

Original Research Article

Study of group education interventions for people with low back pain

Rishabh Gupta^{1*}, Shavi Mahajan², Deepika Dewan³, Rajat Gupta⁴

¹Consultant Orthopaedician, Accidental Hospital Chowki Choura, Directorate of Health Services, Jammu, Jammu and Kashmir, India

²Pathologist, Jammu, Jammu and Kashmir, India

³Senior Resident, Post Graduate Department of Community Medicine, Government Medical College, Jammu, Jammu and Kashmir, India

⁴Consultant Pathologist, Government Hospital Gandhi Nagar, Jammu, Jammu and Kashmir, India

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*Correspondence:

Dr. Rishabh Gupta,

E-mail: dr.rishabh19@gmail.com

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ABSTRACT

Background: Backcare education administered in a group situation is one of the most effective and economic methods of treating back pain. It is based on available scientific knowledge of the physiology and mechanics of the spinal structures and their relationship to daily activities. It provides the patient with a better understanding of the problem, aiming primarily at helping the patient take responsibility for his or her back pain, while relieving pain and functional disability.

Methods: This study was carried out on 100 patients of chronic low back pain, attending the OPD of Post Graduate Department of Orthopaedics, Government Medical College Jammu for a period of one year. Assessment was carried out before the treatment and after the treatment at four weeks, three months & six months post treatment. The following scales were used to measure the therapeutic response: the Modified Oswestry low back pain disability index, Visual analogue score (VAS), and clinical parameters like finger to floor distance and straight leg raising.

Results: The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p < 0.001$).

Conclusions: It was concluded that all chronic low back pain patients would benefit from a group program of back care education.

Keywords: Group education program, Modified Oswestry low back pain disability index, VAS

INTRODUCTION

Low back pain is characterized as painful symptoms in the low back, sacral or sacroiliac regions of the vertebral column. It is believed that the pain comes from an imbalance of those structures, creating a multidimensional sensation that varies with each patient, depending on the individual nociception.¹ Chronic low back pain affects about 80% of individuals in the general population at some moment in their lives, and its

prevalence increases with age, reaching its peak during the sixth decade of life.^{2,3} In adults aged less than 45 years, chronic low back pain is an important cause of disability, being included among the physical illnesses related to work.

Chronic low back pain is multifactorial, presenting distinct causes in its development, being considered neuromusculoskeletal afflictions, in which neurological and biomechanical impairments can be observed, as well

as psychological aspects.⁴ Though the physical nature of the problem is identified and physical measures to alleviate are in use, more recently the attention has been paid to the psychological approaches for management and most Group education programs place a major emphasis on psychological management along with physical therapy. The purpose of Group education is not only to create confidence in the patient to cope with his back troubles but also to avoid excess therapy & to decrease the expenses both for the patient and for the society.

The aim of patient education is to teach him to how to help himself & take active part in the management of the back pain. This is a group therapy of education, flexibility, strength, coordination & endurance training to prevent repetitive microtrauma to the spinal structures responsible for pain & degeneration.⁵

The education program usually begins with description of pertinent anatomy in terms understandable by even the less educated. Various audiovisual aids are used. The initial discussion leads to the information on function of spine & present knowledge of low back pain. The mechanics of spine are explained and patients are taught the postures & positions most beneficial to the back. Various exercises to strengthen the abdominal, back & gluteal muscles are taught. Because the patients are endowed with more responsibility for their cure they are more unlikely to fall prey to various magic cures unless their specific validity is demonstrated. The present study is an attempt to study the role of group education interventions in alleviation of chronic low backache among patients of Jammu region.

METHODS

The present cross sectional study was carried out on 100 patients of chronic low back pain with or without pain radiating down along the lower limbs, attending the OPD of Post Graduate Department of Orthopaedics, Government Medical College, Jammu over a period of one year from January 2011 to December 2011.

Criteria for inclusion were

- Somatic low back pain for at least 3 months (with or without referred pain).
- Age between 18 and 55 years.
- Patients of both sexes.
- Patients declared medically fit.

Criteria for exclusion

- Constant or persisting severe pain judged on clinical grounds to be due to irritation of nerve root. (Patients with definite neurodeficit were excluded).
- Other musculoskeletal disabilities that would affect the patient's ability to cope with exercises.
- Inflammatory arthritis.

- Major surgeries in past one year.
- Patients already involved in regular & frequent sporting activities (e.g. squash, swimming, fitness training, cycling) at least twice a week for past 6 months.
- Previous physiotherapy within past three months.
- Spinal injections, fractures, spondylolisthesis, malignancy.
- Pregnancy.
- Patients unable to walk without a walking aid.

