

Low Back Pain Among Patients: Effectiveness of Selected Interventions

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Abstract: This paper presents an overview on low back pain among patients, its effectiveness of selected interventions.

Keywords: low back pain

1. Introduction

Low back pain (LBP) is one of the most common causes of musculoskeletal disorders related to work status and condition. It is estimated that as much as 80% of the general population will experience a back problem at some time in their lives. The incidence of LBP peaks in the third decade of life, and the prevalence increases until the age of 60 to 65 years and then gradually declines. In the Global Burden of Disease 2010, LBP was listed among the top ten high burden diseases and injuries. Low back pain has been shown to account for an average number of disability-adjusted life years (DALYs) higher than HIV, road injuries, tuberculosis, lung cancer, chronic obstructive pulmonary disease and preterm birth complications.

Low back pain was estimated to contribute 58.2 million DALYs to the global burden of disease in 1990, ranking it as the 11th leading global contributor to years lost from premature mortality or years lived in ill health. For 2010, low back pain was ranked the sixth leading contributor to overall disease burden, estimated to be 83 million DALYs.

The effects of low back pain in terms of quality of life, productivity and workers' absenteeism are enormous.

LBP causes losses in number of work days which cause significant economic burden to the individuals, their families and the society.

Several studies have been carried out in Europe to evaluate the social and economic impact of low back pain. In the United Kingdom, low back pain was identified as the most common cause of disability in young adults, with more than 100 million work days lost per year.⁴ In the United States, an estimated 149 million work days are lost every year because of LBP with total costs estimated to be 100 to 200 billion US dollar a year.

Until 10 years ago, LBP was largely thought of as a problem confined to Western countries, however, since that time an increasing amount of research has demonstrated that low back pain is also a major problem in low and middle-income countries. A systemic review of 27 epidemiological studies across Africa showed that, there is little difference in the prevalence of LBP among African as compared to the

developed countries, with prevalence of 28 – 74%.

Healthcare workers are at risk of having LBP because of the physical and emotional factors associated with their profession. Healthcare workers often experience low back pain at a rate exceeding that of workers in construction, mining, and manufacturing. These injuries are due in large part to repeated manual patient handling activities, often involving heavy manual lifting associated with transferring, repositioning patients and working in extremely awkward postures.

Among healthcare personnel, nurses and operating room staff are known to have the highest rate of back pain with an annual prevalence of 40 – 50% and a lifetime prevalence of 35 – 80%. The influence of the perceived cause(s) and severity of disease on the health-seeking behavior of individuals and communities has been demonstrated in several studies across the globe. The perception and opinions of healthcare workers on any disease condition is very important because the members of the community often look up to them for counseling and treatment of various ailments. Low back pain is a condition that affects a significant proportion of the general population and therefore the perception and opinions of this condition among healthcare workers will invariably affect their health-seeking behavior, compliance with preventive measures, education of their patients on these preventive measures, and invariably the perception of the disease by the general population. Healthcare workers often believe that low back pain is occupationally related.

While it may be true that certain activities in the work place may precipitate or aggravate LBP, not all LBP among healthcare workers is caused by activities in the work place.

These erroneous perceptions may force administrators to post out workers who have LBP or are at risk of such to units where their services may not be needed, thus causing a reduction in the efficiency of the healthcare system. Identifying these perceptions and correcting erroneous ones through sensitization and health education is very important.

2. Methodology

The study was done on 100 Low back pain patients with mild to moderate level pain. In this study, the independent variable is the administration of back strengthening exercises and dependent variable is the level of back pain. The subjects were selected by purposive sampling technique and 50 were allotted

to experimental and control group. The tool used for the study was Aberdeen Low Back pain scale. Pre test was conducted in experimental and control group on the first day using Aberdeen Low Back pain scale. Back strengthening exercises was given to the experimental group for a duration of 14 days. Post test was conducted to the experimental and control group on the 30th day. The collected data were analyzed based on descriptive and inferential statistics according to the above mentioned objectives. The study identified that level of back pain was reduced in both experimental and control group. It was found that there was a significantly high reduction in the level of pain of experimental group after back strengthening exercises than in the control group. The 't' value of difference of mean reduction of low back pain tabulated was found to be $t = 7.33$, $df = 98$, $P < 0.05$.

3. Results and discussion

The result and discussion of the study are based on the findings obtained from the statistical analysis. The first objective of the study was to determine the effect of back strengthening exercises in reducing low back pain in experimental group and control group. Distribution of selected characteristics of the study subjects. The demographic variables of experimental and control group were matched in their sex, age, education, occupation and body built. The degree of low back pain was assessed in patients before and after back strengthening exercises. The pre and post test level of low back pain of both groups were compared and found that the study group had reduction in back pain from pre-test to post-test as $38.2 + 3.44$ (S.D) to $32.6 + 3.41$ respectively, with a mean score reduction of $5.6 + 0.3$. The degree of low back pain among control group also reduced from pretest to post test as $38.7 + 3.46$ to $37.2 + 2.66$ respectively, with a mean score reduction of $1.5 + 0.8$.

