DISSERTATION ON

TO ASSESS THE EFFECTIVENESS OF VIDEO ASSISTED TEACHING OF SPINAL EXERCISES AND BODY MECHANICS ON LOW BACK PAIN DISABILITY AMONG PERIMENOPAUSAL WOMEN AT SELECTED URBAN AREAS IN MADURAI

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THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY

CHENNAI – 600 032.

In partial fulfillment of requirement for the degree of

MASTER OF SCIENCE IN NURSING

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CERTIFICATE

This is to certify that this dissertation titled, **To assess the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban areas in Madurai** is a bonafide work of Mrs.L.Shanthi, College of Nursing, Madurai Medical College, Madurai–20, submitted to the Tamilnadu Dr. M.G.R. Medical University, Chennai-32, in partial fulfillment of requirement for the award of Degree of Master of Science in Nursing, Branch–IV, Community Health Nursing under our guidance and supervision during the academic period from 2010 – 2012.

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ABSTRACT

To assess the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban areas in Madurai.

INTRODUCTION

Women's lives have changed over the centuries. Today most people are expected to live well into their 70s or 80s and some women will live almost half of their lives after their menopause. Perimenopause is the transition period of menopause in which the women are at risk of low back pain disability due to degenerative process affecting the spinae erector muscles. In addition, the menopausal women also experience a decrease in oestrogen level, which stimulate osteoclastic activity and initiates a reduction in bone mineral density.

OBJECTIVES OF THE STUDY

1. To assess the level of low back pain disability among perimenopausal women in experimental and control group.
2. To evaluate the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women in experimental and control group.
3. To compare the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women between experimental and control group
4. To associate the effectiveness video assisted of spinal exercise and body mechanic on Low back pain disability among perimenopausal women with their selected demographic variables.

METHODOLOGY

The conceptual framework adopted for this study was modified Pender's health promotion model. The methodology used for this study was a quasi-experimental pre and posttest control design. A sample size of perimenopausal women 30 from Munichalai for experimental group and 30 from Pudur for control group was selected for this study based on the inclusion criteria. A

simple random sampling technique was used to collect the samples. The tool used for this study was Modified Oswestry low back pain disability questionnaire. Pretest assessment was done on level of low back pain for experimental and control group. The perimenopausal women were made to do spinal exercises and body mechanics with video assisted teaching. Post test assessment was done on level of low back pain for experimental and control group. Data analysis and interpretation were done by using frequencies, percentage, mean, standard deviation, Pearson chi-square test and Student's 't' test. Collected data were analyzed using descriptive and inferential statistics like chi-square test and Pearson Correlation Coefficient.

FINDINGS

Comparing the percentage of pretest score on low back pain disability in experimental group was 56.7% and control group was 55.1% and post test score in experimental group was 36.6% and control group was 52.7%. It was analyzed by using Student's independent t-test.

Experimental group was reduced to 23.1% and it is 2.4% in control group. This percentage of reduction 23.1% is the net benefit of video assisted teaching of spinal exercises body mechanics on low back pain disability, which indicates the effectiveness of the study.

In association of post test score with demographic variable among experimental and control group, the results showed that in experimental group, the younger, normal delivery and normal body mass index women had reduction in level of low back pain than others.

CONCLUSION

Low back pain is a major health problem among perimenopausal women in India. Since nurses have a key role in preventive, curative and rehabilitative aspects of health care, the nursing personnel should educate the women, so that the quality of life will be improved. The intervention was found to be very effective in prevention of low back pain and rehabilitative measures also among perimenopausal women.

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CHAPTER - I

INTRODUCTION

"If you do nothing, nothing will change
Nothing changes until something moves,
Although the world is full of suffering,
it is also full of the overcoming of it.

- ***Steve Hefferon The healthy back institute***

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Women's lives have changed over the centuries. Today most people are expected to live well into their 70s or 80s and some women will live almost half of their lives after their menopause. This means it's more important than ever to look after our body. Menopause is the permanent end of menstruation and fertility. From the Greek word pausis - cessation and the root men – month. This is a normal natural event and is typically confirmed when there is no period for 12 consecutive months. This span of time commonly called change of life, climacteric and also known as perimenopause literally around menopause. After the 12 months of absence of menstruation the women reaching the stage post menopause.

Over forty, many women's hormones begin to fluctuate, decrease and become imbalanced. Approximately 75% of women in their 40's and 50's experience perimenopausal hormone imbalance symptoms. The reported epidemiological data on women reveals majority of women complaints of pain syndrome in all areas of their body, which suggests for process of adopting into new milieu of hormone and changing the function according to World Health Organization, 2007. Loss of bone mass is a universal phenomenon associated with aging. Age related loss begins soon after the peak bone mass in achieved calcitonin, which inhibits bone reabsorption and promotes bone formation is decreased, estrogen produced by the ovaries, which inhibits bone break down decreases with aging.

The consequences of these changes increases with aging and over the time termed as osteoporosis. Especially women between the age 40 and 60 years are identified as a high risk group for peri and post menopausal osteoporosis with low back pain. Many researchers believe that this is related to fluctuation the loss of hormone estrogen. An essential distinction is apparent the functional and the pain outcome in patients who have low back problems. Some function may be restored even though pain continues. Similarly, the absence of pain does not indicate the restoration of normal function. The high incidence of recurrent and chronic low back pain may represent failure to restore proper functioning and highlights the need for appropriate rehabilitation.

A study has been done to overcome this long standing pain by means of various physical therapy interventions like heat therapy, electrical modalities and exercise therapy. A review of 19^{th} and early 20^{th} century spine rehabilitation shows that back disorders were commonly treated with aggressive and specific strengthening. Despite a lack of scientific evidence to support their efficacy, therapeutic approaches to back rehabilitation over past 30 years have focused primarily upon passive care for symptom relief.

The back is an intricate structure of bones, muscles, and other tissues that form the posterior part of the body's trunk, from the neck to the pelvis. The centerpiece is the spinal column, which not only supports the upper body's weight but houses and protects the spinal cord – the delicate nervous system structure that carries signals that control the body's movements and conveys its sensations. The muscular support system of the lumbar spine is divided into anterior and posterior groups. The anterior group consists of the abdominal oblique, transverse abdominis and psoas muscles. The posterior group contains superficial, middle, and deep layers. The superficial layer is the largest paraspinal muscle group and consists of long polysegemental muscles called the erector spinae. The erector spinae muscles are arranged in three vertical

columns iliocostalis, longissimus, and spinals and are the chief extensors of the vertebral column. The middle layer consists of short polysegmental muscles multifidi, and the deep layer consists of small intersegemental muscles. The anterior and posterior muscle group alternate concentrically and eccentrically to control smooth trunk movement.

The lumbar multifidi are the deepest layer of muscles of the back. They attach from the vertebral arches to the spinous processes. Each multifidi connects 1-3 vertebrae, the vertebrae are bones of the spine controlling movement between the vertebrae. The transverses abdominus is the deepest of the abdominal muscles and is also a stabilizer of the spine. Support by this muscle is considered to be the most important of the abdominal muscle and has also been found to be in weekened state in those who have chronic back pain or problems. Its normal action along with the action of the lumbar multifidus muscles function together to form a deep internal corset that acts to stabilize the spine during movement. This pattern of protection is disrupted in patients with low back pain.

It is uncertain why these muscles become dysfunctional after a low back injury, but specific exercises focusing on the contraction of these two muscles together will improve the protective stabilizing ability of the spinal muscles, reduce pain intensity, and improve activities of daily living as well as improve body awareness and posture. In addition to the regular home exercise program, individuals wishing to maintain a healthy spine need to do smaller scale exercises throughout the day. These might be postural correction / strengthening exercises or stretches of the back. Every day activities can place undo stress on the spine. Learning how to use good body mechanics will minimize these stresses and decreases the incidence of back and neck injuries. The key concept for maintaining a healthy spine is to strive for balanced stresses to the joints with dynamic neutral alignment during activities of daily living.

Low back pain is one of the most common problems in societies across the world. Almost every person will have at least one episode of low back pain at sometime in his or her life. The pain can vary from severe and long term to mild and short lived. It will resolve within a few weeks for most people. While in several cases it might become a chronic problem that can cause severe physical as well as mental and emotional distress.

The consequences of low back pain can be varied. On a physical level it may range from mild discomfort to severe pain or even a crippling situation where one is confined to a bed for a period ranging from a few days to several weeks or even months. Maintaining a good body mechanics and spinal exercises when done in a controlled, gradual, and progressive manner, distribute nutrients into the disc space and soft tissues in the back to keep the discs, muscles ligaments and joints healthy, consequently, a regular routine of lower back exercises helps patients avoid stiffness and weakness, minimize recurrences of lower back pain, and reduce the severity and duration of possible future episodes of low back pain.

NEED FOR THE STUDY

It is estimated that 30% of perimenopausal women suffer from Osteoporosis. Osteoporosis among perimenopausal women is now recognized as global health care problem. Low back pain constitutes major musculoskeletal problems in modern society. It has been estimated 80% of the general population will have a complaint of low back pain related disability in the course of their lives.

The women comprise the majority of the older population in virtually of all countries, because women live longer than men. By 2025, both the proportion and number of older women are expected so, as from 107 to 373 million in Asia and from 13 to 46 million in Africa according to World Health Organization 2008.Women are at greater risk because their bone loss accelerates after menopause, osteoporosis and associated fracture are the major

cause of illness, disability and death. It is estimated that the annual number of hip fractures worldwide will rise from 1.7 million in 1990 to around 6.3 million by 2050 and it is estimated that 71% of these fractures will occur in developing countries. Fracture is the hallmark of osteoporosis which commonly affects vertebral bodies. Patient education forms an important part of the management of osteoporosis among perimenopausal women.

International osteoporosis foundation 2007, reported that in United States Of America, the lifetime risk for osteoporosis fracture over 50 years of age is 42% in women, 27% in men and by 2010 it is estimated about 12 million people over the age of 50 are expected to have osteoporosis, 40 million to have low bone mass. By 2020, it is expected to increase to 1.4 million causes of osteoporosis and over 47 Million cases of low bone mass, this increase over could because the number of vertebral fractures may double or triple by 2040.

In India, the expert group pegs the number of osteoporosis patients as approximately 26 million in 2003 with the numbers will be project to increase to 36 million by 2013. Women suffer 80% of hip fracture; their time risk for osteoporosis fractures is at least 40% in contrast to the risk is only 13% for men.

The investigator during her home visit observed and came to know that many middle age women those who are in perimenopausal stage suffered with low back pain so the investigator was motivated to do the study to assess the effectiveness video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban area in Madurai.

STATEMENT OF THE PROBLEM

To assess the effectiveness video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban area in Madurai.

OBJECTIVES

1. To assess the level of Low back pain disability among perimenopausal women in experimental and control group.
2. To evaluate the effectiveness of video assisted teaching of spinal exercises and body mechanics on level of Low back pain disability among perimenopausal women in experimental and control group.
3. To compare the effectiveness of video assisted teaching of Spinal exercises and body mechanics on low back pain disability among perimenopausal women between experimental and control group
4. To associate the effectiveness of video assisted teaching of spinal exercise and body mechanic on Low back pain disability score among perimenopausal women with their selected demographic variables.

