



## Low Back Pain in the Elderly, Emotional Factors and Psychological Intervention: Systematic Review

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### Abstract

**Background and Objectives:** Low back pain is one of the most common symptoms in elderly populations, both in Brazil and worldwide. The objective of this study was to analyze psychoemotional factors in low back pain in the elderly, whether psychologists are being incorporated into the rehabilitation process, and the methodological quality.

**Methodology:** We searched for clinical trials with control group in the Pubmed, Scielo and LILACS databases, associating low back pain to the following terms: depression; anxiety; psychology; emotional aspects.

**Results:** A total of 203 studies were found, and seven were selected. Questionnaires and scales showed to be the most used means for designating and controlling psychological aspects, such as depression, anxiety, pain catastrophizing, kinesiophobia and fears, and beliefs about low back pain, which were the most commonly found symptoms. Of the seven studies, only two contained psychologists as part of the team; a third study was carried out directly by these professionals.

**Conclusion:** Thus, even if these psychic factors are recognized as aggravating the low back pain in the elderly, addressing psychological care is not happening. More studies with higher methodological quality are necessary for a more reliable conclusion.

**Keywords:** Aged; Anxiety; Depression; Low Back Pain

### Introduction

Low back pain, which requires a high volume of medical assistance and generates a worldwide economic impact, is defined as pain associated with tension and/or stiffness located between the last ribs and the gluteal line. It affects about 50% to 84% of the general population for at least one episode at some point in their lives and is the most common cause of orthopedic emergency care. It is one of the most frequently reported symptoms by the elderly, being prevalent in 57.7% of the Brazilian elderly and 9.4% to 49% of the elderly worldwide [1-5].

Despite the terminological description of “low back pain” as a disease, this nomenclature refers to an anatomical painful region,

although it is widely used in clinical practice and scientific circles, it generalizes a condition with no etiological indication, but with a symptomatological scope. It can have as triggering intrinsic factors inflammatory diseases, degeneration of the spine or intervertebral discs, muscular instability, rheumatic conditions, congenital defects, and neoplasms, among others [4]. This study also adopted this term, although controversial, to focus on the search and discussion directed to the psychological aspect involved. Such a condition is best represented by interaction among biological, psychological, and social processes [6]. In the last three decades, the biopsychosocial model has been accepted and incorporated into the criteria for the evaluation and prognosis of low back pain. This statement is supported by the fact that there are worse results with physical

rehabilitation when patients are affected by depression, anxiety, and negativistic attitudes and beliefs [1,7,8]. These changes lead to pain catastrophizing, which is responsible for one-third of the pain intensity [9]. Moreover, negative emotions increase the risk of new painful episodes, the chronicity of low back pain, and contribute to the degradation of physical function [7,8]. With aging, there is an increase in severe and incapacitating events of low back pain, directly interfering in the activities of daily living, restricting physical and social conditions [1].

The indication of emotional and behavioral involvement regarding pain and its chronicity is clear by having an incidence of 30% to 60% of patients with chronic low back pain with some psychological disorder. Another interesting factor is the increasing number of physical evaluation scales and criteria, including more and more questions linked to psychosocial issues, since they correspond directly to prognostic indicators [4,7,8]. An example of this is the study that in the title questions whether “anxiety” and “depression” are not being forgotten in the lumbar assessment index [7]. However, a first question can be made as to the determination of these emotional findings: how are these emotional disorders, such as depression and anxiety, being characterized and defined?

The literature indicates the multidisciplinary approach as advantageous to conventional physical treatment in cases of low back pain (especially chronic) because it is influenced by several factors, such as psychosocial ones; however, a second question remains open: do patients with low back pain receive psychological care [3]? After all, the physical disability of elderly people is influenced by different emotional factors [1]. Therefore, it is relevant to determine the possible importance of psychological care in conjunction with other therapies (e.g., physical therapy intervention) in the approach to elderly patients with low back pain.

The objectives of this study were to analyze which strategies are most commonly used to determine the emotional aspects associated with low back pain in the elderly, whether psychological therapy is incorporated into the rehabilitation process, and the methodological quality of the studies (Jadad score).

