Influence of the type of locus of health control on the levels of disability and kinesiophobia in chronic low back pain

Influência do tipo de lócus de controle da saúde nos níveis de incapacidade e cinesiofobia na dor lombar crônica

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ABSTRACT

BACKGROUND AND OBJECTIVES: The aim of this study was to identify the existence of a relationship between the type of locus of health control and the variables associated with the occurrence of non-specific chronic low back pain (NCLBP), in addition to assessing the relationship between the level of disability in the development of functional activities and the level of kinesiophobia with the type of locus found in patients.
METHODS: 40 individuals with a mean age of 54.1±7.1 years were evaluated. On a single occasion, the questionnaires Multidimensional Scale of Locus of Health Control (MSLHC), Tampa (kinesiophobia), and Roland-Morris (disability) were applied for the acquisition of qualitative variables, analyzed to identify possible relationships between these and the type of locus of health control.
RESULTS: The present results showed no correlation between the type of locus and the specific individual variables genders (p<0.722), health insurance (p<0.449), education (p<0.968), monthly income (p<0.655), smoking (p<0.877), physical activity (p<0.077), and marital status (p<0.346), demonstrating homogeneity of the sample. There was no relationship between the type of locus and the degree of kinesiophobia (p<0.745). A significant relationship has been demonstrated between the locus of internal control and the level of disability (p<0.031).
CONCLUSION: The type of locus of health control presented by most patients with NCLBP was the internal, related to higher levels of disability, and not associated with levels of kinesiophobia or individual variables.

Keywords: Low back pain, Movement, Physical therapy specialty.

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RESUMO

JUSTIFICATIVA E OBJETIVOS: O objetivo deste estudo foi identificar a existência de relação entre o tipo de *lócus* de controle da saúde com as variáveis associadas à ocorrência de dor lombar crônica inespecífica (DLCI), além de avaliar a relação do nível de incapacidade no desenvolvimento de atividades funcionais e o nível de cinesiofobia com o tipo de *lócus* encontrado nos pacientes.
MÉTODOS: Foram avaliados 40 indivíduos com idade média de 54,1±7,1 anos. Em uma única ocasião foram aplicados os questionários *Multidimensional Scale of Locus of Health Control* (MHLC), Tampa (cinesiofobia), e Roland-Morris (incapacidade) para a aquisição de variáveis qualitativas, analisadas para identificação de possíveis relações entre essas e o tipo de *lócus* de controle da saúde.
RESULTADOS: Não houve correlação entre o tipo de *lócus* e as variáveis individuais específicas, tais como sexo (p<0,722), convênio de saúde (p<0,449), escolaridade (p<0,968), renda mensal (p<0,655), tabagismo (p<0,877), prática de atividade física (p<0,077) e estado civil (p<0,346), demonstrando homogeneidade da amostra. Não houve relação do tipo de *lócus* com o grau de cinesiofobia (p<0,745). Foi demonstrada relação significativa entre o *lócus* de controle interno e o nível de incapacidade (p<0,031).
CONCLUSÃO: O tipo de *lócus* de controle da saúde apresentado pela maioria dos pacientes com DLCI foi o interno, relacionado a maiores níveis de incapacidade, e não associado aos níveis de cinesiofobia ou variáveis individuais.

Descritores: Dor lombar, Fisioterapia, Movimento.

INTRODUCTION

Low back pain (LBP) is defined by the location of pain usually between the lower rib margins and the gluteal folds[1]. For most people who have chronic low back pain (CLBP), the specific nociceptive source cannot be identified, so the pain is classified as nonspecific[2]. CLBP is one of the most common health problems and generates an important personal, community, and financial burden worldwide[3].
LBP is often related to kinesiophobia, which is an excessive, irrational, and debilitating fear of movement and physical activity that results in vulnerability to pain or fear of reoccurring injuries[4,5]. Recent guidelines emphasize that psychological aspects, such as fear of movement and depression, should be identified and addressed early in patients with CLBP, as they are predictors of worse outcomes[4,6].

One of the psychosocial aspects that has been researched in relation to LBP is the so-called locus of control, which is a construct defined as a psychological characteristic that classifies the degree to which the individuals perceive what happens to them in life and the type of behavior adopted towards their own health[7,8]. It's identified in two tendencies, the internal and the external. People with internal locus of control tend to locate the control in themselves, while externally oriented people tend to locate in others the control over what happens in their lives[5].

The purpose of this study was to identify whether there is an association between the type of health control locus and the gender, level of education, monthly income, smoking, level of physical activity and marital status variables associated with the occurrence of nonspecific chronic low back pain (NCLBP) and to assess the association between the level of disability in the development of functional activities and the level of kinesiophobia with the type of locus found in the patients.