HYPOTHESES

- There will be a significant difference in the level of the low back pain disability before and after video assisted teaching of spinal exercise and body mechanics.
- There will be a significant association in the level of low back pain disability with their selected demographic variables.

OPERATIONAL DEFINITION

Effectiveness

Refers to the end result of an intervention rendered to manage the low back pain functional disability among perimenopausal women by the investigator.

Video assisted teaching

It is a teaching strategy, where a moving picture is shown on screen regarding spinal exercises and body mechanics for low back pain disability specially prepared by the investigator.

Spinal Exercises

Refers to the procedures which strengthening the abdomen and trunk muscle by increasing flexibility, reducing strain by increasing blood supply and lymphatic drainage in the back, such as Pelvic Tilt exercise, Knee – Chest stretch back extension, alternate leg extension, and backward pending. Each exercise are performed in an empty stomach at a slow pace for 1-5 repetitions twice in a day and by gradually increasing to do 10 repetitions twice in a day for 7 days.

Body Mechanics

Refers to posture to be followed in standing, sitting lying and lifting in daily activities, which results in natural strengthening of the back.

Low back pain

Refers to the subjective feeling of unpleasant sensory in the region between L4 -L5 and L5- S1 experienced by the perimenopausal Women.

Disability

Difficulty in performing activities of daily living and routine social living

Perimenopausal Women

Refers to women aged at about 40 - 59 years with transition time around menopause which has gone through 12 consecutive months without a menstrual period.

ASSUMPTIONS

1. Perimenopausal women may experience some level of low back pain disability.
2. Exercises may have reduction on the level of low back pain disability among perimenopausal women.

DELIMITATION

Data collected period was 4 weeks.

The study population was only in selected urban areas.

CHAPTER – II

REVIEW OF LITERATURE

The review of literature entails systematic identification, location scrutiny and summary of written material that contains information relevant to the problem under study. An extensive review of literature relevant to the research topic was done to gain insight and to collect maximum information for laying the foundation of the study. The purpose of review of literature is to obtain comprehensive knowledge base and in depth information about the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban areas in Madurai.

This selection has two parts

Part – I : Review of literature

Part – II : Conceptual Frame Work

PART – I

REVIEW OF RELATED LITERATURE

This section on literature is divided into 4 parts which explores the literature and the previous studies of effectiveness of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban area. This section is divided into the following headings:

Section – A : Literature related to perimenopausal.

Section – B : Literature related to spinal exercises and low back pain

Section – C : Literature related to spinal exercises and low back pain among perimenopausal

Section – D : Literature related to body mechanics and low back pain

SECTION – A: LITERATURE RELATED TO PERIMENOPAUSAL

Hess R.et.al, (2011) Conducted a study on menopause. Women aged 40 to 65 years were recruited from a single internal medicine practice to participate in a 5 –year longitudinal study of the impact of menopause on health-related quality of life. The study examined the impact of pregnancy and birth history on menopausal symptoms, and the findings support the hypothesis that women who experience infertility may find menopause to be a time of normalcy and experience fewer menopausal symptoms.

Szoeke CE.et.al, (2010) Conducted a study to determine factors associated with reported joint symptoms across the menopausal transitior. 'Back aches and Stiff joints' were the most commonly reported symptoms and reporting increased over time in the longitudinal study. A higher severity and frequency of this symptom were associated with body mass index not being employed. Menopausal status, Body mass index, employment status and were all associated with the experience of bothersome back aches and stiff joints. Back aches and stiff joints, common in perimenopausal women are not necessarily indicative of radiological osteoarthritis.

Sowers M.et.al, (2009) conducted the study to determine whether the characteristics of menstrual bleeding and the menopausal transition are associated with physical functioning in women age 40 – 55, after considering ethnicity, ability to pay for basics, body size, and age. Results shows even at the relatively early age of 40 – 55, (Perimenopausal) approximately 20% of women self-reported limitation in physical functioning. Even after adjusting for economic status, age, body mass index, and race/ethnicity.

Brown WJ.et.al, (2008) conducted a study on changes in physical symptoms during the menopause transition. This article analyzes physical symptoms experienced by mid-age Australian women in different stages of the menopause transition. The most commonly reported symptoms were

headaches, back pin, stiff joints, tiredness, and difficulty sleeping. Perimenopausal women were more likely than premenopausal or postmenopausal women to report these symptoms. Hot flushes and night sweats were more common among postmenopausal women. Compared with those who remained prememopausal, women who were in the early stages of menopause or perimenopausal were more likely to report tiredness, stiff joints, difficulty sleeping, and hot flushes at survey. Women who remained perimenopausal were also more likely to report back pain and leaking urine. Compared with premenopausal compared with premenopausal women.

SECTION – B: LITERATURE RELATED TO SPINAL EXERCISE AND LOW BACK PAIN

Franca FR.et.al, (2011) conducted a study to contrast the efficacy of two exercise programs, segmental stabilization and strengthening of abdominal and trunk muscles, on pain, functional disability, and activation of the transversus abdominis muscle, in individuals with low back pain. Sample consisted of 30 individuals, randomly assigned to one of two treatment groups: segmental stabilization, where exercises focused on the transversus abdominis muscle and lumbar multifidus muscles, and superficial strengthening exercise. Groups were examined to discover whether the exercises created contrasts regarding pain (visual analogical scale and McGill pain questionnaire), functional disability (Oswestry disability questionnaire). The significance level was established at 5%. As compared to baseline, both treatments were effective in relieving pain and improving disability ($p < 0.001$). Both techniques lessened pain and reduced disability.

Sokunbi O.et.al, (2011) conducted a study on experiences of individuals with low back pain during and after their participation in a spinal stabilization exercise programme - a pilot qualitative study spinal exercises are commonly used in the management of low back pain. There is limited evidence relating to patients' experiences of their involvement in such programmes. The

aim of this study was to explore the experiences of a sample of individuals with low back pain who participated in a randomized controlled trial investigating the most efficacious dosage and frequency of spinal exercises. The findings highlight the importance of well planned associated educational support packages in the treatment of low back pain paving the way for future qualitative research.

Goldby LJ.et.al, (2010) did a study to find the efficiency of musculoskeletal physiotherapy on low back pain. A total of 346 subjects were randomized to manual therapy, a 10 week spinal rehabilitation programme, or a minimal intervention control group. Data were collected at baseline and 3, 6, 12, 24 months after intervention. Outcome of this study is that spinal stabilization programme is more effective than manually applied therapy.

ChoiG.et.al, (2009) did a study on the effect of early isolated lumbar exercise program for 75 patients with who were randomized into an exercise group and a control group a 12 week lumbar exercise program. They assessed lumbar extension power by MedX lumbar extension machine, muscle mass of multifidus and longissimus (L4 –L5) area by CT. All patients completed the Oswestry disability index to assess pain and disability. As a result of this exercise program the exercise group showed a significant increase in lumbar extension strength and in cross – sectional area, reduced pain and disability as compared to the control group.

Skikic EM.et.al, (2009) studied on the effect of McKenzie exercise for patients with low back pain. 34 patients with symptoms of low back pain were given McKenzie exercise programme according to the need and possibility of each patient. Patients attended exercise programme daily under supervision of physiotherapist and do it also at home, 5 times a day in series of 5 to 10 repetitions each time. All the patients were assessed before and after the treatment with Visual Analog Scale, localization of pain and Schober's test. As

a result, they found that pain was reduced on VAS, spinal movements and flexibility improved.

Niemisto L.et.al, (2008) did a randomized trial of combined manipulation stabilizing exercises and physician consultation compared to physician consultation alone for chronic low back pain. 204 chronic LBP patients were randomly assigned to either a manipulative group or a consultation group. The treatment included 4 sessions of manipulation and stabilizing exercise aiming to correct the lumbopelvic rhythm. At the 5th and 12th month follow ups the manipulative treatment group showed more significant reductions in pain intensity, self-rated disability, than the consultation group. No significant difference between the groups in health-related quality of life or in costs.

Descarreaux M.et.al, (2007) conducted a study for a period of 6 weeks on 20 patients with sub acute and chronic nonspecific low back pain to compare the effect of two home exercise program in decreasing pain and disability in the Department of Physiotherapy, Canada. They compared a specific individualized exercise with of commonly prescribed exercises for low back pain through force and extensibility of lumbar and pelvic muscles, trunk Range of motion, pain and disability index (Oswestry) which were completed by each patient of both the groups. The results showed significant improvement in the target components of the experimental group.

Miltner O.et.al, (2006) did a meta-analysis on lumbar extensors strengthening for the patients with chronic low back pain. They evaluated 21 publications and abstracts having 1100 cases dealing with lumbar extension training. The results showed that there is reduction in pain, improvement of range of motion and improvement of spinal condition with lumbar extensor strengthening exercises.

Handa N.et.al, (2006) studied on the effect of trunk muscle exercise in patients over 40 years of age with chronic low back pain. Trunk muscle strength was measured in a LBP group (52 patients) and a control group (60 volunteers) and the results for the two groups were compared. In both groups A and B muscle strength increased and clinical symptoms improved. It was confirmed that trunk muscle strengthening exercises are useful for increasing muscle strength and improving symptoms in such patients.

Kankaanpaa M.et.al, (2006) in a randomized study compared the results of active rehabilitation and passive control treatment in 57 patients with chronic low back pain for 12 weeks in the Department of Physical medicine and Rehabilitation, Kuopio University Hospital, Finland. They examined for pain, disability index and low back pain intensity by 100 mm visual analog scale, objectively assessed lumbar muscle fatigability test. All the parameters improved significantly in an active rehabilitation group than the passive control treatment group.

Carpenter DM.et.al, (2006) studied on the use of isolated lumbar extension exercise and PRE programmes. The patients with low back pain were given low training volume of 1 set of 8 to 15 repetitions performed to volitional fatigue one time per week. As a result, the patients showed reduction in pain and improvement in muscle strength, endurance and joint mobility.

SECTION – C: LITERATURE RELATED TO SPINAL EXERCISE AND LOW BACK PAIN AMONG PERIMENOPAUSAL

Maria Regina Rachmawati.et.al, (2011) Conducted a study on High erector spinae endurance reduced low back pain in perimenopausal women. Results shows the prevalence not Low back pain and osteoporosis in the perimenopausal women in this study was 58.2% and 21.6% respectively. Subjects with poor erector spinae muscle endurance had more pain intensity according to VAS. Prevention of decreased quality of life in perimenopausal women due to chronic low back pain, requires instructional programs for improving body posture and erector spinae muscle endurance, as well as the program to reduce body weight.

