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Case Report

Correlation Of Kinesiophobia With Pain-Disability And Muscle Endurance Among The Individuals With Chronic Non-Specific Low Back Pain: A Pilot Study.

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Abstract

Background: Patients with chronic non-specific low back pain (CNLBP) frequently present with kinesiophobia. Objective of this study is to find correlation of kinesiophobia with pain-disability and kinesiophobia with back extensor muscle endurance.
Method: A pilot study had been conducted with 13 patients around Amreli. Kinesiophobia, lumbar endurance and Pain-disability were assessed with Tampa Scale, Soren's lumbar extensor test, modified Oswestry disability index respectively.
Result: The data is analysed by using SPSS 27 software. And it was found that Pearson Correlation value for kinesiophobia with pain-disability was found 0.186(r=0.186) and Pearson correlation value for kinesiophobia with muscle endurance was found -0.182(r= -0.182).
Conclusion: The presence of kinesiophobia in chronic non-specific low back pain patient show moderate positive correlation with pain-disability. Presence of kinesiophobia in chronic non-specific low back pain patient show moderate negative correlation with muscle endurance.

INTRODUCTION

Low back pain is a common musculoskeletal disorder affecting persons of all age groups[1]. Low back pain (LBP) is a significant public health issue, often linked to high rates of work absenteeism, disability, and frequent healthcare utilization[2]. The prevalence and incidence of Low Back Pain (LBP) are steadily increasing in industrialized countries, in the Indian population reporting a range from 6.2% to 92%[3]. LBP is defined as pain in the area on the posterior aspect of the body from the lower margin of the twelfth ribs to the lower gluteal folds[3]. The discomfort may be localized or vague, with pain intensity ranging from mild to severe. Symptoms of LBP may be experienced as dull aching to burning, stabbing and sharp shooting, localised to vague presentation with intensity of pain ranging from mild to severe[3].

Types of LBP may be classified according to their duration. Acute low back pain has sudden onset and lasts for less than six weeks, while sub-acute low back pain lasts from six to 12 weeks, and chronic low back pain lasts for more than 12 weeks[4].

Chronic non-specific low back pain (CNLBP) is characterized by pain, stiffness, muscle tension, limited mobility, and disability, typically occurring between the costal margin and inferior gluteal folds and lasting for 12 weeks or longer[5]. It includes common diagnoses (accounting for 85-90% of individuals seeking care) including lumbago, myofascial syndromes, muscle spasms, mechanical low back pain, back sprains, and back strains[6].

Kinesiophobia is described as an excessive, irrational, and debilitating fear of performing physical movements due to susceptibility to painful injury or reinjury[7]. At a psychosocial level, kinesiophobia and fear-avoidance beliefs are factors that play an important role in the evolution of the LBP and its transition towards chronicity[8]. Kinesiophobia can be assessed psychometrically by using Tampa Scale of Kinesiophobia (TSK)[3].

As a result of Chronic Low Back Pain (CLBP), patients reduce their usual activities and, in addition to experiencing social and emotional issues, develop physiological signs of deconditioning, such as a loss of muscle strength[6]. If the pain persists, it may limit trunk movement in an effort to minimize discomfort in the lumbosacral region or leg[10]. Functional disability which is exhibited in LBP can be assessed by Modified Oswestry LBP Disability Questionnaire (MODQ) since it measures a patient's perceived functional disability

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and it is designed to give information about how a patient's back pain affects his or her ability to manage in everyday life[3]. Muscle endurance is defined by the American College of Sports Medicine (ACSM) as the ability of a muscle group to execute repeated contractions over a period of time that is sufficient to cause muscular fatigue or the ability to maintain a specific percentage of the maximum voluntary contraction for a prolonged period of time[12]. Back extensor muscles are postural muscles that aid in maintaining the upright standing posture and controlling lumbar forward bending[11]. Long-term mechanical low back pain (LBP) results in inhibition and atrophy of the deep segmental muscles such as multifidus and overactivity of the longer superficial muscles of the trunk with resultant decreased dynamic activity and increased fatigability[9]. If the pain still persists for more than a month, it restricts the trunk movement to minimize pain in the lumbosacral area or leg, which can aggravate the level of lumbar muscle weakness in paraspinal muscles. muscles. Thus, transverse abdominus and erector spinae are crucial in rising the body part stability. LBP patients suffer from activity limitation because of weakness of these muscles of lumbar spine[10].