The mean reduction of level of back pain of both groups were compared and found that the mean reduction of back pain of experimental group was significantly greater than that of control group i.e. $5.6 + 0.3 > 1.5 + 0.8$ with the difference of 4.1 mean scores. ($t = 7.33$, $df = 98$, $P < 0.05$). There was significant reduction in the level of back pain in experimental group receiving back exercises, and the mean reduction in the level of low back pain was very much higher in experimental group than in control group. Thus the research hypothesis, H1 is accepted. Back strengthening exercises was found to be very effective in reducing low back pain. (This study result is consistent with the study conducted by Ram Prasad Muthukrishnan, Shweta. D. Shenoy, Sandhu. S. Jaspal, Shankara Nellikunja, Svetlana Fernandes (2010) in Karnataka on the differential effects of back strengthening exercise regime and conventional physiotherapy regime on postural control parameters during perturbation with movement and control impairment in chronic low back pain patients. Interventional approaches were used based on sub-groups of chronic low back pain. Sequential and pragmatic control trial methods were used in this study. Three

groups of participants were investigated during postural perturbations: 1) CLBP patients with movement impairment ($n = 15$, MI group) randomized to conventional physiotherapy regime 2) fifteen CLBP patients with control impairment randomized to back strengthening exercises (CI group) and 3) fifteen healthy controls (HC). The results revealed that the MI group did not show any significant changes in postural control parameters after the intervention period however they improved significantly in disability scores and fear avoidance belief questionnaire work score ($P < 0.05$). The CI group

showed significant improvements ($p < 0.014$, $p < 0.007$, and $p < 0.003$) respectively with larger effect sizes: (Hedges's $g > 0.9$) after one week of back strengthening exercises for the adjusted p values. Postural control parameters of HC group were analyzed independently with pre and post postural control parameters of CI and MI group. This revealed the significant improvements in postural control parameters in CI group compared to MI group indicating the specific adaptation to the back strengthening exercises in CI group. The study also pointed out that though the disability scores were reduced significantly in CI and MI groups ($p < 0.001$), the post intervention scores between groups were found significant ($p < 0.288$). Twenty percentage absolute risk reduction in flare-up rates during intervention was found in CI group (95% CI: 0.69-0.98). The study concluded that back strengthening exercise group demonstrated significant improvements after intervention.

The study finding is also congruent with study conducted by Machado. L. A., Azevedo D. C., Capanema. M. B., Neto T. N., Cerceau D. M. (2007) in Brazil regarding the effectiveness of psychotherapy, based on client- centered therapy and exercise for patients with chronic non specific low back pain, in which the results revealed that the exercise group showed greater improvement than psychotherapy and the difference between the groups were statistically and clinically significant for disability at 9 weeks (-4.9 points, 95% CI -9.08 to -0.72). Study concluded that client- therapy is less effective than exercise in reducing disability at short term.

The second objective of the study was to find out the association of level of back pain and selected demographic variables in experimental and control group. There was no significant association observed between the level of back pain and selected demographic variables. Thus the research hypothesis, H2 is rejected.

4. Conclusion

The conclusion drawn from the findings of the study are, back strengthening exercises are found to be an effective nursing intervention in reducing back pain among patients with Low back pain. Strengthening exercise are found to have no side effects when compared with other pharmacological treatment. The findings of the study enlighten the fact that exercises can be used as a cost effective nursing intervention in relieving back pain among patients. The demographic variables

did not show any association with back pain of both groups

References

- [1] Cunningham C, Flynn T, Blake C. Low back pain and occupation among Irish health workers. *Occup Med.* 2006;56(7):23–28.
- [2] Mafuyai MY, Babangida BG, Mador ES, Bakwa DD, Jabil YY. The increasing cases of lower back pain in developed Nations: a reciprocal effect of development. *AJIS.* 2014;3(5):23–28, 2014.
- [3] Golob A, Wipf J. Low Back Pain. *Med Clin North Am.* 2014;98(3):405–428.
- [4] Vos T, Flaxman A, Naghavi M, Lozano R, Michaud C, Ezzati M, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380(9859):2163–2196.
- [5] Murray C, Vos T, Lozano R, Naghavi M, Flaxman A, Michaud C, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet.* 2012;380(9859):2197–2223.
- [6] Lidgren L. The bone and joint decade 2000–2010. *Bulletin of the World Health Organization.* 2003;81(9):629. <http://www.who.int/bulletin/volumes/81/9/editorial>.
- [7] CDC, author. Preventing back injuries in health care settings. Atlanta, USA: Centers for Disease Control and Prevention; 2008. <http://blogs.cdc.gov/niosh-science-blog/2008/09/22/lifting>.
- [8] Ansari MA, Subedi K, Panta OB, Suwal S. MRI pattern of lumbosacral degeneration in Tribhuvan University Teaching Hospital, Nepal. *JIOM.* 2015;38(2):51–55.
- [9] Jin K, Sorock GS, Courtney TK. Prevalence of low back pain in three occupational groups in Shanghai, People's Republic of China. *J Safety Res.* 2004;35(1):23–28.
- [10] Louw Q, Morris L, Grimmer-Somers K. The Prevalence of low back pain in Africa: a systematic review. *BMC Musculoskelet Disord.* 2007;8(1):105.
- [11] Wong TS, Teo N, Kyaw MO. Prevalence and risk factors associated with low back pain among healthcare providers in a district hospital. *Malays Orthop J.* 2010;4(2):23–28.
- [12] Johnson OE, Edward E. Prevalence and risk factors of low back pain among workers in a health facility in South-South Nigeria. *BJMMR.* 2016;11(8):1–8.
- [13] Edlich RF, Winters KL, Hudson MA, Britt LD, Long WB. Prevention of disabling back injuries in nurses by the use of mechanical lift systems. *J Long Term Eff Med Implants.* 2004;14(6):521–533.