## Methodology

The term low back pain was associated with the Boolean index AND in the search, with the descriptors: depression; anxiety; psy-

chology; emotional aspects. Applied in Portuguese and English. Pubmed, Scielo, and LILACS were the databases accessed. With the intent of directing research assigned to the objective, the following filters were applied as inclusion criteria: clinical trials; human; published within the previous five years; participants 60 years of age or older. Excluded were studies that compared drugs by mouth, that underwent surgical treatment, that had no control group, and that were repeated between databases. Studies that met the inclusion criteria were evaluated by the Jadad, *et al.* 10 scale for clinical trials, without eliminating the research according to the score obtained, i.e., only indicating the methodological quality of the article.

The words “depression” and “anxiety” were chosen as keywords because the literature points to them as indicators of psychological stress and because they are the emotional conditions most closely linked to low back pain. In addition, they are described as indicative of a time to recovery from pain and disability [7]. For the search not to be limited to these two factors, two other terms (“psychology” and “emotional aspects”) were included, to refine the objectives of this research with greater fidelity and find other possibilities linked to low back pain. Figure 1 shows the quantitative data from the search.

The databases pointed to a total of 203 studies, but only seven met the stipulated criteria. Table 1 shows the specifications of each article included however, it does not detail the other variables evaluated, such as pain, disability, mobility, gait performance, and quality of life, for these are beyond the scope of the study in question. In addition, the result described refers only to the emotional outcome evaluated and not to all the items of the research.

## Results

Depression was the most cited alteration (five of six studies [11-15]), and the Beck Depression Inventory was the most used device to characterize it. Anxiety, pointed out by one of the studies [15], was evaluated by the Hospital Anxiety and Depression Scale and the visual analog scale (VAS). Only a few authors [14], despite mentioning depression and anxiety, did not clarify the didactics of monitoring such conditions. Kinesiophobia was addressed in two studies by the Tampa Scale for Kinesiophobia (TSK) [14-16]. The Pain Catastrophizing Scale (PCS) was the score of choice regarding Pain Catastrophizing, in the same surveys that cited Kinesiophobia. Only one of the studies evaluated the fears and beliefs of physical

Authors	Aim	Population	Evaluation of emotional aspects	Sessions, duration and evaluation period	Psychological intervention	Results
Heapy, <i>et al.</i> [11]	Effects of distance CBT (IG) versus face-to-face session (CG) in LC	125 p, CG = 62 (in-person CBT) and IG (distance CBT) = 63.	Emotional Function/Depression: Beck Depression Inventory.	IG = 1/day CBT audio recorded. CG = 1/day CBT personally. 11 wks. Initial, final, 6,9 and 12month follow-up evaluation	Yes. Psychologist, CBT.	Groups higher than initial evaluation ( $p < 0.05$ ). No intergroup difference ( $p > 0.05$ ).
Borys, <i>et al.</i> [16]	To examine the effectiveness of multimodal immediate care (IM) in pre-admission to health care use	155 p with LC, CG (waiting list) = 66 and IG = 89	<i>General Depression Scale.</i> <i>Hospital Anxiety and Depression Scale</i>	8h/day, 6 days/week, for 3/week. Initial, final, 3 and 12months later evaluation.	Yes. Interdisciplinary team with psychologist. CBT in group (every day) and individual (1/week).	IG superior to CG ( $p < 0.05$ ).
Durmus, Unal and Kuru [13]	Compare adapted exercise program alone (CG) or associated with low back pain "school" (IG) 121 p with LC, CG = 60 and IG = 61.	Depression: Beck Depression Inventory 3/week, 3 months. Initial, final and 6 assessment after (FU) No. Psychiatrist educated and clarified general questions regarding low back pain.	Groups superior to initial evaluation ( $p < 0.05$ )	Compare adapted exercise program alone (CG) or associated with low back pain "school" (IG) 121 p with LC, CG = 60 and IG = 61.	Depression: Beck Depression Inventory 3/week, 3 months. Initial, final and 6 assessment after (FU) No. Psychiatrist educated and clarified general questions regarding low back pain.	Groups superior to initial evaluation ( $p < 0.05$ )
Durmus, <i>et al.</i> [12]	To evaluate the effects of exercise (CG) and its combination with microwave diathermy (IG)	39 p with LC, CG = 20 and IG = 19	Beck Depression Inventory	3/week for 6 weeks Initial, final and 1 month later evaluation (FU)	No.	Groups higher than initial evaluation ( $p < 0.05$ ). No intergroup difference ( $p > 0.05$ )
Monticone, <i>et al.</i> [15]	To analyze the effects of a multidisciplinary rehabilitation program (IM)	20 p, CG (FC) = 10 e IG = 10	Kinesiophobia: TSK. Catastrophizing: PCS.	2/week for 8 weeks Initial, final and 3-month follow-up evaluation (FU)	Yes. Multidisciplinary team with psychologist. CBT (1/week for 8 weeks)	Groups higher than initial evaluation ( $p < 0.05$ )*. IG superior to CG ( $p < 0.05$ ).
Vicent, <i>et al.</i> [17]	Compare two resistance exercise protocols in obese elderly people with LC	49 p, CG = 18, IG1 (global RE) = 22 and IG2 (lumbar extensor RE) = 20	Beliefs/mindset towards physical activity: FABQ Kinesiophobia: TSK Catastrophizing: PCS	3/week for 4 months. Initial and final evaluation.	No.	Similar to the initial regarding Kinesiophobia and fear of movement/injury ( $p > 0.05$ ) Catastrophizing: reduction in IG1 IG2 ( $p < 0.05$ )

