

Correlation of Disability with Pain and Catastrophizing in Housewives with Chronic Low Back Pain Aged Between 35 To 60 Years

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ABSTRACT

Background: Low back pain is major musculoskeletal disorders with female are more prevalent than male. Chronic low back pain is difficult to treat due to multifactorial aetiology and association of psychological factors. In chronic pain, long term disability may be associated with catastrophizing. Thus it is required to assess relationship of disability with pain and catastrophizing in housewives suffering from chronic low back pain.

Methods: This observational study included 63 housewives suffering from chronic low back pain (duration more than 3 months). They were administered Numerical Pain Rating Scale (NPRS), Hindi version of Pain Catastrophizing Scale (PCS) and Hindi version of Oswestry Disability Index (ODI). Their responses were analysed with Pearson's co-efficient.

Results: Mean score of pain was 6.79 ± 1.38 . Mean score of catastrophizing was 27.92 ± 6.96 . Mean score of disability was 22.71 ± 6.85 . There is highly significant correlation was found between disability and catastrophizing ($p < 0.0001$) and disability and pain ($p = 0.0021$).

Conclusions: This study demonstrated positive correlation of disability with pain and catastrophizing in housewives suffering from chronic low back pain.

Keywords: Low back pain, housewives, catastrophizing, disability

INTRODUCTION

Low back pain is considered as global health problem affecting many group of population. It is one of the major musculoskeletal conditions treated by Physiotherapist. Low back pain is defined as pain, muscle tension or stiffness localized below the costal margin and above the inferior gluteal folds, with or without leg pain. [1] Rehabilitation of chronic low back pain is frequently difficult because of many aetiology and many risk factors. If pain persists longer than 3 months then it is called chronic low back pain. [2] Frequently it has been observed that patients with chronic pain are not recovered completely. They continue to complain of pain and

disability even after treated for longer period of time.

In recent years, role of psychological factors has been extensively studied in development of chronic pain. Pain catastrophizing has been documented as one of the important psychological variable in chronic pain experience. [3,4] Pain catastrophizing is defined as an exaggerated negative orientation towards pain stimuli and pain experience. [5] Result of numerous studies showing correlation of catastrophizing with disability in chronic low back pain. [2,3,6-8] Although these studies show positive correlation, they were conducted on population of different culture other than population of Indian culture. In context to culture, experiments in the field

of pain showing influence of cultural factors on experience of pain [9,10] and catastrophizing. [11]

There is lack of evidence in population of Indian culture regarding relationship of disability with pain and catastrophizing in chronic low back pain. In relation to gender, prevalence of low back pain is more in females compared to males. [12]

A study documented that back pain in females continued to rise from the age of 35 to the age of 65. [1] According to Indian study, prevalence of low back pain in rural non working housewives is 83% and more than 50% housewives are suffering from severe disability. [13]

In Indian culture, housewives have to perform many duties throughout a day. They are involved in physical activities like repetitive bending; lifting and carrying. This places stress on tissue that leads to pain and disability. They are also involved in taking care of family members and responsibility of maintaining social relationship with friends, relatives and neighbours. Relationship with these members may influence their experience of pain and disability. Hence this study was aimed to quantify correlation of disability with pain and catastrophizing in housewives suffering from chronic low back pain.

MATERIALS AND METHODS

The study protocol was approved by institutional ethical committee. This study was conducted on 63 house wives suffering from chronic low back pain, selected by purposive sampling and coming to OPD of VSPM's college of physiotherapy, Nagpur, India. Sample size was determined from a reference study [7] with following assumption: Correlation coefficient (r) was 0.299, Power($1-\beta$) was 80%, Confidence level is 90% and α - error is 10%. So, sample size is $n=63$. Study protocol was explained and written consent was taken from each patient before administration of scale.

Patient selection criteria

Inclusion criteria were diagnosed case of either specific or non-specific low

back pain with or without leg pain for duration of more than 3 months, housewives aged between 35-60 years and able to understand Hindi language.

Exclusion criteria were patients having low back pain with vertebral fracture, any previous spinal surgeries, pregnant women and inflammatory condition. Patients with only leg pain and no back pain were excluded. Patients with low back pain associated with psychiatric disorders were excluded.

Measures

Patients were asked to complete following measures. They were aware that collected information was confidential.

Pain intensity was measured by Numerical Pain Rating Scale (NPRS). This 11-point numeric scale ranges from 0 to 10. 0 denotes no pain and 10 denotes pain extreme (e.g. "pain as bad as you can imagine" or "worst pain imaginable").

Catastrophizing was measured by Hindi version of Pain Catastrophizing Scale (PCS), which is valid and reliable. On request, Hindi version was provided by Dipika Bansal. [14] This scale consist of 13 items describing different thoughts and feelings that individual may experience during pain. This scale measures catastrophizing on 5-point Likert scale with 0 indicates not at all and 4 indicates all the time. Total score is calculated by summation of all the items with ranges from 0 to 52.

Disability was measured by Hindi version of Oswestry Disability Index (ODI), which is valid and reliable. On request, Hindi version was provided by Nishant. [15] This scale contains 10 questions and each having 6 alternatives. Each alternative has score from 0 to 5, where 0 denotes no problem at all and 5 denotes a serious problem. Total score is obtained by summation of score of all items with ranges from 0 to 50.