METHODS

The study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines[9]. This was a cross-sectional observational study with data collection on a single occasion, with no associated intervention. The following profiles of patients were included: no cognitive alterations, literate, of both genders, who had suffered from LBP for more than three months and who did not have any type of musculoskeletal injury, fracture or associated diseases, with ages ranging from 35 to 65 years, in physical therapy care funded by public or private insurance. The allocation and collection of data occurred in private and public clinics in the city of Lavras, MG, Brazil.

The questionnaire was answered at the time of delivery, and the initials of the name, age, gender and type of health insurance were collected, as well as data related to the LBP duration, level of schooling, monthly income, smoking, practice of physical activities and marital status. In the Multidimensional Scale of Locus of Health Control (MSLHC)[10], the patient highlighted the number related to his or her agreement with each statement. The Tampa kinesiophobia questionnaire[11] and the Roland-Morris disability questionnaire[12] were also applied. The patient could read the question and write the answer or listen to the question and present his or her answer orally to the researcher, according to the patient's difficulty with reading. The qualitative variables were analyzed looking for possible correlations between them.

A division into two subgroups was carried out for better classification and understanding during the verification of the relationship between the level of kinesiophobia and the type of health control locus. Patients with scores between 17 and 42 were classified in the "lower level" subgroup, and patients with scores above 42 in the "higher level" subgroup. The same division was used for the disability variable. Patients with final scores between zero and 8 were classified in the "low level"; scores between 9 and 16 in the "medium level" and scores above 16 in the "high level".

There were no dropouts or refusals during the application of the questionnaires, so all individuals were evaluated and had their results analyzed.

Study approved by the Research Ethics Committee of the University Center of Lavras (CAAE 0126.0.189.000-09).

Statistical analysis

The correlation analyses were performed using the Chi-square test with 5% significance ($p<0.05$), using the scientific software SPSS (Statistical Package for the Social Sciences) version 20.

RESULTS

Forty individuals were included, with a mean age of 54.1±7.1 years, being 70% female and 30% male, 50% of the individuals used the Unimed health insurance, 37.5% used the Brazilian public health system (SUS – *Sistema Único de Saúde*) and 12.5% reported using other services, 44% had primary education, 20% secondary and 36% higher. The majority (45%) had a monthly income of less than or equal to 2 minimum wages, 20% between 2 and 6 minimum wages, and 35% above 6 minimum wages. Most (75%) reported being in a common-law marriage or were married, and 25% were single, divorced, or widowed. The majority (93%) were smokers and 63% didn't practice regular physical activities.

MSLHC applied to evaluate the type of locus found in patients showed that 57% had internal health control locus, 33% external health control locus, and 10% random health control locus. In order to make the test possible, the external and random locus of control were added, since they cover the same psychosocial characteristic (Table 1).

Table 1. Association between the variables and the result of the "locus" variable

Variables	Classification of variables	Locus (n and %)		p-value
		Internal	External/ random	
Gender	Female	17 (60.7)	11 (39.3)	0.722 (NS)
	Male	8 (66.7)	4 (33.3)	
Health plan	SUS	9 (60.0)	6 (40.0)	0.449 (NS)
	Unimed	14 (70.0)	6 (30.0)	
	Others	2 (40.0)	3 (60.0)	
Schooling	Primary	7 (63.6)	4 (36.4)	0.968 (NS)
	Secondary	9 (64.3)	5 (35.7)	
	Higher	9 (60.0)	6 (40.0)	
Monthly income	Up to two min. wages	10 (55.6)	8 (44.4)	0.655 (NS)
	Two to six min. wages	5 (62.5)	3 (37.5)	
	More than six min. wages	10 (71.4)	4 (28.6)	
Smoking	Smoker	2 (66.7)	1 (33.3)	0.877 (NS)
	Non smoker	23 (62.2)	14 (37.8)	
Physical activities	Practicing	12 (80.0)	3 (20.0)	0.077 (NS)
	Not practicing	13 (52.0)	12 (48.0)	
Marital status	Single/widower/ divorced	5 (50.0)	5 (50.0)	0.346 (NS)
	Married/common--law marriage	20 (66.7)	10 (33.3)	

Relative Chi-square test; NS = non-significant.

As for the kinesiophobia and disability levels, most participants presented the lowest level (68%) and low level (55%), respectively, as shown in table 2.

