

Effectiveness of Postural Awareness Program among People with Persistent Low Back Pain

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Abstract—

Background and Purpose: The aim of this study was to evaluate the effectiveness of postural awareness program as compared to different age group in subjects with persistent low back pain (LBP) at short term follow-up (i.e. 6 weeks 18 sessions thrice in a week).

Study Duration: The duration of the study was 1 year.

Methods: According to inclusion and exclusion criteria, 30 patients with a primary complaint of persistent low back pain were enrolled in the study. Outcome measures were Roland and Morris Disability Questionnaire (RMDQ). Data were collected at baseline and at 3/6 months by health care professionals unaware of the study. An intention to treat approach was used to analyze participants according to the complaint to which they were originally assigned.

Results: 30 patients included in the study, 23 male patients and 7 female patients in the postural awareness program for persistent low back pain. At baseline, the two groups did not differ significantly with respect to gender, age and outcome measures. The ordered logistic regression model showed an increased likelihood of definitive improvement (reduction from baseline of at least 30% in RMDQ scores) for the postural awareness program.

Conclusions: Our findings suggest that a postural awareness program intervention in subjects with persistent LBP induces a greater improvement on pain and disability. These results must be confirmed by further studies with higher methodological standards, including randomization, larger sample size, longer follow-up and subgrouping of the LBP subjects.

Key words: Postural awareness, Low Back Pain

INTRODUCTION

Posture is the body's response to natural forces of gravity and the stresses of daily living, whether standing, sitting, walking, or reclining. With normal erect posture, the body is in a state of intrinsic equilibrium, maintained by minimal muscular effort.¹ Healthy posture is largely determined by three factors: skeletal structure, soft tissue integrity, and neurological control. Breakdown in any of these components can result in subluxations, instability, weakness, and loss of neurological control. Likewise, three therapeutic considerations can be applied to postural problems: chiropractic adjustments, rehabilitative exercise, and support during daily activities.

Postural distortions can have a significant impact on musculoskeletal health. Constant structural mal alignment allows a disproportionate amount of weight and pull to be inflicted on certain muscles, leading to pathological changes.² Chronic muscular strain has also been implicated in perpetuating Myofascial trigger points.³

Specific clinical conditions where postural abnormalities have been identified as a causative factor include disc degeneration, neurovascular entrapment syndromes, chronic strains, and nonspecific musculoskeletal pain syndromes.⁴ Imbalanced posture also requires more energy use and muscle contractions for support of the human frame.⁵ It can lead to loss of strength and flexibility and detract from performance of even simple daily activities.

Approximately 70-85% of individuals will experience low back pain

(LBP) during their lifetime, and over 80% of them will report recurrent episodes. It is estimated that 80-90% of subjects will recover within 6 weeks, regardless of the type of treatment however, 5-15% will develop chronic LBP.⁶

Importantly, back pain should be seen as an issue for all ages and all sectors of society. Furthermore, it is important to distinguish between the presence of symptoms, care seeking, work loss and disability; these have different prevalence rates and are influenced by a varying balance of biological, psychological and social factors.⁷

In 1947, the kinesiotherapist Françoise Mezières, the mother of therapies based in muscular chain stated that human muscles are completely inter-related, and demonstrated that there is not just a single muscle that causes bad posture, but chains of muscles that can end up causing a pathology in a specific place from a generalized tension. Therefore, a localized muscular action provokes reactions at a distance, underlining that the root of the problem can be distant from where the patient feels pain.⁸

Non-specific back pain is thus a major problem for diagnosis and treatment. Studies in the United Kingdom identified back pain as the most common cause of disability in young adults: the survey implicated back pain in more than 100 million work days lost per year. A survey in Sweden suggested that low back pain increased the number of work days lost from 7 million in 1980 to four times that (28 million) by 1987; however, social compensation systems might account for some of this increase. Jayson's group found that 35-37% of workers experienced back pain in the month before their survey, with a peak in the incidence seen among

those aged 49–59 years.⁹

People frequently stand for long periods of time, waiting for a bus for example, or while performing other tasks, such as working or talking to somebody. Negative physical and psychological outcomes have been associated with prolonged unconstrained standing. Gregory and Callaghan reported that around 50% of healthy subject's perceived low back discomfort after 2 h of prolonged standing. The perception of discomfort associated with Prolong Standing is commonly assessed in low back pain disability questionnaires. Prolonged periods of standing have been linked with the onset of Low Back Pain symptoms in working populations. Magora observed a higher incidence of Low back Pain in people standing more than 4 hours every day. To date, however, few studies have addressed postural control strategies during Prolong Standing. These results, together with the growing body of knowledge pertaining to LBP and associated sensory-motor dysfunction, should be taken into consideration when patients are returned to work or daily activities as it may impact the course and prognosis of their condition¹⁰.

Chronic Non Specific Low Back Pain is a common, complex and disabling condition that has been present for longer than three months and is not caused by a serious pathology. Osteopaths are health practitioners who commonly diagnose and treat chronic nonspecific low back pain patients using a complex set of interventions that includes manual therapy.