Sylvia Cunha-Henriques.et.al, (2011) Conducted a study on to evaluate musculo skeletal alteration in osteoporotic perimenopausal women and healthy and correlate with bone mineral density of the lumbar spine. Randomized, examiner-blinded, comparative cross-sectional study was designed with tow groups of women attending the Menopause clinic. Results shows mean back flexors and extensors strength was significantly lower in women with osteoporosis. Flexion spinal range of motion was similar in both groups. Women with osteoporosis in the study population had poorer musculoskeletal status than women without osteoporosis.

Bronfort.G.et.al, (2011) conducted a study to assess the relative efficacy of supervised exercise, spinal manipulation, and home exercise for the treatment of chronic low back pain. Blinded and mixed-method randomized clinical trial on peri and perimenopausal women, 40 to 65 years of age, who had a primary complaint of mechanical LBP of at least 6-week duration. Results showed a total of 301 individuals were included in this trial. For all three treatment groups, outcomes improved during the 12 weeks of treatment. Those who received supervised trunk exercise were most satisfied with care and experienced the greatest gains in trunk muscle endurance and strength.

Mohseni-Bandpei.MA.et.al, (2011), conducted a study on a randomized controlled clinical trial was carried out on 20 menopausal women with chronic low back pain. Patients were randomly allocated into two groups: an experimental and a control group. The control group was given routine treatment including electrotherapy and general exercises; and the experimental group received routine treatment and additional spinal exercise. In both groups pain and functional disability were significantly reduced following treatment. All measurements were improved in both groups ($p<0.01$) although patients in the experimental group showed greater improvement.

Power, C.M.et.al, (2009) conducted a study to examine the immediate effects of spinal exercises in people with non specific low back pain among 40 Post menopausal women at southern California using visual analog scale and concluded that there was a significant reduction in the average pain score after an intervention.

Dugan SA.et.al, (2009) conducted a study on musculoskeletal pain and menopausal status**.** Results showed Prevalence of aches and pains was high, with 1 in 6 women reporting daily symptoms. Compared with premenopausal women, those who were early perimenopausal ($P=0.002$), late perimenopausal ($P=0.002$), or postmenopausal ($P<0.0001$) reported significantly more aches and pains in age-adjusted analysis. Menopausal status was marginally related to consulting a healthcare provider for back pain. This study demonstrates an association between pain and self-reported menopausal status, with perimenopausal women experiencing greater pain symptoms than premenopausal women.

Chung, M.K.et.al, (2008) were carried out to investigate the relationship between body joint of whole body discomfort among Korean workers and a results showed a linear relationship between the two types

discomfort with the shoulder and low back postures being the dominant factor in determining the whole body postural stresses and low back pain.

Manek, N.J.et.al, (2008) conducted on epidemiological study to provide insights into the prevalence of low back pain in post menopausal women and have identified that many individual have a transition from acute to chronic pain and related disability as a serious problem in community and therefore suggested intervention base on behavioural, cognitive principles and exercise programs are effective in improving disability in chronic back pain at low cost.

Manable.T.et al, (2007), had investigated the relationship of low back pain and bone mineral density among 2,244 Japanese menopausal women and found that increasing bone mineral density to be significantly associated with low back pain in middle aged women as a important public health problem.

Matthews KA.et.al, (2007) conducted a study to assess the body mass index in mid-life women: relative influence of menopause, hormone use, and ethnicity. To assess the relative influence of menopausal status and hormone use on body mass index (BMI) among a multiethnic sample of mid-life women. Design showed on Cross-sectional telephone survey conducted at seven sites where each site targeted an ethnic minority group and Caucasians as part of Study of Women's Health Across the Nation. Self-reported body mass index based on weight in kg divided by height in m (2) menopausal status, physical inactivity, perimenopausal hormone use, ethnicity, and age in years. Result showed that the menopausal transition affects body mass index in mid-life, but the effect is small relative to other influences. Interventions to increase physical activity are highly recommended to prevent increases in adiposity common in mid-life.

Kaneda.K.et.al, (2007) explored that Osteoporosis are of two types, Type- 1 Osteoporosis, known as post menopausal Osteoporosis occurs in women after menopause, Type – 2 Osteoporosis, known as senile Osteoporosis, occurs in men and women over 70 years of age. The general symptoms are low back pain in patients with Type – 1 Osteoporosis and back pain with spinal deformity in Type – 2 Osteoporosis.

Preisinger.E.K.et.al,(2007) conducted a study to define the effect of therapeutic exercise on bone density and back complaints, a randomized controlled trail with parallel groups was conducted in 92 sedentary post menopausal women with back problem at university of vinenna, Australia and concluded that there was a significant decrease in bone density after regular long term therapeutic exercise.

SECTION – D: LITERATURE RELATED TO BODY MECHANIC AND LOW BACK PAIN

Karahan.A.et.al, (2010) conducted a study to low back pain: prevalence and associated risk factors among hospital staff. Most respondents (65.8%) had experienced low back pain, with 61.3% reporting an occurrence within the last 12 months. In the majority of cases (78.3%), low back pain began after respondents started working in the hospital. Results showed that the preventive measures should be taken to reduce the risk of lower back pain, such as arranging proper rest periods, educational programmes to teach the proper use of body mechanics and smoking cessation programmes.

Shen FH.et al., (2009) conducted a study on nonsurgical management of acute and chronic low back pain. A variety of nonsurgical treatment alternatives exists for acute and chronic low back pain. Patients should receive appropriate education about the favorable natural history of low back pain, basic body mechanics, and methods (eg, exercises, activity modification, behavioral modification) that can reduce symptoms. Nonprescription

medication is efficacious for mild to moderate pain. No steroidal anti-inflammatory drugs, alone or in combination with muscle relaxants, relieve pain and improve overall symptoms of acute low back pain. Exercise therapy has limited value for acute low back pain, but strong evidence supports exercise therapy in the management of chronic low back pain. Moderately strong evidence supports the use of manipulation in acute back pain. Evidence is weak for the use of epidural corticosteroid injections in patients with acute low back pain, strong for short-term relief of chronic low back pain, and limited for long-term relief of chronic low back pain. The use of facet injections in the management of acute low back pain is not supported by evidence, nor is the effectiveness of orthoses, traction, magnets, or acupuncture. Trigger point injections are not indicated for nonspecific acute or chronic low back pain, and sacroiliac joint injections are not indicated in the routine management of low back pain. Conflicting evidence exists regarding the use of transcutaneous electrical nerve stimulation.

Shirado.O.et.al, (2008) conducted a study to a novel back school using a multidisciplinary team approach featuring quantitative functional evaluation and therapeutic exercises for patients with chronic low back pain: the Japanese experience in the general setting. A prospective cohort study. To introduce a novel back school for the treatment of patients with chronic low back pain, and to report its clinical results. The study demonstrated that our program could provide a satisfactory result for the treatment of patients with chronic low back pain. The quantitative functional evaluation was a worthwhile outcome measure when evaluating the efficacy of the treatment program. Teaching body mechanics and performing the therapeutic exercises through the multidisciplinary team approach are essential to managing chronic low back pain in a general setting.

Karahan.A.et.al, (2007) conducted a study on determination of the usage of body mechanics in clinical settings and the occurrence of low back pain in nurses. This explorative study was designed to identify the usage of body mechanics in clinical settings and the occurrence of low back pain in nurses. According to the observations, the majority of the nurses used body mechanics correctly while sitting (53.6%), standing (58.7%), carrying (64.3%), pulling or pushing (79.4%), moving the patient to the side of the bed without an assistant (53.4%), moving the patient to a sitting position in bed (71.4%) and assisting the patient to a standing position (66.6%). However 57.1% of the nurses lifted and 82% extended incorrectly. The conclusion from this research was that some of the nurses do not use body mechanics correctly and the majority has low back pain.

Lindsay D.et.al, (2007) conducted a study on comparison of spine motion in elite golfers with and without low back pain. Study was to compare golf swing spinal motion in three movement planes between six male professional golfers with low back pain. Golfers with low back pain tended to flex their spines more when addressing the ball and used significantly greater left side bending on the backswing. Golfers with low back pain also had less trunk rotation (obtained from a neutral posture), which resulted in a relative 'supra maximal' rotation of their spines when swinging. Pain-free golfers demonstrated over twice as much trunk flexion velocity on the downswing, which could relate to increased abdominal muscle activity in this group. This study is the first to show distinct differences in the swing mechanics between golfers with and without low back pain provides valuable guidance for clinicians and teachers to improve technique to facilitate recovery from golf-related low back pain.

Lieber SJ.et.al, (2007) conducted a study to measure the efficacy of body mechanics instruction (Body mass index) in patients with low back pain. The effect of Body mass index was measured in four participants with back injuries using a standardized lifting protocol. Static strength, weight lifted, number of lifts completed, and motion analysis date to describe the body mechanics was measured before and after work hardening to evaluate treatment effects. Results shows starting postures, characterized by degrees of hip and knee flexion, varied by participant but favored a squat lift in three participants when compared with the controls. Dynamic motion synchrony of the hip and knee joints was similar to controls in three of the four participants. Posttest data revealed significant changes I n static strength, dynamic endurance, and lifting speed. This study demonstrated some of the inherent intricacies in isodynamic lifting and suggests additional areas of performance that may be important to address in Body Mass Index.

CONCEPTUAL FRAME WORK

The conceptual framework or model is defined as a set of concepts and the proposition that integrate them into a meaningful configuration. Conceptual framework situations and events of particular interest to a discipline, in this instance of nursing (Hye & Berndu, 1987).

The present study aims to assess the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability among perimenopausal women at selected urban area in Madurai.

The conceptual framework for this study is based on modified revised (2006) Pender's health promotion model.

The model focuses on following three areas:

- Individual characteristics and experiences
- Behaviour specific cognitions and affect
- Behavioural outcomes

INDIVIDUAL CHARACTERISTICS AND EXPERIENCES

Personal factors demographic variables, age are biological factor, sociocultural factors are educational status, occupation, income, martial status, body mass index, type of family, type of delivery, type of food consumption, and source of information.

Prior related behaviours assessment of demographic variables, body mass index, type of delivery, source of information. Pretest assessment of low back pain disability level.

BEHAVIOUR SPECIFIC COGNITIONS AND AFFECT

a) Perceived benefits

In this study this includes following spinal exercises & body mechanics in activity of daily living, reduction in low back pain disability level and healthy living.

b) Perceived barriers

In this study has includes ignorance, lack of knowledge about proper body mechanic, lack of practices spinal exercise and lack of motivation.

c) Perceived self efficacy

In this study the perimenopausal women with low back pain realize the importance of spinal exercise and body mechanic to reduce the disability level of low back pain.

d) Activity related effect

In this study this includes maintaining the neutral spine with spinal exercise and body mechanics and improving the activity of daily living of perimenopausal women with low back pain.

e) Interpersonal influences

In this study the researcher influences the perimenopausal women with low back pain and demonstrated them with video assisted teaching of spinal exercises and body mechanics.

f) Situational influences

In this study the perception of availability of accessible health services, intervention by the investigator and the knowledge regarding body mechanics and spinal exercises influences to maintain health status.