Detailed history & examination was recorded in a prestructured Proforma and diagnosis category was assigned. Plain X-Rays of the lumbosacral spine in anteroposterior, lateral and oblique views were taken and studied for any deformity, decrease in the intervertebral spaces, osteophytes, traction spurs, osteoporosis or any other pathology. MRI was done wherever indicated.

The patients were inducted in an educational program consisting of four group sessions with 15 to 20 patients. The group sessions, led by an orthopaedician, lasted for 1 hour and the four group sessions were completed in two days. These sessions included the use of various Audio-visual aids, models & demonstrations. The following salient features were discussed -

- Discussion of functional anatomy.
- Mechanics of Spine were explained.
- Discussions of low back pain, its etiology, frequency & therapy.
- Movements and position of spine were analyzed with reference to pressure measurements.
- Importance of decreasing load on back at work, home & rest were emphasized and advice regarding posture & simple activities was given.
- Abdominal, back & leg muscle exercises were taught.
- Question and answering session between the patients and the faculty.
- Patients determined to have functional overlay were referred to psychiatrist for evaluation and proper management.
- An exam was also taken at the end to assess the patient's level of understanding.

Assessment was carried out before the treatment and after the treatment at four weeks, three months & six months post treatment.

The outcome measures included

Modified Oswestry low back pain disability index

This questionnaire was used as the main subjective measure of functional disability. This questionnaire is divided into 10-sections, each comprising six different parts; the sections concern pain intensity, personal care, lifting, walking, sitting, standing, sleeping, social life,

traveling, and employment/homemaking. For each section, subjects must choose 1 of 6 statements that best describe their situation. Depending on the statement chosen, a score from 0 to 5 is given, 5 representing the greatest disability. The scores for all sections are added together. The total is then doubled and expressed as a percentage. It is scored on 0 -100 scale (0=no disability; 100=total disability).

Visual analogue score

This was used as the main subjective measure of pain. This is a pain drawing that is created at the first visit & at subsequent follow ups. Patient's complaints are listed in order of decreasing importance. The patient maps out the area of pain by designated symbol. Patients were asked to indicate their pain level by placing a mark along a 10-cm long horizontal line with the wording "no pain" at one end and "severe pain" at the other. The result was then indicated with a number from 0 to 10. On the re-examination the patient will fill out the pain drawing & give new values to subjective symptoms

Objective assessment of functional disability

This was done by determining improvement in the clinical examination of the patient. The following parameters were used-

- Finger to floor distance: Forward flexion of the spine was recorded by measuring the distance between fingertips and floor. Most normal people can reach within 7cm of the floor.
- Straight leg raising: This was measured on both sides. The patient lies supine. The examiner elevates the leg slowly with the knee maintained in the fully extended position by the examiner's hands. The range through which the leg must be raised before pain is experienced, was recorded.

Statistical analysis of the results was performed using Student-t test.

RESULTS

In the present study majority of the cases (49%) were in the age group of 31 to 40 years with the range from 18 to 55 years and average was 38.62 years. There were 52 males as compared to 48 females. The duration of low backache ranged between 3 months to 144 months with the average of 26.55 months (2.21 years). Majority of patients in the current study had low back pain with radiation to lower limbs (70%) followed by stiffness of back in 45% of the cases and 30% of the cases had low backache only. It was observed that tenderness of the spine was the commonest physical sign, being present in 79% of the cases.

In the present study, 44% of the cases were diagnosed as having Chronic recurrent disc degenerative disease. Chronic persistent disc degenerative disease was responsible for backache in 30% of the cases.

Therefore disc degenerative disease was found to be commonest cause of low backache, being present in 74% of the cases. Facet joint arthritis and Myofascial sprain/strain were diagnosed in 14% and 9% of the cases respectively. Osteoporosis was present in 3% population among females above 47 years.

Modified Oswestry low back pain disability index

The average pre-treatment score was 25.90. The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$) (Table 1).

Table 1: Modified Oswestry low back pain disability questionnaire scores (functional disability).

MEAN \pm S.D				
Pre-treatment	1 Month	3 Months	6 months	
25.90 \pm 10.43	20.38 \pm 8.46	18.40 \pm 8.11	16.04 \pm 7.55	

Visual analogue score (pain)

The average pre-treatment score was 6.06. The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$) (Table 2).

Table 2: Visual analogue scores (pain).

Mean \pm S.D				
Pre-treatment	1 Month	3 Months	6 months	
6.06 \pm 0.99	3.44 \pm 0.91	2.94 \pm 0.85	2.56 \pm 0.97	

Finger to floor distance

The average pre-treatment score was 21.44 cms. The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$) (Table 3).