**Table 1:** Characteristics of the selected clinical trials.

CBT: Cognitive-Behavioral Therapy; TSK: Tampa Scale for Kinesiophobia; PCS: Pain Catastrophizing Scale; FABQ: Fear Avoidance Beliefs Questionnaire; CG: Control Group; IG: Intervention Group; p: Patients; LC: Chronic Low Back Pain; w.: Week; CF: Conventional Physiotherapy; RE: Resistance Exercises

\* - authors did not address depression and anxiety in isolation.

activity against low back pain, using the Fear Avoidance Beliefs Questionnaire [16].

Only three of the six studies [11,14,15] had psychologists participating in the treatment process, as all of them took into consideration measuring psycho-emotional aspects and later portrayed results regarding such aspects, even though they were not addressed by the proper professional. One study was carried out by psychologists [11] while in the other two mentioned above, they were part of the rehabilitation team. Cognitive-behavioral therapy (CBT) was the unanimous conduct among the articles in which psychologists participated.

Table 2 simplifies the participation of psychologists facing rehabilitation in these studies, which were the evaluated requisites, if there was a significant improvement or not, and the use of the study design score by the Jadad, *et al.* [10] score. In the three studies (three) in which psychologists took part, there was an improvement in all psycho-emotional requisites [11,14,15]. In other studies, even without the participation of this professional, depression and anxiety were minimized [12,13], however, in one study, kinesiophobia and the Fear Avoidance Beliefs remained similar to the initial assessment values [16].

Authors	Psychologist Participation	Depression	Anxiety	Catastrophizing Pain	Kinesiophobia	Fears/beliefs about the injury	Jadad
Heapy, <i>et al.</i> [11]	Yes	Sim (p < 0.05)	No	No	No	No	3
Borys, <i>et al.</i> [16]	Yes	Sim (p < 0.05)	Yes (p < 0.05)	No	No	No	1
Monticone, <i>et al.</i> [15]	Yes	Sim*	Yes*	Yes (p < 0.05)	Yes (p < 0.05)	No	3
Durmus, Unal and Kuru [13]	No	Sim (p < 0.05)	No	No	No	No	3
Durmus, <i>et al.</i> [12]	No	Sim (p < 0.05)	No	No	No	No	2
Vincent, <i>et al.</i> [17]	No	Não	No	Yes (p < 0,05)	Yes (p > 0,05)	Yes (p > 0.05)	3

**Table 2:** Analysis of the results of psycho-emotional factors with and without the participation of a psychologist.

\*Alleged improvement but made no direct mention in the results.

As for the methodology of the analyzed studies, those in which psychologists participated were classified as poor (below 3) [15] or moderate quality (equal to 3) [11,14]. The remaining studies ranged from poor [12] to moderate quality [13,16].

Questionnaires and scales (such as Beck’s Depression Inventory, PCS, TSK, among others) were the most used forms of discrimination and follow-up of psycho-emotional factors (depression, anxiety, pain catastrophizing, kinesiophobia, and fear of injury), and the presence of associated psychological care seems not to be a common practice in the care of patients with low back pain [13,16].

