychometric properties, it was concluded that only 12 items are necessary to achieve the same results of the original questionnaire. Scores equal to or higher than 65% of right answers in 90% of participants were considered satisfactory to evaluate knowledge about pain neurophysiology.	Upon initial evaluation, students achieved 65% of correct answers, which was considered unsatisfactory. The level of knowledge about neurophysiology of pain by students was improved by content approaching pain specifically, having students achieved 90% of correct answers in final evaluation. Active teaching-learning strategies were shown to favor the building of knowledge.

PKAQ: Pain Knowledge and Attitudes Questionnaire.

related to the work of physical therapists, there is evidence that their knowledge might not be completely adequate for patient care, especially those who are in pain^{2,3,15,16}. Thus, Sereza and Dellaroza³ reported that, although students have proper knowledge about pain physiopathology and evaluation, the concepts regarding pharmacological and non-pharmacological therapies are rather weak. These data are supported by the study of Alves *et al.*¹⁵, which showed similar results even though it was published ten years later; also worth mentioning that the study in question used the same questionnaire applied by Sereza and Dellaroza³, which indicates that, even after ten years, the problems in academic formation of physical therapists remain the same when it comes to clinical handling of pain.

On the other hand, identifying these limitations among professionals is worrisome, considering that they had been through 1 to 14 years of physical therapy training^{2,16} and even worked at hospitals and sports centers. These data suggest that professional practice alone might not be enough to improve and consolidate pain-related content. Confirming this hypothesis, Ribeiro *et al.*¹⁶ also identified inconsistencies between physical therapists' theoretical knowledge and actions in the humanized assistance to pain. In this research, although the evaluated professionals stated having acquired information about approaches to pain in their undergraduate courses, many of them considered that professional experience ensured more adds-on to such knowledge. According to the authors, this may be unfavorable to physical therapy care, once the practice based on experience alone, without the support of scientific evidence, may perpetuate erroneous clinical concepts. Clenzos *et al.*² stated that, although their sample of professionals reached the minimum score in the questionnaire applied, they had enough knowledge to ensure adequate assessment, measurement and management of pain.

Therefore, the need to not only rethink the way the theme "pain" is approached during graduation, but also to monitor such knowledge after the course conclusion is clear. Besides, it also includes adopting strategies to minimize gaps of knowledge about the theme. In this aspect, Marques *et al.*¹⁷ evaluated the level of knowledge about the neurophysiology of pain among students in the fifth period of a physical therapy course by using a questionnaire addressing the subject. They implemented strategies based on active teaching-learning methodologies. On the occasion, 12 formative meetings were held during one semester with the objective of building knowledge about the neurophysiology of pain. The active teaching strategies were: study of a text, dramatization, directed study, and health education strategies. After re-evaluating their knowledge, the author reported such strategies as satisfactory to improve the knowledge of students, which suggests that creating a specific subject may be ideal for the theme proposed.

Further longitudinal studies are still required to evaluate students' evolution regarding the knowledge about pain during academic formation, and to assist patients with pain syndrome, once the studies conducted with professionals also identify limited knowledge and negative influence as to the ability to provide adequate humanized care to patients in pain. Another point to be

better analyzed is how much the regionalization of the studies influences the results. Thus, an analysis of physical therapy curricula is also relevant while covering many regions in Brazil, once that the lack of a specific subject has been markedly showed, but may provide better knowledge to students about pain.

As for professionals, although adopting strategies of continuing education is recommended to improve the knowledge about pain, no studies addressing this strategy were identified^{2,16}. Other subjects such as evidence-based practice have documented that programs of continuing education, as well as the time dedicated to reading scientific articles, are essential for the development of professionals who aim to implement it in clinical practice. However, according to Dias and Dias¹⁴, there is still a great gap between the quality of professional formation and the skills needed to create clinical actions based on scientific evidences. Thus, strategies for both encouraging professionals and training students are needed to promote scientifically-based practice.

At last, this study had some limitations inherent to the methodology adopted and related to non-evaluation of methodological quality of studies selected, which may have somehow influenced results. This is because only one of the studies had calculations for sample adequacy in methodology, and no comparisons between groups with different exposures to teaching strategies were found. The absence of the latter makes it impossible to bring about results like the ones by Petto *et al.*¹⁹, who observed that, in addition to a specific subject, not having a specialist professor to approach the theme seems to negatively influence learning.

CONCLUSION

This review shows that, although pain is considered the fifth vital sign, the theme is still approached in undergraduate physical therapy courses as complementary to several other subjects; although such courses do provide knowledge about physiopathological mechanisms, subjectivity, assessment and non-pharmacological treatment of pain, it does not seem to be enough when it comes to pharmacological treatment with the use of opioids and adequate physical therapy strategies for clinical treatment of pain.

Another worrisome point is that, although the access to assessment and treatment by properly trained health professionals is a right of people in pain, studies have shown inconsistencies between theoretical basis and actual practice of physical therapists in the humanized care of pain. These professionals have also been reported to have insufficient knowledge to ensure the continuous management, evaluation, measurement and control of pain.

Finally, active teaching-learning strategies comprising text studying, directed studying, and health education in a subject with specific pain-related content seem to be enough to improve knowledge acquired at universities. On the other hand, the need to review curricula of physical therapy courses is noteworthy, considering that centers for academic formation investigated so far do not have specific subjects on this topic.

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