BEHAVIOURAL OUTCOME

i) Immediate change of practice low control to high control

The women accept to do the spinal exercise and follow the body mechanic and practicing each 5-10 times twice a day for 7 days.

ii) Commitment to plan of action

The planned strategy of video assisted teaching spinal exercises and body mechanics made the women to take decision of maintaining the proper body mechanic and practicing spinal exercise regularly in daily life.

iii) Health promoting level

In this study the video assisted spinal exercises and body mechanics intervention brings the reduction in the level of low back pain disability and improving the activity of daily living.

CHAPTER – III

METHODOLOGY

This chapter deals with the description of the methods and different steps used for collecting and organizing data for the investigation. It includes the description of the research approach the research design, setting, population, the sample and the sample size, the sampling technique, the sampling criteria, the development and description of the tool, the pilot study, the data collection procedure and the plan for data analysis in the study. This present study was done to assess the effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain disability level among perimenopausal women at selected urban area in Madurai.

RESEARCH APPROACH

The investigator selected quantitative research approach in selected urban areas.

RESEARCH DESIGN

The research design selected for this study is quasi experimental design of pretest, posttest and control group.

RE	O_1	X	O_2
RC	O_1	-	O_2

R - Randomization

E - Experimental group

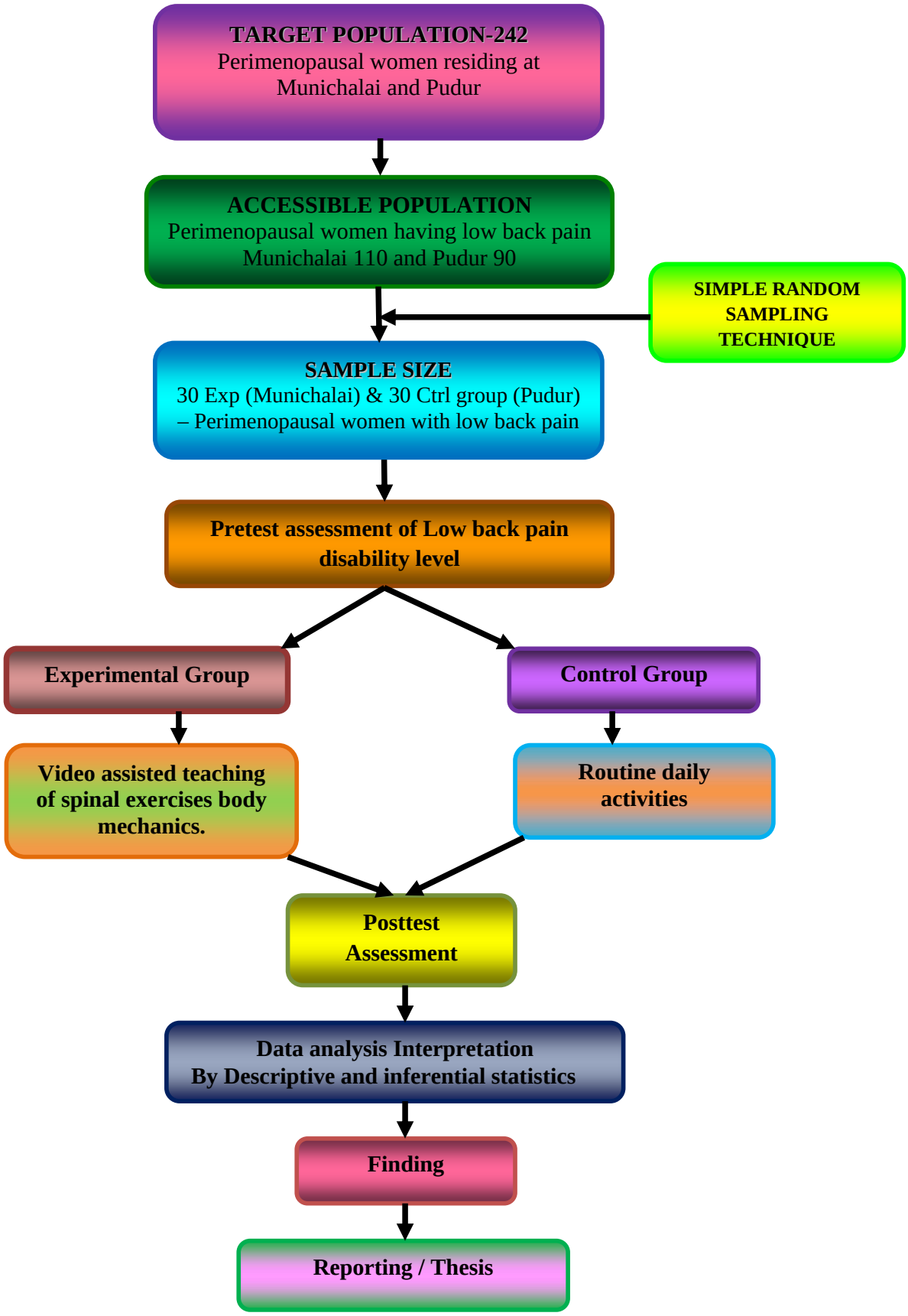
C - Control group

O_1 - Pretest assessment of Low back pain disability level with modified Oswestry low back pain disability questionnaire on experimental group and control group.

X - Video assisted teaching of spinal exercises and body mechanics intervention.

O_2 - Posttest assessment of low back pain functional disability level with modified low back pain disability questionnaire on experimental and control group.

FIG: 2 SCHEMATIC REPRESENTATION OF RESEARCH STUDY



SETTING OF THE STUDY

The study was conducted in urban areas of Munichalai area and Pudur area belongs to Madurai Corporation. The Munichalai urban area has 5 wards. Ward 50 adopted for community health nursing department – College of Nursing. Ward 50 has 14 streets Ismailpuram 1 to 14 streets. Ismailpuram 8, 9, 10, 11, 12^{th} streets had taken for experimental group. In Pudur area the study population had taken from community health center for control group.

POPULATION

The targeted population - perimenopausal women.

Accessible population - perimenopausal women those had low back pain, residing at Munichalai & Pudur.

In experimental group the perimenopausal women 40 – 59 (242) population at street 8, 9, 10, 11, 12 (110). From Each street 6 samples were taken for study. In Pudur – control group population (90) taken from morbidity clinic.

SAMPLE

The present study comprises of perimenopausal women of 30 samples for experimental group from 5 streets of Munichalai urban area. In Pudur community health centre from morbidity clinic, 30 samples were taken for control group.

SAMPLE SIZE

In sample size, 30 experimental group and 30 control group perimenopausal women suffering with low back pain functional disability which was measured by modified Oswestry low back pain disability questionnaire who had met inclusion criteria.

SAMPLING TECHNIQUE

Simple random sampling technique was used for this study according to Polit and Hungler 2008. Picking the sample randomly with available people by picking up lots as study participants. The investigator after enquiring the details of low back pain functional disability the perimenopausal women were identified as per the inclusion criteria. In Munichalai for experimental group samples from 5 streets – 8, 9, 10, 11, 12 were selected by Simple random sampling lottery method. Picking of the names, 6 samples of each streets total 30 samples were selected after thorough examination by medical officer based on inclusion & exclusion criteria. From Pudur, samples had taken from morbidity clinic. After thorough examination by medical officer. The low back pain functional disability patients were listed based on inclusion criteria then by lottery method picking of the names, the samples were selected for control group.

CRITERIA FOR SELECTION OF THE SAMPLE

Inclusion criteria

1. Peri menopausal women with low back pain.
2. Low back pain after examined by medical officer.
3. Low back pain associated with osteoporosis.
4. Peri menopausal women who can read or write understand Tamil or English

Exclusion criteria

1. Perimenopausal women with medical complication
2. Perimenopausal women with all types of spinal disorder
3. Perimenopausal women with hormone replacement therapy
4. Pilot study samples were not included in main study

VARIABLES

Independent variable	-	Video assisted teaching of spinal exercises and body mechanics
Dependent variable	-	Low back pain functional disability
Attributed variable	-	Age, Sex, Educational status, religion, occupation, income, body mass index, marital status, type of delivery, food habits, source of information.

DEVELOPMENT OF TOOL

The tools used for the research study consists of demographic variable, low back pain assessment questionnaire (modified oswestry low back pain disability questionnaire) related literature and with the guidance of experts in the field.

Section – A	-	Demographic variables
Section – B	-	Low back pain disability level assessment questionnaire (Modified oswestry low back pain disability questionnaire)
Section – C	-	Video assisted teaching spinal exercises and body mechanics

DESCRIPTION OF THE TOOL

Section – A consist of demographic variable Age, Sex, Educational status, religion, occupation, income, body mass index, marital status, type of delivery, food habits, source of information.

Section – B consist of pain assessment questionnaire to assess how the low back pain functional disability was affecting the functional ability to manage in everyday life. The questionnaire consist of 10 sections, each with 6 statement about pain intensity personal care in washing, dressing etc lifting,

walking, sitting, standing, sleeping, social life, travelling and employment home making.

Section – C consist of spinal exercise and body mechanics demonstrated with video assisted teaching each exercise 5 – 10 times morning & evening in empty stomach for 7days.

Spinal exercise

Pelvic tilt, knee chest, back extension, alternate leg extension, back ward bending.

Body mechanics

Advice about how to maintain the neutral spine by following the body mechanic during standing, sitting, lying, lifting, and exercising.

SCORE INTERPRETATION

The questionnaire contain 10 section with 6 statement scoring is 0 – 5.

1st statement is 0

2nd statement is 1

3rd statement is 2

4th statement is 3

5th statement is 4

6th statement is 5

Score calculation –

$$\frac{\text{Total Scored}}{\text{Total Possible score}} \times 100 = \text{Percentage of low back pain level}$$

Level of low back pain functional disability

0 – 20 mild

21 – 40 Moderate

41 – 60 Severe

61 – 80 Crippled

81 – 100 Bed bound

TESTING OF THE TOOL

Content validity

Validity of the tool was assessed by using content validity. Content validity was determined by experts from nursing and Medical. They suggested certain modifications in tool. After the modifications they agreed this tool for assessing effectiveness of video assisted teaching of spinal exercises and body mechanics on low back pain functional disability among perimenopausal women.

Reliability

Reliability of the tool was assessed by using split half method. After pilot study, it was assessed by using split half method. Calculated correlation coefficient r value is 0.83. These correlation coefficients is very high and it is excellent tool for assessing effectiveness of video assisted teaching spinal exercises and body mechanics on low back pain disability among perimenopausal women at urban area in Madurai.

Ethical committee approval

The researcher got the approval from ethical committee on 09.05.2011 by viewing the presentation, the committee asked the researcher to continue their main study with slight modification.