Aim of the study is to find correlation between kinesiophobia with pain-disability and kinesiophobia with muscular endurance. Kinesiophobia negatively influence the treatment of chronic non-specific low Back pain patient, this study will be helpful for the clinicians as an important factor in their preliminary assessment of patients with chronic non-specific low back pain.

METHODOLOGY

Study design: A pilot study
Sample size: 13 patients
Sources of data: Various clinics around Amreli.
Eligibility Criteria:

- ***Inclusion criteria:***
  - ✓ Patient willing to participate.
  - ✓ Both male and female are included.
  - ✓ Age :18-55years.
  - ✓ Medical diagnosis with non-specific low back pain.
  - ✓ Patient suffering from low back pain >12 week.
  - ✓ Pain intensity level maximum 5 in NPRS

- ***Exclusion criteria:***
  - Previous surgery in low back pain & abdominal region.
  - Presence of fracture or pathology or malignancy
  - Diagnosed radiculopathy.
  - Structural deformity of spine.
  - Neurological or psychological disorder.
  - Presence of pregnancy.
  - Cardiovascular condition
  - Respiratory condition
  - Patient who doesn't understand the Gujarati language.

Total 13 patients have been included in the study.
The purpose of this study was explained to them and informed consent has been obtained. The participants were screened with inclusion and exclusion criteria.
Kinesiophobia were assessed using validate Gujarati TAMPA scale. 13 items self-report questionnaire in which each question is scored using a Likert scale ranging from 1(strongly disagree) to 4(strongly agree). Total score is calculated by adding the scores of individual items. Score ranges from 13(a low level of kinesiophobia) to 52(a high level).
Pain-disability measured by using validate Gujarati version of Oswestry disability index 2.0. In this, 10 section are there, in each question has 6 statements, total score of each section is 5. Final scoring is done by total score divided by number of questions answered multiply by 100.Thus score ranges from 0(no disability) to 100(maximum disability).
To assess extensors muscle endurance, Sorensen test had been performed. It measures how long subjects can keep the unsupported trunk horizontal while prone on examination table. During the test, the buttocks and legs are fixed to table by 3 wide canvas straps and arms are folded across the chest. The subject is asked to maintain the horizontal position until symptoms of fatigued are reached.

RESULT

The data were collected from various OPDs around Amreli. Total 13 patients with chronic non-specific low back pain were collected. And after collecting the sample, got the values of TAMPA, ODI, SORENESEN TEST and mean for all sample ODI, TAMPA, SORENSEN TEST is 27.68, 43.15, 26.16 respectively. And after putting the data on SPSS 27 software. And Pearson correlation between TAMPA and ODI is found 0.186(r=0.186). Which show moderate positive correlation between kinesiophobia and pain-disability. Pearson correlation between TAMPA and SOERENSEN TEST is found (r= -0.186), which show moderate negative correlation between kinesiophobia and back muscle endurance.

Table 1.

Correlations			
		Tampa	**Odi**
Tampa	Pearson Correlation	1	.186
	Sig. (2-tailed)		.542
	N	13	13
Odi	Pearson Correlation	.186	1
	Sig. (2-tailed)	.542	
	N	13	13

Table 2.

Correlations			
		Tampa	**Endurance test**
Tampa	Pearson Correlation	1	.186
	Sig. (2-tailed)		.552
	N	13	13
Endurance test	Pearson Correlation	-.182	1
	Sig. (2-tailed)	.552	
	N	13	13

DISCUSSION

Kinesiophobia described as an excessive, irrational and debilitating fear of performing physical movements due to susceptibility to painful injury or reinjury. kinesiophobia produces negative impact on treatment effect of patient with chronic non-specific low back pain.

A pilot study was conducted to determine the relationship between kinesiophobia with pain-disability and kinesiophobia with back extensors muscle endurance.

kinesiophobia show correlation with pain-disability and back extensor muscle endurance. Hence this study will helpful for clinician to take kinesiophobia as an important factor in their preliminary assemblies of patient with chronic non-specific low back pain.

This study was conducted on age group between 18-55 years and this study can further proceed on age above 55years.

CONCLUSION

The presence of kinesiophobia in chronic non-specific low back pain patient show moderate positive correlation with pain-disability. Presence of kinesiophobia in chronic non-specific low back pain patient show moderate negative correlation with muscle endurance.

RECOMMENDATION

This study has been done with 13 patients as a pilot study but it can be done with more number of patients with more accuracy in future.

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