ORIGINAL ARTICLE

Belief System as Determinant of Treatment Outcome in Low Back Pain Patients

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ABSTRACT

Objective: To determine resilience, and health belief as significant predictors of treatment outcomes in low back pain patients.

Study Design: Quantitative cross sectional survey research design.

Place and Duration of Study: Data was collected from rehabilitation centers of Lahore between March, 2018 to October, 2018.

Materials and Methods: The subjects (n=300) were recruited after screening them through a detailed clinical inventory on the basis of low back pain as acquired in the course of life happening and not as an outcome of some accidental or infection-induced events. Standardized scales were used to collect the data such as Health Locus of Control Belief Scale, Resilience Scale, and Treatment Outcome Efficacy Scale. Data collected was analysed through SPSS 23.00.

Results: There were 330 respondents who filled the questionnaires but thirty respondents evaluated in first phase during pilot study were not included in the final data set. Among 300 finally recruited subjects after screening for low back pain, results of Pearson product moment correlation analysis exposed significant relationship in study variables. Further it was established through regression analyses that resilience and health beliefs sustain as significant positive predictors of treatment outcome efficacy while significant gender differences in health beliefs were observed.

Conclusion: Health belief and resilience are significant predictors of treatment outcome efficacy in lower back pain patients**.** Enhancing health beliefs and resilience may improve treatment outcome efficacy in patients with lower back pain. This research is expedient among health care practitioners for dealing with the people with low back pain with more insightful understanding of psychological dimensions.

Key Words: *Health Beliefs, Low Back Pain Patients, Resilience, Treatment Outcome Efficacy.*

Introduction

In Pakistan due to poor awareness about dietry intake, inappropriate postures adoption and due to sedentary life styles, the reported clinical evidence for low back pain patients is on rise.[1] This grave phenomenon invokes with it the colossal loss for all in form of lower productivity, impaired daily life functioning, restraints mobility and lost work days, causing immense income loss. Enigmatic semblance of lower back pain has been found to produce quite diverse effects in different repondents.[2] In fact; chronic low back pain poses enigmatic challenges to medical practitioners due to its non-specific nature. Few practitioners have prophecies it to be the future's greatest medical disaster due to its diffused triggers and specifies. Consequently Biopsychosocial approach is relied on to find solution to such intricate condition. Biopsychosocial model somehow implicates to elucidate its origin, maintenance, assessment and management. Here an individual's thoughts, cognitions, emotions and behaviours gain primal significance. In spite of many technologically advanced treatment strategies in lower back pain modalities, this has been observed that individual's volunteer involvement in learning such behaviours that would lead to control and manage the chronic pains is pivotally important.[3] Multidimensional approaches in managing lower back pain have also been emphasized by health psychologists and medical practitioners. Numerous empirical studies have substantiated that internal health locus of

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control beliefs are significantly associated with intact life patterns and better physical and psychosocial health.[4] Health locus of control beliefs have been enumerated as the degree to which sufferers of lower back pain rely on parameters that they rely on in order to control their distress.[5] Health belief locus of control somehow helps in developing the self-sufficiency phenomenon. A person with internal locus of control beliefs assumes that his or her health is controlled by internal factors rather than by chance, luck, environmental triggers, or social happenings. The pain experiences in lower back pain patients have been presented as multifaceted, involving sensory, affective, and cognitive experiences which ultimately impair one's health and psychological well-being. Few researches have highlighted that cognitions associated with chronic lower back pain are catastrophizing and may lead the sufferer into debilitating state.[6]

Resilience has been a phenomenon originating in studies wherein children were examined for standing intact in their physical, psychological and emotional health at the wake of various environmentally posed challenges. Some children manifested effective growth and surmounted ordeals better than others. This lead to generalize the construct of resilience onto other ages and to individuals facing encounters of differing nature. Not all people who survive well at the wake of physical challenges also survive better in emotionally vulnerable situations. Resilience is the knack or ability to maintain positive levels of functioning in spite of calamity or adversity. This is in fact one of the several strengths that can assist people in leading positive life.[7] Likewise the demeanour of exhibiting resilience and growth varies a lot across individuals. Resilience in pain helps in adapting to the phenomenon of pain thus here it is reflected in individuals possessed sustainable attribute of effective coping in response to ardent stressors such as pain.[8] Some research studies have demonstrated that resilience moderates the relationship between pain severity and treatment outcome efficacy while others have shown insignificant associations.[9] Smith and Zautra have enumerated that resilience may entail such resources as self-control, optimism, determination in life, and pain management cum acceptance. Such dispositional aspects help him or her in managing the pain much more efficaciously.[10] Hence in the light of above literature, this empirical study ventures to examine whether health locus of control beliefs and resilience contribute in predicting treatment outcome efficacy. Extensive literature review herein helps in identifying the gaps and after reviewing literature and reported clinical data, this was realized that very few studies have addressed systematically the psychological dimensions as significant predictors of pain management in lower back pain patients. The objective of the current study was to determine resilience and health belief as significant predictors of treatment outcomes in low back pain patients.