Pilot study

Pilot study was conducted from 11.07.2011 to 17.11.2011. Formal consent obtained from the Medical Superintendent of urban health centre Munichalai and Pudur urban area. 6 perimenopausal women (3 from Munichalai – Ismailpuram 1st street, 3 from Pudur – Lourdhu nagar) with low back pain disability who fulfilled the inclusion criteria were selected and ascertained to the experimental and control group. Brief introduction about self and study were explained. Written consent was obtained and the confidentiality of the response was assured pretest was done by using modified oswestry low back pain functional disability questionnaire among perimenopausal women in both the groups. Perimenopausal women in the experimental group practiced spinal exercises and body mechanics with video assisted teaching and their level of low back pain disability was assessed by using same tool. But in the control group, posttest was assessed without the intervention. Data analysis done with descriptive and inferential statistic. There was a significant decrease in the level of low back pain functional disability among perimenopausal women in experimental group after video assisted teaching spinal exercise and body mechanics. The same tool was used for main study.

DATA COLLECTION METHOD

The investigator had on opportunity to visit the community area Munichalai & Pudur of Madurai and noticed that most of the middle aged women had complaints of low back pain functional disability and this had motivated the investigator to conduct the study. The Munichalai clients 30 were assigned in experimental group and Pudur clients 30 were assigned in control groups. It was urban areas with a distance of 4 km away from each other. The formal consent was obtained from the Medical Superintendent of the Munichalai urban area and Pudur community health centre area to conduct the study from 01.09.2011 to 30.09.2011. After thorough examination by medical officer, the perimenopausal women with low back pain functional disability

who fulfilled the inclusion criteria were selected by simple random sampling technique, based on the selection criteria the subjects were assigned for the experimental at Munichalai area, and control group at Pudur.

Phase – I

Pretest assessment of low back pain disability level on perimenopausal women. The investigator introduced her, established rapport by explaining the purpose of the study and about the tool, informed consent was obtained and confidentiality was assured. After identifying the perimenopausal women with inclusion criteria pretest low back pain functional disability level assessment was done for experimental at Munichalai and control group at Pudur respectively.

Phase – II

Intervention of video assisted teaching on spinal exercises and body mechanics. Introduction about the spinal exercises and body mechanics given to experimental group. Different types of spinal exercise demonstrated body mechanic educated by the investigator and also with video teaching assisted the women were instructed to do twice daily in a calm and quite environment in a common place. In an empty stomach at a slow pace for 1 – 5 repetions twice a day in the early morning (6am) and in the late evening (7.30pm) and they are gradually increase to do 10 repetions for 7 days and then posttest was done on 7^{th} day for each individual by the same tool.

Where as in the control group, each member were instructed to follow the daily routine. The post test done on each individual of both experimental and control group on 7^{th} day by the same tool.

PLAN FOR DATA ANALYSIS

The data which were collected will be analyzed by using both descriptive and inferential statistics. Data analysis enable the researcher to reduce, summarize, organize, evaluate interpret and communicate numerical information to obtain answer to research questions. Analysis and interpretation was done based on objectives of the study. The data were analyzed by using descriptive statistics like frequency, percentage, inferential statistics like Chi square test, and Pearson correlation coefficient‘t’ test. The significant findings were expressed in the form of the tables and figures.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected. Analysis is a method for rendering quantitative, meaningful and providing intellectual information. So that the research problem can be studied and tested including the relationship between the variables. The data collected have been analyzed using appropriate statistical methods and the results are prescribed below.

ORGANIZATION OF THE DATA

Section – I : Description of Demographic variable of the perimenopausal women.

Section – II : Pre test percentage and level of low back pain disability score among experimental and control group.

Section – III : Post test percentage and level of low back pain disability score among experimental and control group.

Section – IV : Comparison of pre & post test percentage and level of low back pain disability score on experimental and control group

Effectiveness of video assisted teaching of Spinal exercise and body mechanics on low back pain disability score.

Section – V : Association of post test level of Low back pain disability with demographic variables.

SECTION – I

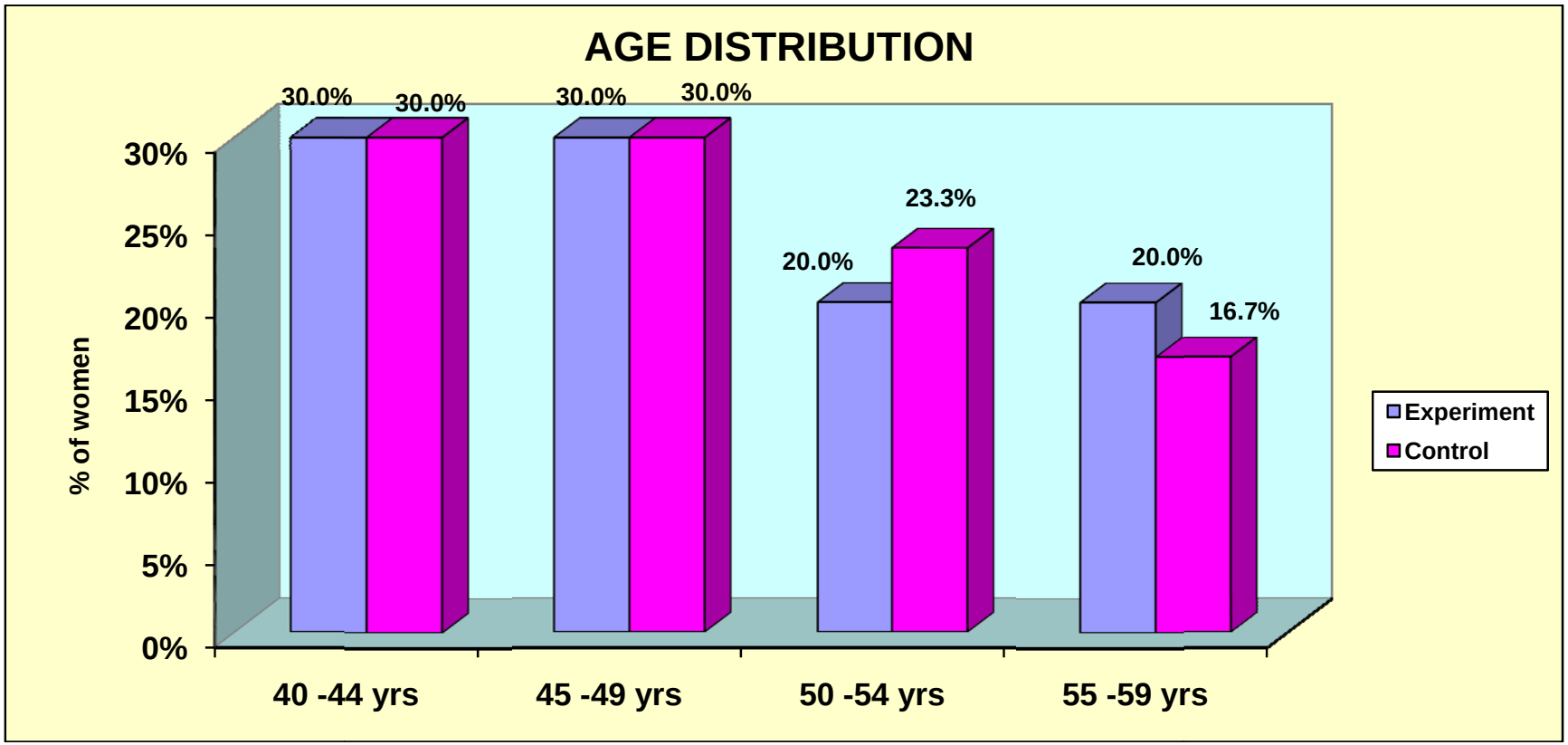
TABLE – 1 DESCRIPTION OF DEMOGRAPHIC VARIABLE OF PERIMENOPAUSAL WOMEN

N E = 30 N C = 30

DEMOGRAPHIC VARIABLE		PERIMENOPAUSAL WOMEN			
		EXPERIMENT		CONTROL	
		n	%	n	%
Occupation	Unemployed	6	20.0%	7	23.3%
	Unskilled	7	23.3%	7	23.3%
	Semi skilled	11	36.7%	10	33.3%
	Shop owner	3	10.0%	3	10.0%
	Profession	3	10.0%	3	10.0%
Income	Rs.2001 -3000	3	10.0%	3	10.0%
	Rs.3001 -5000	11	36.7%	12	40.0%
	>Rs.5000	16	53.3%	15	50.0%
Religion	Hindu	15	50.0%	12	40.0%
	Muslim	9	30.0%	16	53.3%
	Christian	6	20.0%	2	6.7%
Marital status	Married	25	83.3%	22	73.3%
	Unmarried	5	16.7%	8	26.7%
Type of family	Nuclear	14	46.7%	15	50.0%
	Joint	12	40.0%	10	33.3%
	Extended	4	13.3%	5	16.7%
Prior surgery	Abdomen surgery	4	13.3%	4	13.3%
	Vaginal surgery	1	3.3%	1	3.3%
	Combined	0	0.0%	4	13.3%
	None	25	83.3%	21	70.0%
Dietary pattern	Vegetarian	6	20.0%	6	20.0%
	Non vegetarian	24	80.0%	24	80.0%
Habits	Snuffing	3	10.0%	3	10.0%
	Tobacco chewing	3	10.0%	3	10.0%
	None	24	80.0%	24	80.0%