Table 2. Levels of kinesiophobia and disability (n=40)

Kinesiophobia level	
Lowest (17-42)	68%
Highest (>42)	32%
Disability level	
Low (0-8)	55%
Moderate (9-16)	45%
High (>16)	0%

The Chi-square test statistical analysis data for the possible correlation between control locus and level of kinesiophobia, as well as the control locus and level of disability, are shown in table 3.

Table 3. Observed frequencies and results for the correlations between the type of locus and level of kinesiophobia and disability

Control locus	Kinesiophobia level		p-value
	Higher (>42)	Lower (≤42)	
Internal	7	16	0.745 (NS)
External/random	6	11	
Control locus	Disability level		
	Low (0-8)	Moderate (9-16)	
Internal	7	16	0.031 *
External/random	11	6	

Chi-square test; NS = non-significant; * = significant at 95% level.

DISCUSSION

This study investigated the type of health locus of control in patients with NCLBP. Most of them presented internal locus, that is, when the individual believes he/she is the most responsible for his/her health condition. When the levels of disability and the type of health control locus were compared in these patients, the result was statistically significant, suggesting that in the evaluated population the internal locus of control can interfere by increasing the level of disability. As for the level of kinesiophobia, no statistically significant association was found, suggesting that the type of health control locus has no influence.

The analyzed variables showed a non-significant p value, suggesting sample homogeneity, reducing sampling error biases, providing the identification of the associations between the type of health control locus and the NCLBP.

Some studies correlate most patients with NCLBP with internal locus of control[13,10,14]. Study[15] found an important difference between the type of health locus of control in groups of patients with NCLBP who underwent treatment or not, i.e., treated patients had a higher external health locus of control.

The findings of studies[14,15] suggest negative effects on the prognosis of patients who externalize their health beliefs, showing that the patient's projection and expectation on passive treatments can debilitate the treatment program. This is explained by the fact that patients who tend toward passive treatments have lower expectations and acceptance of active interventions, such as motor control exercises[10]. Nevertheless, for the treatment of LBP, it's important to instruct individuals to be more active, since active exercises are the best option for the treatment of NCLBP[16], and to improve their lifestyle by adopting healthier habits[17]. Specifically, for the NCLBP, the ability to adapt and self-management are responsible for promoting a positive health concept[1]. Thus, a treatment that involves little or no active participation of the patient, reflex of externalized beliefs, generates higher expenses associated with longer time of treatment for pain control.

The disabling experience associated with pain is a problematic issue of psychosocial interactions in the physical, psychological, and social dimensions[18]. According to another study[19], many times these factors that surround all types of LBP go unnoticed in assessments and care. Study[20] found higher levels of disability and worse quality of life in patients with CLBP who had an external locus of health control, especially the random locus. However, in the present study, a positive association was found between the internal locus of control and higher disability levels. Although most patients have internal locus of control, clinical practice hardly ever reflects the scientific evidence.

In Brazil, physical therapists do not adhere to clinical practice guidelines for the treatment of LBP[21], maintaining their beliefs in the biomedical model and in passive treatments[22]. No matter how much the patients feel responsible for their health condition, when they receive misguided orientations and interventions associated with passive therapies, rest and avoidance of movement, the results tend not to be positive. Ideally, treatment should revolve around symptom management and be educational. Also, the professional should clarify that the problem is not serious, may be recurrent, but has a solution. In addition, it's necessary to reduce superficial, invasive, and even harmful health care for LBP[17,18].

It was also possible to observe that the level of kinesiophobia did not interfere with the type of health control locus, but as no studies investigating this association were found, it may be that other factors are associated with the fear of performing movement in patients with NCLBP, such as their belief system and previous experiences, being characterized as a conditioned behavioral response[23,24].

Studies[15,25] suggest the possibility of a clinical change in the type of health control locus, which can vary according to the physical therapist's analysis of the results of the treatment proposed for each individual. If the hypothesis that external variables do not influence the definition of the type of locus is confirmed, the change in the positive sense of the patient's perception towards health could be facilitated. Furthermore, indirectly, a possible increased adherence of the patient to treatment that requires active participation would increase the chances of therapeutic efficacy, since some health beliefs have been reported as influential in the patient's acceptance of therapy.

The limitation of this study is the sample size, with a high percentage of female patients, and the participants age range.

CONCLUSION

The type of health locus of control presented by most patients with NCLBP was internal, related to higher levels of disability and not associated with levels of kinesiophobia or individual variables.

AUTHORS' CONTRIBUTIONS

Luciana Crepaldi Lunkes
Statistical Analysis, Data Collection, Conceptualization, Resource Management, Project Management, Research, Methodology, Writing - Preparation of the original, Writing - Review and Editing, Supervision, Validation, Visualization
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