Materials and Methods

It was a cross sectional survey research design based study, executed in rehabilitation centres of Lahore. The study lasted for eight months from March, 2018 to Oct, 2018.

A total of 330 participants both men and women equally distributed across gender were recruited. The age range of the respondents was 35 to 45 years. Respondents were selected after fulfilment of all ethic's consideration and guidelines. Formal permission was obtained from all concerned authorities and informed consent was sought from all participants after clarifying them the nature of the study and after ensuring them confidentiality. Only willing participants volunteering for research were included. This was also affirmed that participants had right to withdraw with their will, at any stage of the study.

All the respondents were screened on primary clinical inventory that filtered such respondents that had some prior accident or medical reason for back pain or who reported less than two months duration from its onset. Those reporting mild to moderate lower back pain were also excluded. Respondents reporting undiagnosed, diffused reasons for chronic low back pain and having no other comorbid physiological disease or conditions were taken. This stringent recruitment criterion bargained longer time for data collection but this was pertinent to be done to rule out the cases with intricate and complex features and consequences of pain. Furthermore, only literate patients with at least matriculation education were taken so that they could read and understand all the scales.

Resilience Scale[11]; Multidimensional Health Locus of Control Scale[12]; Treatment Outcome Scale[13] were the major measures used as tools for effective data collection. First of all, a pilot study was undertaken in order to ascertain the reliability estimates of the scales. This was found profoundly sound when administered on thirty respondents. After screening all the scales for any possible ambiguity and after ruling out the administration feasibility constraints, the target data was collected. Pilot study data was kept separate from ultimate data set.

Firstly, consent form was filled by the respondents. After that demographic information sheet and tools related to resilience, beliefs and treatment efficacy were given to the respondents.

Resilience was measured through the Brief Resilience Sales (BRS)[11] that was developed by Smith et al. This consists of total six items. Out of these six, three are scored reverse while other three are scored forwardly. The participants were made to respond on options spanning from strongly disagree to strongly agree. Western empirical evidences support that reliability, validity and internal consistency of the items of the scale is quite high. In one of his validation analysis study on Brief Resilience Scale, convergent validity and discriminant predictive validity were also established by Smith et al.[11] as quite sound. Second scale was Health Locus of Control Belief Scale (HLCBS).[12] This scale happens to be the multidimensional reflecting the extent to which individuals believe their health is controlled by various sources. This is one of the most efficient measures of health-related beliefs for more than a quarter of a century. It has 18 items and is very efficient in tapping and understanding health behaviour's. Third scale comprised of items pertaining treatment-efficacy. Treatment Outcome Efficacy Scale[13] was a ten items questionnaire. It tends to assess the confidence of people with treatment in post treatment settings with any type of chronic pain. Each item is rated on a 7 point scale from 0 = not at all confident to 6 = completely confident.

The parametric data was analysed with the help of SPSS version23.00. Regression analyses were used in addition to Pearson Product Moment Correlation and Independent Sample t-test.

Results

Cronbach's alpha reliabilities mean and standard deviation values were computed and grouped in table I. The values of Cronbach's alpha of Brief Resilience Scale, Health Locus of Control Belief and Treatment Outcome Efficiency Scale in this research were 0.82, 0.85 & 0.83 respectively. Demographics analysed through descriptive in SPSS divulged that mean age of the participants was 42.13 years while this was 37.23 for females and 41.22 for males. It also revealed that 55% belonged to lower middle class, 30% belonged to middle class, 10% belonged to lower income group and 5% belonged to higher income group. 73% reported that they had it from six years, 21% reported this to be from more than two to five years' time, and 6% maintained that they had it from past four months to two years. 48% reported partial impairment in their daily life functioning due to lower back pain while 52% maintained debilitating severe impairments in their daily life tasks performance due to lower back pain.

Table I: Reliability and Descriptive Analysis of the Scales (N=300)

Scales	M	SD	.
Brief Resilience	4.70	3.48	.82
Health Locus of Control Belief	3.47	2.22	.85
Treatment Outcome Efficacy	3.03	1.98	.83

Note. M=Mean; SD=Standard Deviation;
α = *Cronbach's alpha*

Table II: Correlation among Demographic Variables and Study Variables (N=300)

Study Variables	1	2	3
1.Resilence		.63	.85**
2.Health Locus of Control			.58*
3. Treatment Outcome Efficacy			

Note. *.p < .05; **.p< .01; ***.p< .001; M= Mean; SD= Standard Deviation

Discussion

This empirical study has main aim to determine the health locus of control beliefs and resilience as predictors of treatment outcome efficacy in low back pain patients. Moreover, gender differences in resilience, health belief locus of control and treatment outcome efficacy in lower back pain patients were also investigated. The primary

Table III: Multiple Regression Used to indicate the Predictors of Treatment Outcome Efficacy (N=300)

	Treatment Outcome Efficacy		
	B	CI	
Variables		LL	UL
Constant	32.552	18.755	46.349
Resilience	.34	.39	.073
Health Locus of Control	.183	.034	.350
R^2	.119**		
F	5.18**		
ΔR^2	.096		