Table 3: Finger to floor distance (cms).

Mean \pm S.D				
Pre-treatment	1 Month	3 Months	6 months	
21.44 \pm 9.98	17.02 \pm 9.94	14.85 \pm 10.01	13.51 \pm 9.71	

Straight leg raising⁰

The average pre-treatment score were 77.02⁰ (right) and 77.61⁰ (left).

The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$). (Table 4 and Table 5).

Table 4: Straight leg raising⁰ (Right).

Mean±S.D				
Pre-treatment	1 Month	3 Months	6 months	
77.02±8.68	80.52±8.60	82.75±8.12	83.71±7.93	

Table 5: Straight leg raising⁰ (Left).

Mean±S.D				
Pre-treatment	1 Month	3 Months	6 months	
77.61±8.33	81.15±7.89	83.10±7.86	84.39±7.46	

DISCUSSION

Today we are facing an epidemic of lower back disability. Traditional medical treatment has not halted this epidemic and may even have contributed to it. We need a new strategy of management directed equally to pain and disability, which places equal emphasis on the symptomatic relief of pain and restoration of function. This requires changes in how patients, doctors and society deal with low back pain. The prime responsibility lies with doctors who not only provide medical advice and sick certification for low back pain, but also provide society with the concept and understanding of low back pain on which our whole management system is based.

The group education program helps to solve the back pain problem by approaching it in an organized and practical way, within our limited resources. This approach encourages a positive outlook and discourages a passive, dependent attitude, while making the most economic use of limited resources and appears to be effective especially in longer term.

Most patients included in our study were moderately disabled by pain as measured by the Modified Oswestry low back pain disability index, although many had a long history of low back pain. The average pre-treatment score was 25.90. The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$). These findings were comparable to those of Hall H et al. who reported that the Canadian Back Education Units (CBEU), in a review of 6418 participants, found a significant subjective improvement in 69% of the participants;⁶ Moffett KJA et al. who reported that at 16 weeks, functional disability showed a significant difference;⁷ and Klaber Moffett JA et al. who reported that the results of functional disability were found to be significantly improved ($p<0.05$).⁸

The average pre-treatment Visual Analogue Score (pain) was 6.06 in the present study. The patients showed significant improvement at 1 month, 3 months and 6

months post treatment when compared to base-line data ($p<0.001$). These findings were comparable to those of Hall H et al. who reported that the Canadian Back Education Units (CBEU), in a review of 6418 participants, found a significant subjective improvement in 69% of the participants; Klaber Moffett JA et al who reported that at 16 weeks, pain levels showed a significant difference; Shirado O et al who showed that an averaged VAS score was 6.2 before enrollment in the program and 2.8 at follow-up, the pain improved in 141 patients (80.8%), did not change in 27 (15.4%), and was aggravated in 7 (3.8%), Karkucak M et al who reported that the results of pain intensity (VAS) were found to be significantly improved ($p<0.05$).⁶⁻⁸

The average pre-treatment Finger to Floor Distance reported in the current study was 21.44 cms. The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$). These findings were in concordance with other studies as well.^{8,9} However these findings do not confirm to those of Klaber Moffett JA et al. who reported that the techniques used for measuring lumbar spine movements in their study, showed no significant differences.⁷

The average pre-treatment Straight leg raising⁰ score were 77.02⁰ (right) and 77.61⁰ (left). The patients showed significant improvement at 1 month, 3 months and 6 months post treatment when compared to base-line data ($p<0.001$). These findings are comparable to those of Karkucak M et al.⁸

Back education assumes a special relevance in the Indian scenario. There are many wrong and unscientific concepts in the minds of people of India about Back, Back Pain and its care. Various treatment modalities available are not always scientifically correct and rational. The patient has to run to his Doctor or Consultant, since he does not know that many a times, he himself can look after his Back and that he need not suffer so much. The patients often use their Back improperly and bring back the pain, simply because they do not know the proper and scientific way of using it. There is no one to answer them to their satisfaction and discuss their problems.

The treating doctor spends very little time with the patient. There is no psychological or ergonomic counseling of the patient and the patients are not educated about back care. The result is often a disappointed patient and a disillusioned doctor. In a country like India with limited economic resources, low backache causes an increasing number of lost work days each year and considering the cost of treatment, economic loss to the individual as well as the country is immense. Taking these facts into consideration, the group education must be regarded as an advantageous mode of therapy for the Indian patient since it deals with several patients at a time and relatively smaller resources are needed to achieve the

same effects than with individual therapy. In addition, it has a positive effect on patients' beliefs and clinical outcomes.

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