There was only two studies assessing the effect of the manual therapy intervention applied by osteopathic clinicians in adults with chronic nonspecific low back pain. One trial concluded that the osteopathic intervention was similar in effect to a sham intervention, and the other suggests similarity of effect between osteopathic intervention, exercise and physiotherapy. Further clinical trials into this subject are required that have consistent and rigorous methods. These trials need to include an appropriate control and utilize an intervention that reflects actual practice. (11)

Global Postural Re-Education method, developed by the French physiotherapist Philippe E. Souchard, is based on progressing knowledge of human biomechanics and motor coordination, all applied to postural re-education and neuro musculoskeletal rehabilitation. It requires an active role to the patient can be applied to patients of any age, respecting each person's capability and is indicated in for people presenting postural ailments and musculoskeletal disorder. (12)

METHODOLOGY:

The study was cross sectional conducted in Liaquat Natinal Hospital . 30 patients included in the study, 23 male patients and 7 female patients in the postural awareness program for persistent low back pain. The participant included in this study that had the history of musculoskeletal disorders, both genders were selected who had low bad for at least 6 months and radiating pain no further than the buttocks, and normal neurological examination. Data collection tool was quality of life Ronald Morris questionnaire. Assessment of posture was done. Method of data collection was the recruited subjects will be asking to fill a Ronald Morris questionnaire, therapy duration is six weeks, number of sessions are 18. Each Session will be of 30 minutes thrice a week and patients will be evaluating from first visit then after last visit through Ronald Morris questionnaire.

RESULTS

Total 30 patients were evaluated to determine the pre and post treatment score for related symptoms in tertiary care hospital. SPSS version 22 was used and paired sample t-test was used for the comparison of mean differences between pre and post treatment.

P-value ≤ 0.05 was considered as significant.

The results showed that there were 23 male and 7 female patients. The percentage of patients according to gender is presented in Graph-1. The frequency distribution is presented in Table-1

The overall mean age of study subjects was 33.03332 ± 0.6092412 years, with range of 30(20–40) years. The detailed descriptive statistics are presented in Table-2. The distribution of age is presented in Graph-2. The age was stratified in two groups. 76.7% patients were male, 23.3% female patients.

The effectiveness of the treatment was also analyzed i.e. effective and ineffective. It was observed that treatment was effective in 81% patients and in only 18.95% patients the treatment was ineffective. The Frequencies of outcome according to effectiveness is presented in Graph3. The frequency distribution of post treatment USSQ Score is also presented in Table-3

The significance of the treatment was evaluated according to mean difference of pre and post USSQ Score by applying paired sample t-test and p-value ≤ 0.000 was considered as significant.

The significance of the outcome was also evaluated according to outcome categories and the mean difference of pre and post treatment USSQ Score was assessed applying paired sample t-test and p-value ≤ 0.000 was considered as significant. It was observed that in each outcome category i.e. good, intermediate the mean difference of score between pre and post treatment is significant with $p < 0.000$. The results are presented in Table-4.

The significance of the outcome according to effectiveness was also evaluated according their mean difference of pre and post treatment by applying paired sample t-test and p-value ≤ 0.000 was considered as significant. It was observed that in effective and ineffective outcome, the mean difference of USSQ score between pre and post treatment is significant with $p < 0.000$. The results are presented

Table I: Pre & Post Treatment USSQ Score

	Pre Treatment USSQ Score	Post Treatment USSQ Score
Mean ±SD	33.0333-0.60924	43.000-0.3000
95%CI (LB – UB)	31.8143-34.2524	3.6864-4.9136
Median (IQR)	34.0000	4.0000
Min - Max	22-40	1-8
Range	18	7

Table II: Paired Sample T-Test Mean Difference of Pre and Post Treatment Score according to Outcome Categories

	Paired Difference		t	df	p-value
	Mean	SD			
PRE TREATMENT	9.8667	4.42355	8.993	29	0.000*
POST TREATMENT	4.3000	1.64317	8.993	29	0.000*

DISCUSSION:

To our knowledge, this is the comparative study effectiveness of postural awareness program for persistent low back pain in work related persons. a pre and post treatment in the patients persistent low back. Our findings support the hypothesis that the postural awareness intervention (specifically the posture adopted) is effective in treating persistent low back pain with low disability levels, when compared pre to post group . Patients allocated to the post group showed significant improvement in functional disability and pain intensity as compared to the pre group. Of note, the improvement obtained at short-term follow-up was maintained. Our results are similar to those obtained in two RCTs by Fernandez-de-las-Peñas et al. [13,14], who showed better results of the GRP as compared to a program of analytical exercises in patients with ankylosing spondylitis, and to those obtained in other studies on LBP cited in the review by Vanti et al. [15]. Therefore, it seems that effectiveness of postural awareness program in reducing pain in subjects with low back pain than segmental techniques. However, these results are different from those by Cunha et al. [16], who did not find different outcomes comparing conventional static stretching. The main strength of our study was that patients undergoing a specific program were unaware of the presence of another training, because patients recruited by effectiveness of postural awareness treatment approach. Moreover, treatment consisted of a one-to-one supervised exercise program actively involving the patient: according to the literature, these kinds of management are effective to reduce low back pain and improve functions and ease in daily activity of life. Effectiveness of postural awareness treatment is not considered within that subgrouping. This is mainly due to a general lack of

knowledge and to

6. CONCLUSION

In conclusion, this study showed a significant improvement on disability and intensity of pain employing an effectiveness of postural awareness program, using these postures in particular, as compared to a conventional physical therapy regimen, in patients with persistent low back pain. These results appeared significant both at short- and at mid-term follow-up. This study was performed in outpatient, and its results could be generalized to groups of patients with similar characteristics (i.e., patients with acute and chronic low back pain, seeking care for their low back pain problems). However, these results must be taken with caution, considering the potential confounding role of some factors, in particular the patient the absence of randomization. Future research may identify which groups of patients could better respond to effectiveness of postural awareness treatment, similarly to what has already been done for other therapeutic procedures. Therefore, these encouraging results must be confirmed by further studies with higher methodological standards, including randomization, larger sample size, longer follow-up and subgrouping of low back pain subjects.

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