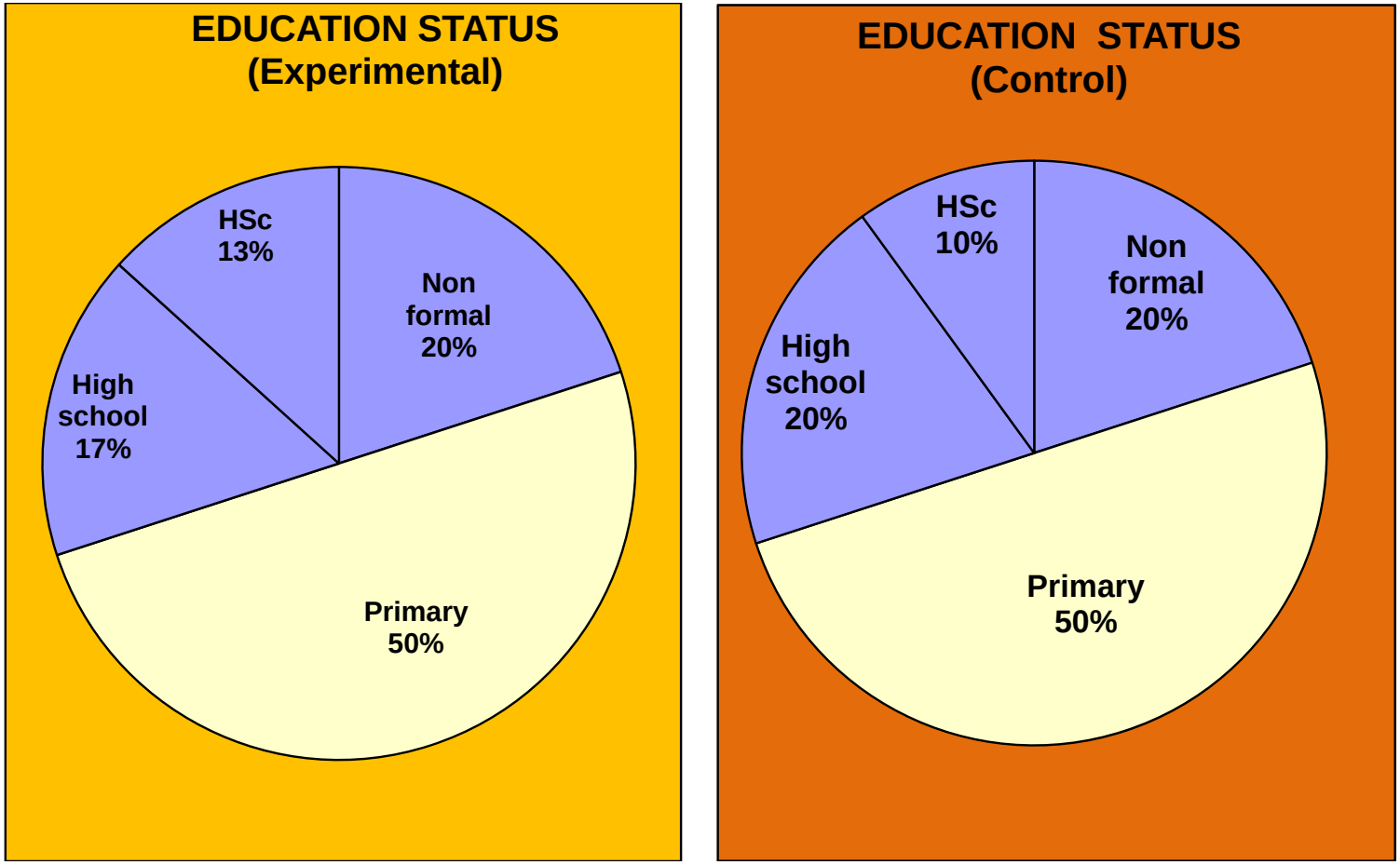
The above table showed that 11 (36.7%) of experimental group, 10 (33%) of control group, were semiskilled occupation. 15(50%) of experimental group, 12 (40%) control group were belongs to Hindu religion. 25 (83.3%) of experimental group, 22(73.3%) of control group were married. 14(46.7%) of experimental group and 15 (50%) of control group were belongs to nuclear type of family. 25 (83.3%) of experimental group, 21 (70%) of control group were not having any prior abdominal and vaginal surgery.

FIGURE – 3



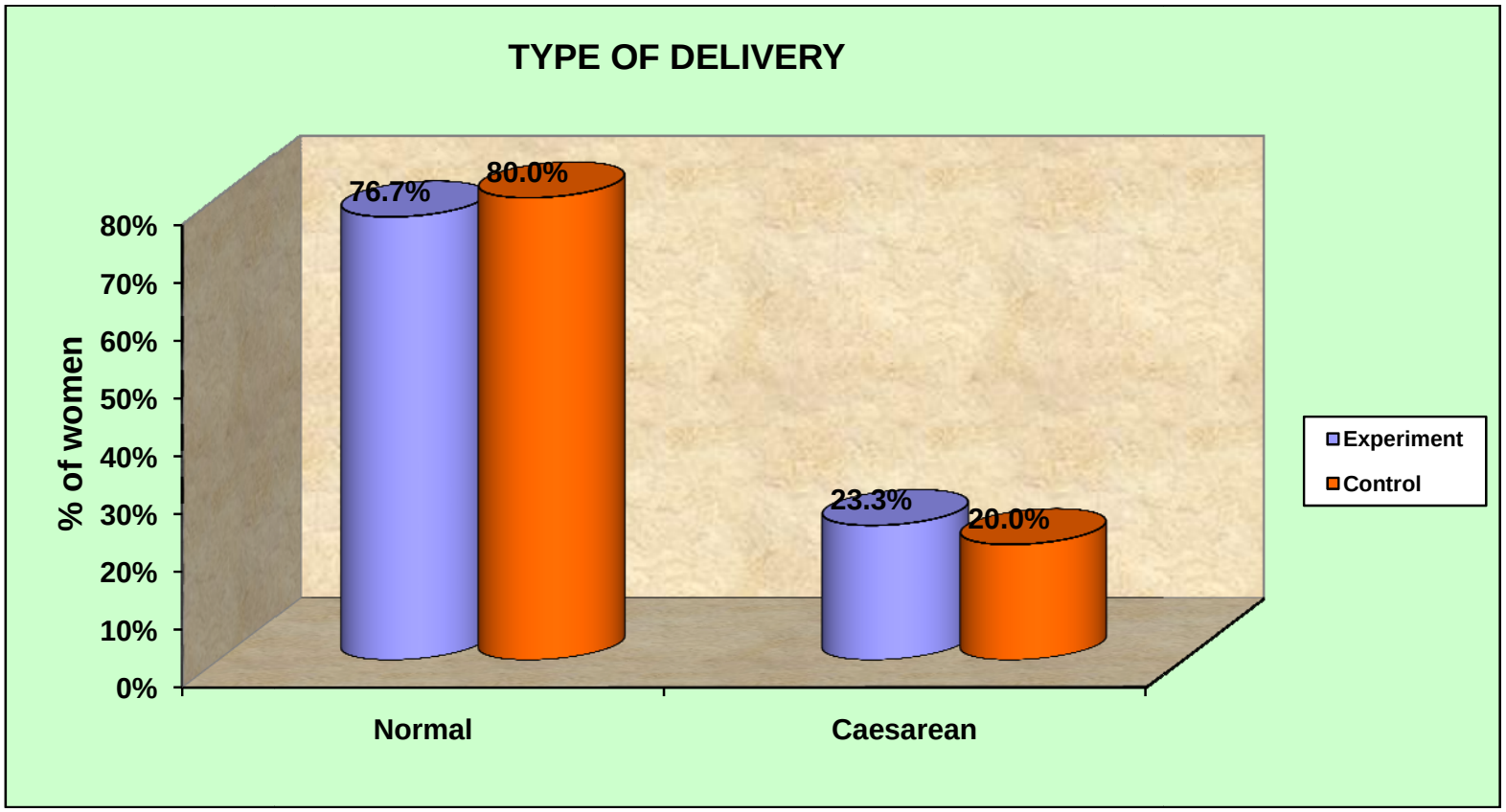
The above figure depicted that higher frequency 9 (30%) of the perimenopausal women of both experimental group and control group were between 40 – 44, 45 – 49 years.

FIGURE – 4



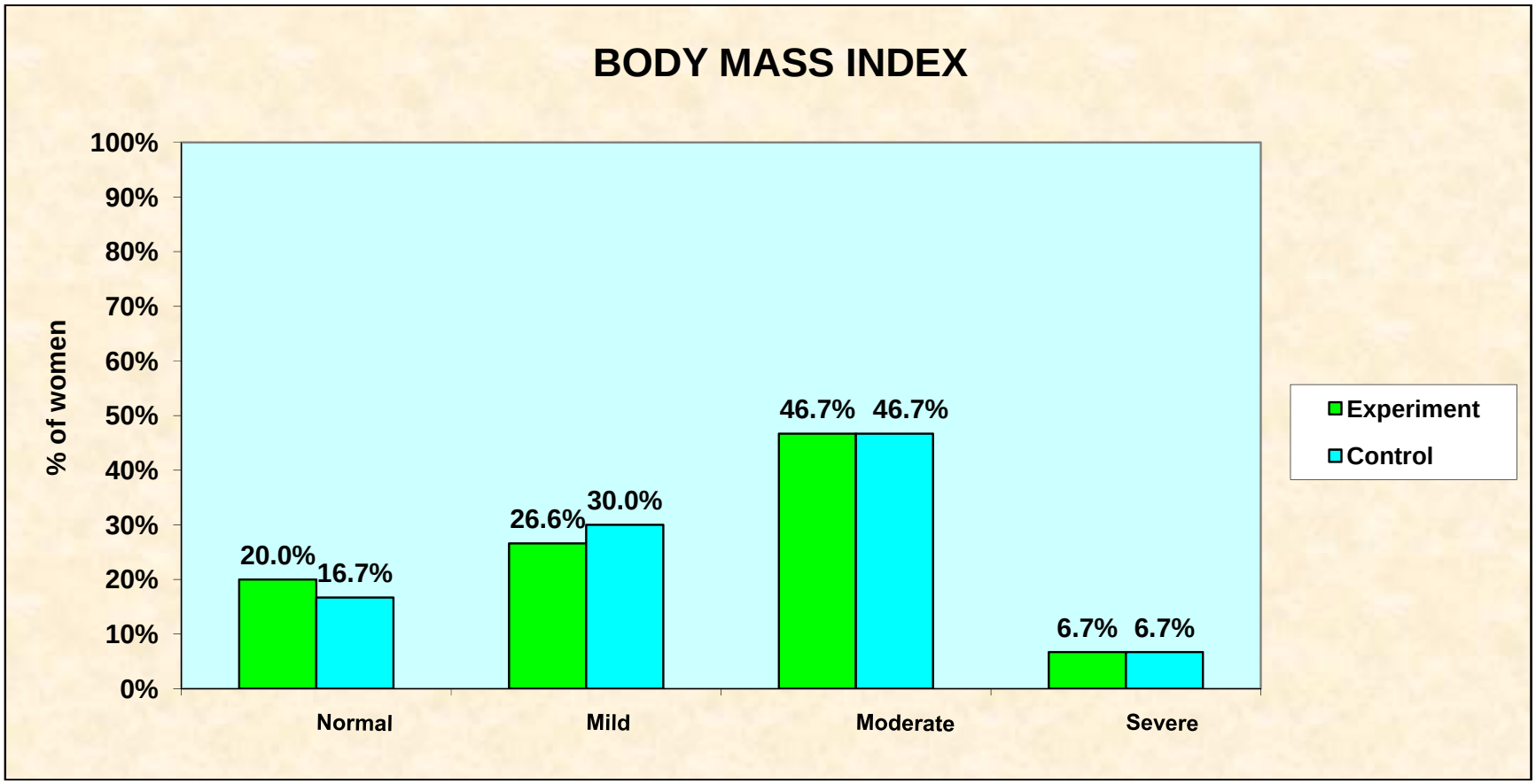
The above figure revealed that 15 (50%) of perimenopausal women of both in experimental and control group had primary level of education.

FIGURE – 5



The above figure depicted that majority 23 (76.7%) of experimental group, 25 (80%) of control group perimenopausal women had normal type of Delivery.

FIGURE – 6



The above figure depicted that higher frequency 14 (46.7%) of both in experimental group, and control group of perimenopausal women had moderate type of body mass index.