Note. *p<.05; **p<.01; ***p<.001; B = Unstandardized Co efficient; ΔR^2= R Square change; CI=Confidence Interval

Table IV: Gender Differences on Health Locus of Control Beliefs, Resilience, and Treatment Outcome Efficacy (N=300)

Variables	Male (n=150)		Females (n=150)				95 % CI		
	M	SD	M	SD	t	p	LL	UL	Cohen's d
Treatment Outcome Efficacy	31.92	9.95	28.72	7.69	1.60	.005	-.760	7.16	0.40
Resilience	66.82	7.21	65.87	13.76	.559	.28	-4.99	8.89	0.13
Health Locus of Control	72.65	9.84	66.45	10.08	2.78	.95	1.76	10.63	0.10

Note. *p < .05; M= Mean; SD= Standard Deviation; CI=Confidence Interval; LL= Lower Limit; UL= Upper Limit.

hypothesis of this research investigated the relationship among health locus of control beliefs, resilience and treatment outcome efficacy in patients with lower back pain. The findings from inferential analysis indicated that health locus of control and resilience was significantly correlated with treatment outcome efficacy in lower back pain patients. However, resilience and health locus of control were not significantly correlated with each other. These findings are in alignment to empirical findings of Smith et.al.[14] Similarly, Turner and Dworkin et al. reported that beliefs regarding pain played an important role in coping back pain problems among patients.[15] The current study has extended preceding researches in which ample support has been catered to Social Cognitive Theory. According to this theory the expectations and self-efficacious beliefs gained through health belief locus of control are likely to improve treatment outcome efficacy.

Offering support for expectations within Social Cognitive Theory that pain related self-efficacy predicts treatment benefit.[16] Pain control beliefs

extended in this regard are amply appreciable as they offer a whole new domain of understanding this debilitating phenomenon with dynamic control over this. Resilience was found insignificantly associated with health locus of control. This is somehow in contradiction with findings divulged by some other researchers[17] that reveal that those who report more resilience also tend to have more internal locus of control and acknowledge significant link between their health and lifestyle. Such people dynamically get involved in such activities through which their health can improve and they can reduce the pain.[17] This is justified along these lines that resilience somehow helps us in coping with lower back pain and it helps us in attaining relative adjustment but somehow this is not directly associated with health beliefs. One potential explanation for our unexpected finding is that patients with lower resilience also somehow develop adaptation to pain due to presence of health beliefs and other psychosocial dimensions such as self-efficacy and proactive health behaviours. This is one of the reasons that lower back pain patients' treatment efficacy shows significant association but resilience does not. In another supporting investigation, this was found that resilience was not markedly associated with pain-related disability over time.[18]

The regression analysis reveals that health locus of control establish as significant predictor of treatment outcome efficacy in lower back pain patients. Previous research in accordance to this has shown that the stronger the belief in one's personal control, the better the outcome wills be.[19] The justification to this finding is also catered by our general attitude and belief patterns related to pain. People form beliefs about the pain that they encounter. These pain-specific beliefs either enable or disable them in their functional aspects of life. Since beliefs are potent predictors of health care utilization, people going through lower back pain timely utilize resources and benefit more, showing better treatment outcome efficacy.

Results of Independent sample t test showed that there were significant gender differences among patients in treatment outcome efficacy. Furthermore, it was noted that male have greater resilience and health beliefs as compared to women Demographic data also revealed that females

diagnosed chronic back pain problems in their earlier age of onset while males were reported in their later age domains. There are numerous past researches highlighting that differences in lower back pain between males and females exist; as reported by other epidemiological surveys [20-23] on general pain that showed greater frequency and intensity of pain for women. Indeed, according to the research by Barros, Cesar, Carandina and Torre the prevalence of pain related diseases in Brazil is higher for women.[24]

There are fewer limitations of this research and some suggestion aligned with them. This study was conducted on a small scale sample so, it is suggested that in future a large sample from various rehabilitation centres should be included. Likewise, the research design was cross sectional that might have limited scope of the data; longitudinal research design may benefit more in yielding convincing findings. Research includes only quantitative results if it includes qualitative results it would affirm better. Present study focused on limited number of predictors of treatment outcome efficacy. A step forward for research would be to develop more complex model to predict treatment outcome efficacy by entailing both physical psychological and dispositional factors. Further studies should investigate whether physical therapists beliefs during a patient-health care provider relationship predict patients' beliefs and clinical outcomes. If so, strategies to improve physical therapists decision-making should be considered in primary health care. This research is useful among patients with low back pain. It applies to all those people such as adults, aged, injured actors models, caretakers, and physiotherapists etc. who either suffer from low back pain or get involved in dealing with lower back pain patients. These findings implicate the role of enhancing health belief and resilience at the wake of ordeals in patients with lower back pain in order to improve their treatment outcome efficacy. Results of this research are also helpful for future researchers in order to design more effective strategies and programs for adopting multidisciplinary/ multidimensional approach in treating lower back pain patients.

Conclusion

Health locus of control and resilience to confront debilitating lower back pain are found to be significant predictors of treatment outcome efficacy.

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