Data analysis

Collected data was coded by UID numbers and entered in Microsoft excel spreadsheet 2007. Data cleaning was

employed when required with EPI info software. Data was analysed by statistical software STATA, version 14.0. The Pearson Correlation Coefficient was utilized to examine correlation of score of Oswestry Disability Index with the scores of Numerical Pain Rating Scale and Pain Catastrophizing Scale. Level of significance was accepted at *P* value less than 0.05.

RESULTS

Patient's characteristics are shown in Table 1. Mean age was 44.32±7.25. Mean score of pain was 6.79 ±1.38. Mean score of catastrophizing was 27.92±6.96. Mean score of disability was 22.71±6.85. Correlation of

disability between catastrophizing and pain are shown in Table 2. Highly significant correlation was observed between disability and catastrophizing (*p*<0.0001, Graph 1). There is also highly significant correlation was observed between disability and pain (*p*=0.0021, Graph 2).

Table 1. Baseline characteristics of Patients (n=63)

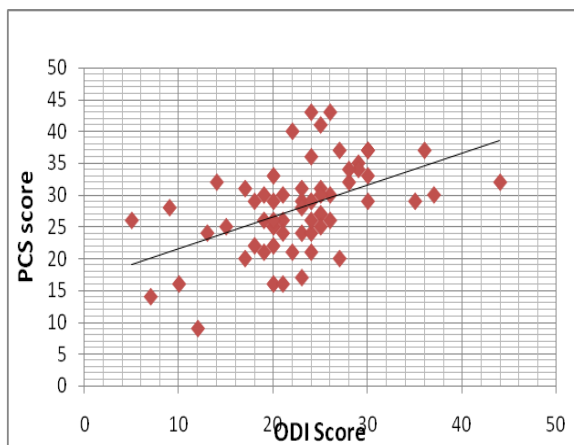
Variable	Mean	SD
Age (years)	44.32	±7.25
NPRS score	6.79	±1.38
PCS Score	27.92	±6.96
ODI score	22.71	±6.85

NPRS = Numerical Pain Rating Scale,
PCS = Pain Catastrophizing Scale,
ODI = Oswestry Disability Index

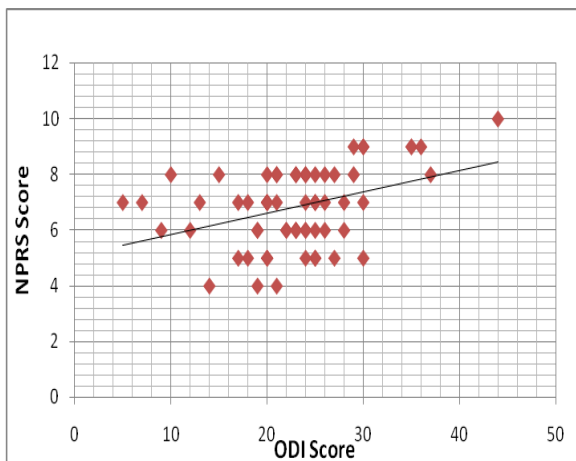
Table 2. Correlation of Disability with Pain and Catastrophizing

Independent variable	r-value	95% CI	p-value
PCS Score	0.4883	0.24-0.66	<0.0001*
NPRS Score	0.3802	0.76-2.75	0.0021*

*statistically highly significant
NPRS = Numerical Pain Rating Scale, PCS = Pain Catastrophizing Scale, CI = Confidence Interval



Graph 1. Correlation between score of Pain Catastrophizing Scale (PCS) and Oswestry Disability Index (ODI)



Graph 2. Correlation between score of Numerical Pain Rating Scale (NPRS) and Oswestry Disability Index (ODI)

DISCUSSION

This study was conducted, on 63 housewives suffering from chronic low back pain, to find out correlation of disability with pain and catastrophizing. The present study shows positive correlation between disability and catastrophizing. This finding from study supports the finding of other studies conducted in countries other than India. [2,3,6-8] In housewives of Indian culture, this study also supports the notion of positive correlation between disability and catastrophizing. Vlaeyen and Linton [16] described a fear avoidance model for explaining role of catastrophizing. This model suggest that in patients with negative affectivity if pain is interpreted as threatening, pain catastrophizing emerges, and gradually pain related fear develops. This leads to avoidance behaviour and followed by disability.

Result of this study also shows positive correlation between disability and pain. In chronic pain condition, patients try to reduces or restrict activity which is painful for them. So, activity limitation for long period of time leads to physical impairment and disability. This finding is

similar to finding from previous study, which suggests significant relationship between pain and disability. [17]

Strength and limitations

This is the first study conducted on housewives of Indian culture, which adds strength of the study. There are several limitations of the study. First, it was conducted on patients of only one tertiary care centre. Second, sample size of 63 patients was small. So, result from this study cannot be generalised to large population of India. Further study is recommended on large population to quantify definite result. Third, only pain catastrophizing has been focused in present study. There is recommendation to include other psychological variables in future research.

Clinical implication

Keeping in mind that treatment is frequently difficult for women patient with chronic low back pain, this study suggests examination of catastrophizing in routine evaluation. Patients at a risk of developing long-term disability can be identified early. Clinically, more successful recovery is possible if intervention is directed towards reducing catastrophizing (like cognitive-behavioural therapy) along with physiotherapy treatment.

CONCLUSION

This study concludes that there is positive correlation of disability with catastrophizing and pain in housewives of Indian culture suffering from chronic low back pain between the age group of 35-60 years.

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