SECTION – II

TABLE – 2 PRETEST PERCENTAGE OF LOW BACK PAIN DISABILITY SCORE AMONG EXPERIMENT AND CONTROL GROUP

No. of questions		Min – Max score	Experiment group		Control group	
			Mean score	%	Mean score	%
Pain intensity	1	0 - 5	2.77	55.4%	2.60	52.0%
Personal care	1	0 -5	2.73	54.6%	2.77	55.4%
Lifting	1	0 - 5	3.00	60.0%	2.97	59.4%
Walking	1	0 - 5	2.90	58.0%	2.87	57.4%
Sitting	1	0 - 5	2.93	58.6%	2.77	55.4%
Standing	1	0 - 5	2.97	59.4%	2.80	56.0%
Sleeping	1	0 -5	2.70	54.0%	2.53	50.6%
Social life	1	0 - 5	2.83	56.6%	2.70	54.0%
Travelling	1	0 - 5	2.53	50.6%	2.70	54.0%
Employment	1	0 - 5	2.97	59.4%	2.83	56.6%
Total	**10**	**0 - 50**	**28.33**	**56.7%**	**27.53**	**55.1%**

The above table showed that, Pretest percentage on each aspects of low back pain disability score among experimental group and control group. In all aspects of low back pain disability, experimental group as well control group are having equal percentage of score.

Experimental group women are having 56.7% of score and control group women are having 55.1% of score. Difference in low back pain functional disability score among the experimental group and control group is very small percentage.

TABLE – 3

PRETEST LEVEL OF LOW BACK PAIN DISABILITY SCORE

Level of score	Experiment	Control
Moderate	**5(16.7%)**	**4(13.3%)**
Severe	**25(83.3%)**	**26(86.7%)**

The above table showed that Pretest level of low back pain disability among perimenopausal women 16.7% of the experimental group, and 13.3% of the control group women were having moderate level of low back pain disability, 83.3% of the experiment group and 86.7% of the control group were having severe level of low back pain disability.

SECTION - III

TABLE – 4 POSTTEST PERCENTAGE OF LOW BACK PAIN DISABILITY SCORE AMONG EXPERIMENT AND CONTROL GROUP

No. of questions		Min – Max score	Experiment group		Control group	
			Mean score	%	Mean score	%
Pain intensity	1	0 - 5	1.40	28.0%	2.53	50.6%
Personal care	1	0 -5	1.53	30.6%	2.63	52.6%
Lifting	1	0 - 5	1.87	37.4%	2.90	58.0%
Walking	1	0 - 5	1.90	38.0%	2.77	55.4%
Sitting	1	0 - 5	1.80	36.0%	2.43	48.6%
Standing	1	0 - 5	1.57	31.4%	2.67	53.4%
Sleeping	1	0 -5	1.80	36.0%	2.43	48.6%
Social life	1	0 - 5	1.30	26.0%	2.63	52.6%
Travelling	1	0 - 5	1.90	38.0%	2.60	52.0%
Employment	1	0 - 5	1.73	34.6%	2.73	54.6%
Total	**10**	**0 - 50**	**16.80**	**33.6%**	**26.33**	**52.7%**

The above table showed that, Post test percentage on each aspects of low back pain disability score among experimental group and control group. Experimental group women were having 33.6% of score and control group women were having 52.7% of score. Difference in low back pain disability score among the experimental group and control group was very large percentage.

TABLE-5

LEVEL OF POSTTEST LOW BACK PAIN DISABILITY SCORE

LEVEL OF SCORE	EXPERIMENT	CONTROL
Mild	5(16.7%)	-
Moderate	17(56.6%)	3(10.0%)
Severe	8(26.7%)	27(90.0%)

The above table showed that, Posttest level of low back pain among women in experimental group and control group. In posttest level of low back pain disability score in experimental group 5(16.7%) were mild. 17(56.6%) of the experiment group and 3(10.0%) of the control group were having moderate level of low back pain disability. 26.7% of the experiment group and 90.0% of the control group were having severe level of low back pain disability.

SECTION - IV

TABLE-6

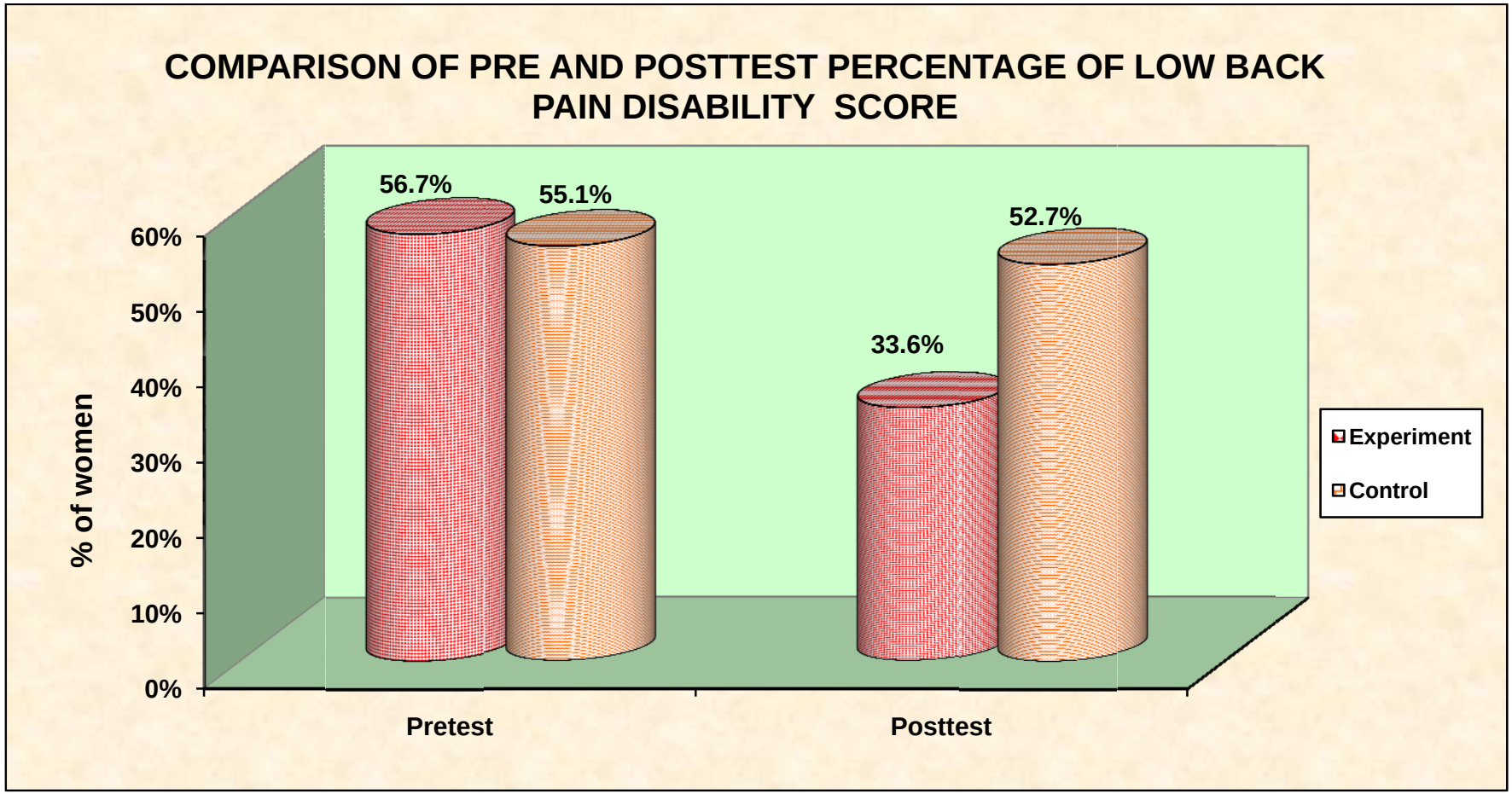
COMPARISON OF LOW BACK PAIN DISABILITY LEVEL

TEST	LEVEL OF LOW BACK PAIN	EXPERIMENT	CONTROL	Chi-Square Test
Pre test	Moderate	5(16.7%)	4(13.3%)	$\chi 2=0.13$ P=0.71 DF=1 Not significant
	Severe	25(83.3%)	26(86.7%)	
Post test	Mild	5(16.7)	-	$\chi 2=35.32$ P=0.001*** DF=2 **significant**
	Moderate	17(56.6%)	3(10.0%)	
	Severe	8(26.7%)	27(90.0%)	

** Significant at P≤0.05 ** highly significant at P≤0.01 *** very high significant at P≤0.001.*

In pretest there was no statistically significant difference between experiment and control group on level of low back pain disability. In posttest there was a statistically significant difference between experiment and control group on the level of low back pain disability.

FIGURE – 7



The above figure depicted that comparing the pretest percentage of low back pain score in experimental 56.7% and control 55.1% and posttest percentage of low back pain disability score in experimental 36.6% and control group 52.7%.

TABLE- 7

EFFECTIVENESS OF VIDEO ASISSTED TEACHING SPINAL EXERCISE AND BODY MECHANICS ON LOW BACK PAIN DISABILITY

GROUP	% of Low back pain		% of Difference
	Pretest	Posttest	
Experimental	56.7%	33.6%	↓23.1%
Control	55.1%	52.7%	↓2.4%

The above table showed that the effectiveness of the video assisted teaching of spinal exercises and body mechanics on low back pain among peri menopausal women between experimental and control group.

Considering the overall score, experimental group reduced 23.1% percent of low back pain disability and it is 2.4 % in control group. This percentage of reduction 23.1% was the net benefit of video assisted teaching of Spinal exercises and body mechanics on low back pain, which indicates the effectiveness of the study.

TABLE– 8

ASSOCIATION OF POSTTEST LEVEL OF LOW BACK PAIN DISABILITY WITH DEMOGRAPHIC VARIABLES

DEMOGRAPHIC VARIABLE		EXPERIMENTAL GROUP					Pearson $\chi 2$ test/ Yates corrected $\chi 2$ test Moderate	CONTROL GROUP					Pearson $\chi 2$ test/ Yates corrected $\chi 2$ test Moderate
		Level of Posttest				Total		Level of Posttest				Total	
		Moderate		Severe				Moderate		Severe			
		n	%	n	%			n	%	n	%		
Age	<50 yrs	16	88.8%	2	11..2%	18	**$\chi 2$=5.57P=0.02 DF=1 Significant**	2	11.1%	16	88.9%	18	$\chi 2$=0.60P=0.80 DF=1 not significant
	> 50 yrs	6	50.0%	6	50.0%	12		1	8.3%	11	91.7%	12	
Type of delivery	Normal	19	82.6%	4	17.4%	23	**$\chi 2$=4.33 P=0.03* DF=1 significant**	2	13.3%	13	86.7%	15	$\chi 2$=0.36 P=0.54 DF=1 Not significant
	Caesarean	3	42.8%	4	57.2%	7		1	6.7%	14	93.3%	15	
BMI	Normal	6	100.0 %	0	0.0%	6	**$\chi 2$=4.32 P=0.03* DF=1 Significant**	0	0.0%	5	100.0%	5	$\chi 2$=0.66P=0.41 DF=1 Not significant
	Others	16	66.7%	8	33.3%	24		3	12.0%	22	88.0%	25	

The above table showed that the association of demographic variables and the posttest level of low back pain disability among experimental group. Younger, normal delivery and normal body mass index women have reduction than others.