Only in 2014, there was a translation into Portuguese of the first questionnaire (STarT Back Screening Tool - SBST - Brazil) linking psycho-emotional aspects to low back pain, in which the presence of such factors leads to a worse prognosis [8]. This characterizes that a few years ago, concern began to graduate, instead of only descriptive reports of psychosocial factors through scores and sci-

entifically recognized means. In 2015, some authors [5] described their lack of knowledge in the national literature on correlating low back pain and psychosocial factors in orthopedic emergency care. Nowadays, considerable progress has been made and the importance of collecting this information has been recognized, as we found that only one of the studies analyzed did not make use of a valid tool for alterations such as depression and anxiety [14]. The quantified follow-up of the emotional disorders associated with low back pain, such as classifying them in low, médium, and high risk, as proposed by the SBTS, has the benefit of pointing out the prognostic probability of improvement, such as the need for psychological therapy (medium and high risk). It has already been elucidated that an experimental group classified (SBST) and treated according to its findings was superior in its results compared to the control group that did not consider psycho-emotional factors [8]. In summary, it is noteworthy the importance that the included studies gave to evaluating, even if by different instruments, the psychosocial issues [11,17].

## Discussion

The concern in portraying the psycho-emotional variables in the face of low back pain seems not to be the same as the direct participation of the professional destined to the specific approach. As shown in table 2, only three studies out of seven contained psychologists, and one of them was conducted by a group of these professionals. This leaves only two studies with psychologists as part of an inter or multidisciplinary team. That is, given the relevance of this professional in the health care teams, up to now, the studies do not point to a common practice, the joint work of physiotherapy and psychology in a common way to approach patients with low back pain, even if the literature makes an effort to confirm the psycho-emotional relationship and this "diagnosis" [11,14,15]. Despite the improvement obtained (Table 2), even in the absence of the participation of a psychologist regarding some psycho-emotional factors, others, such as kinesiophobia, fears, and beliefs related to worsening of the injury, remained unchanged. These last two items, authors<sup>15</sup> recognize them as factors that prevent the recovery of normal function, promote the development of antalgic and guarded movements, and contribute to the physical disability of elderly people with low back pain. The opposite occurred, when psychologists were involved in the other studies, where all the emotional variables evaluated improved, without exception.

Authors<sup>3</sup> described rehabilitation with these professionals as being capable of increasing adherence to the physical intervention compared to the control group, and that it would provide better results regarding function. However, there is no mention of these patients being referred to a psychologist. Even more interesting, was the analysis made afterwards [17], between Guidelines from different countries directed to low back pain, showing massive agreement in the incorporation of assessment strategies and management of psychosocial factors. Therefore, the investigatory in this study, as well as recent recommendations supplement how important the psychologist is in the treatment process of patients with low back pain, especially chronic. Why this professional is still not one of the most visited is a question that remains open [17].

The psychology applied to the rehabilitation process of this population under analysis seems to have a sine qua non condition, the cognitive-behavioral therapy (CBT). The three studies

that used psychological strategies were unanimous in their choice. This can be aimed at making the patient work with his beliefs and fears about the condition, negative feelings, catastrophizing pain, stimulating reactions to the behavior of the injury, and visualizing low back pain as a situation that can be self-managed rather than a serious illness that needs frequent care and protection. Work to get the patient to direct his or her thoughts to a gradual increase in activities previously considered dangerous, as opposed to focusing on kinesiophobia [14]. In addition, CBT has been associated with conventional physical therapy, showing that these experimental groups obtain better results when compared to control groups (physical therapy only). This once again demonstrates the importance of treating low back pain in terms of physical and psychological aspects, since pain favors the development of chronic conditions due to its emotional and behavioral impact [8,15]. Because it acts directly on psycho-emotional factors already known to impair the rehabilitation process of low back pain, possibly CBT has been the most used intervention option, with clinical trials proving its effectiveness [11,14,15].

Low back pain is the second largest chronic condition in Brazil and tends to increase with age. What is added to the current analysis, shows that the emotional aspects elucidated, influence the prognosis of low back pain and that, despite being evaluated and followed by validated tools, this population is still not being referred directly to the psychologist, as it should preferably be, which would result in benefits when associated with physical therapy [11,14,15].

Heterogeneous samples about age range, reduced number of clinical trials with a control group, and with unpaired methodological quality (Jadad 1 to 5), are some of the limiting factors that hinder the formulation of more reliable considerations, for specific pointing to the elderly. But they suggest psychological evaluation to rule out involved psycho-emotional factors that could aggravate the injury or intervention to address such factors when found<sup>17</sup>. Even if a biopsychosocial approach is the most elucidated proposal for the elderly with low back pain, in practice, the psychic component is not linked to the follow-up and direct intervention of a psychologist.

## Conclusion

There is a growing proposal to use instruments to evaluate and monitor psycho-emotional factors, given their direct relationship with worse prognoses, but a common link to psychological care has not yet been established. When done, CBT has been the most commonly used strategy.

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