CHAPTER - V

DISCUSSION

Perimenopause is the transition period of menopause in which the women are at risk of low back pain disability due to degenerative process affecting the spine erector muscles. In addition, the menopausal women also experience a decrease in oestrogen level, which stimulate osteoclastic activity and initiates a reduction in bone mineral density. The aim of the present study was to assess the effectiveness of video assisted teaching of spinal exercise and body mechanics on low back pain disability among perimenopausal women at selected urban areas in Madurai.

The sample consists of 30 for experimental group from Munichalai and 30 for control group from Pudur. Simple random sampling techniques were adopted. Pre test assessment was done on the level of low back pain functional disability for experimental and control group. The perimenopausal women were made to do spinal exercise and body mechanic with video assisted teaching. Post test assessment was done on the level of low back pain disability for experimental and control group. Data analysis and interpretation were done by using frequencies, percentage, mean, standard deviation, Pearson chi-square test, Students ‘t’ test, paired and unpaired‘t’ test.

The results of the study were discussed based on the objectives and the following supportive studies.

DEMOGRAPHIC VARIABLES OF PERIMENOPAUSAL WOMEN.

The present study result, showed that in age group, the higher frequency of 9(30%) perimenopausal women both in experimental and control groups were between 40- 44, 45-49 years.

15 (50%) of perimenopausal women both in experimental and control groups had primary level of education. 11 (36.7%) of experimental group, 10 (33%) of control group, were semi-skilled occupation. 15 (50%) of experimental group, 12 (40%) control group were belongs to Hindu religion. 25 (83.3%) of experimental group, 22 (73.3%) of control group were married. Higher frequency of 23 (76.7%) of experimental group, 25 (80%) of control group perimenopausal women had normal type of delivery. 14 (46.7%) of experimental group and 15 (50%) of control group were belongs to nuclear type of family. 25 (83.3%) of experimental group, 21 (70%) of control group were not having any prior abdominal and vaginal surgery. 24 (80%) of both experimental and control group were non-vegetarian. 14 (46.7%) of both in experimental and control group of perimenopausal women had moderate type of body mass index. 24 (80%) of both experimental group and control group were not having any habits of snuffing or tobacco chewing. 18 (60%) of both experimental and control group getting the source of information about menopause through mother.

Sowers M.et.al, (2009) conducted a study to determine the characteristic of menopausal transition was associated with physical functioning in women age group of 40-59. Result showed that the early age group (perimenopausal) of women self-reported limitation in physical functioning.

Matthews KA, et.al, (2007) conducted a study to assess the body mass index in mid life women relative influence of menopausal status. The result showed the menopausal transition affects body mass index in mid-life. Interventions to increase physical activity are highly recommended.

The first objective of the study was to assess the level of Low back pain disability among perimenopausal women in experimental and control group.

In the pretest assessment of low back pain among perimenopausal women, 5 (16.7%) of the experimental group and 4 (13.3%) of the control group women were having moderate level of low back pain, 25 (83.3%) of the experimental group and 26 (86.7%) of the control group were having severe level of low back pain.

This present study supported by Sokunbi.O.et.al, (2011) conducted a study on experiences of individuals with Low back pain during and after their participation in a spinal exercise programme.

Choi.G.et.al, (2009) did a study on the effect of early isolated lumbar exercise program for experimental and control group with assessment of modified Oswestry low back pain index.

The second objective of the study was to evaluate the assess the effectiveness of video assisted teaching of spinal exercises and body mechanics on Low back pain disability among perimenopausal women in experimental and control group.

In the posttest assessment of low back pain among perimenopausal women, 22 (73.3%) of the experimental group and 3(10%) of the control group women were having moderate level of low back pain, 8(26.7%) of the experimental group and 27 (90.0%) of the control group were having severe level of low back pain.

Miltner.O.et.al, (2006) dia a metaa analysis on lumbar extensors strengthening for the patients with chronic low back pain.

Mohseni-Bandpei.M.A.et.al, (2011) conducted a study on menopausal women with chronic Low back pain. The result shows, after spinal exercise, the functional disability significantly reduced.

The third objective of the study was to compare the effectiveness of video assisted teaching spinal exercises and body mechanics on Low back pain among perimenopausal women between experimental and control group.

Comparing the percentage of pre test score on low back pain in experimental group 56.7% and control group 55.1% and post test score in experimental group 36.6% and control group 52.7%. It was analyzed by using student's independent t-test.

Comparison of level of low back pain on experimental and control group was analyzed using Pearson chi square test. In pretest, there is no statistically significant difference between experimental and control group on level of low back pain. In posttest, there is a statistically significant difference between experimental and control group on level of low back pain.

Considering the overall score, experimental group was reduced to 23.1% of low back pain and it is 2.4% in control group. This percentage of reduction 23.1% is the net benefit of body mechanics on low back pain disability, which indicates the effectiveness of the study.

This study was supported by Descarreaux.M.et.al, (2007), Kankaanpaa.M.et.al, (2006), Maria ReginaRachmawati.et.al, (2011), Mohseni-Bandpei.M.A.et.al., (2011), conducted a study on Low back pain to compare the effectiveness of spinal exercises program to reduce the pain and disability index (Oswestry) on experimental and control group. The results showed significant improvement in the experimental group.

The fourth objective of the study was to associate the effectiveness of video assisted teaching spinal exercise and body mechanics on Low back pain among perimenopausal women with their selected demographic variables.

In association of posttest level of low back pain with demographic variables in control group. There was no significant in all variables. But in experimental group, the age group of <50 years, 88.8% women were score moderately, 11.2% were severe. But, in >50 years, there is 50 of women were moderate and 50 severe functional ability.

Among type of delivery 82.6% of normal delivery women were in moderate and 17.4% in severe level of pain score. Among caesarian, 42.8% of women were in moderate and 57.2% women were severe level.

Among 100% of normal body mass index women were in moderate level of pain and in others 66.7% of women were in moderate and 33.3% of women were in severe level of pain. Considering the above findings, in experimental group, younger, normal delivery and normal body mass index women had reduction in level of low back pain than others.

Sowers.M.et.al, (2009) conducted the study to determine the characteristic of menopausal transition was associated with physical functioning in women age group of 40-55. Result showed the early age group of 40-55, (perimenopausal) 20% of women self-reported limitation in physical functioning.

This study is supported by Brown.W.J.et.al, (2008) analyzes physical symptoms experienced by mid-age Australian women in different stages of the menopause transition. The most commonly reported symptoms were headaches, low back pain, stiff joint etc., The study result shows the women who remained in mid-age perimenopausal were more likely to report low back pain.

CHAPTER –VI

SUMMARY, IMPLICATION, RECOMMENDATIONS, CONCLUSION AND LIMITATIONS

SUMMARY

The investigator undertook the study to assess the effectiveness of video assisted teaching spinal exercises and body mechanics with video assisted on low back pain functional disability among perimenopausal women in selected urban areas at Madurai.

Women's lives have changed over the centuries. Today most people are expected to live well into their 70s or 80s and some women will live almost half of their lives after their menopause. This is a normal natural event and is typically confirmed when there is no period for 12 consecutive months. This span of time commonly called change of life, climacteric and also known as Perimenopause literally around menopause.

It is estimated that 30% of perimenopausal women suffer from Osteoporosis. Osteoporosis among perimenopausal women is now recognized as global health care problem. Low back pain constitutes major musculoskeletal problems in modern society. It has been estimated 80% of the general population will have a complaint of low back pain related disability in the course of their lives.

OBJECTIVES OF THE STUDY

1. To assess the level of Low back pain disability among perimenopausal women in experimental and control group.
2. To evaluate the effectiveness of video assisted teaching of spinal exercises and body mechanics on Low back pain disability among perimenopausal women in experimental and control group.

3. To compare the effectiveness of video assisted teaching of spinal exercises and body mechanics on Low back pain disability among perimenopausal women in experimental and control group.
4. To associate the effectiveness of video assisted teaching of spinal exercises and body mechanics on Low back pain disability among perimenopausal women with their selected demographic variables.

The study was based on the assumption that

1. Perimenopausal women may experience some level of low back pain disability.
2. Exercises may have reduction on the level of low back pain disability among perimenopausal women.

The study was based on the hypothesis that

- ❖ There will be a significant difference in the level of the low back pain disability before and after spinal exercise and body mechanics.
- ❖ There will be a significant association in the level of low back pain disability with their selected demographic variables.

Review of literature was done from primary and secondary sources that formulated the basis of selection of problem, formulation of tool and conceptual frame work.

The conceptual framework adopted for this study was modified Pender's health promotion model (2006). The model helped the investigator in approaching the problem in a comprehensive and systematic manner. Review of related research and non-research literature helped the investigator in the preparation of the conceptual model, tool and methodology of the study.

The methodology used for this study was a quasi-experimental pre and post control design. A sample size of perimenopausal women 30 from Munichalai for experimental group and 30 from Pudur for control group was selected for this study based on the inclusion criteria. A simple random

sampling technique was used to collect the samples. The tool used for this study was modified Oswestry low back pain disability questionnaire. The tool was also tested for the content validity and reliability prior to the study. Subsequently, a pilot study was conducted and it was found that, the tool was feasible and practicable.

The Munichalai clients 30 were assigned in experimental group and Pudur clients 30 were assigned in control groups. It was urban areas with a distance of 4 km away from each other. The formal consent was obtained from the Medical Superintendent of the Munichalai Urban area and pudur community health centre area and the data was collected for 4 weeks from 01.09.2011 to 30.09.2011. After thorough examination by Medical Officer, the perimenopausal women with low back pain who fulfilled the inclusion criteria were selected by simple random sampling technique. The collected data were entered in a master sheet and computerized and then analyzed and interpreted in terms of the objectives using descriptive and inferential statistics.

MAJOR FINDINGS OF THE STUDY

- According to the study result, it was found that in age group, the higher frequency of 9(30%) perimenopausal women both experimental and control groups were between 40- 44, 45-49 years.
- 15 (50%) of perimenopausal women both in experimental and control groups had primary level of education.
- 11 (36.7%) of experimental group, 10(33%) of control group, were semi-skilled occupation. 15 (50%) of experimental group, 12 (40%) control group were belongs to Hindu religion.
- 25(83.3%) of experimental group, 22 (73.3%) of control group were married. Higher frequency of 23 (76.7%) of experimental group, 25 (80%) of control group perimenopausal women had normal type of delivery.
- 14 (46.7%) of experimental group and 15 (50%) of control group were belongs to nuclear type of family. 25 (83.3%) of experimental group, 21

(70%) of control group were not having any prior abdominal and vaginal surgery.24 (80%) of both experimental and control group were non-vegetarian.

- 14 (46.7%) of both in experimental and control group of perimenopausal women had moderate type of body mass index.
- 24 (80%) of both experimental group and control group were not having any habits of snuffing or tobacco chewing.
- 18 (60%) of both experimental and control group getting the source of information about menopause through mother.
- Comparing the percentage of pre test score on low back pain in experimental group 56.7% and control group 55.1% and post test score in experimental group 36.6% and control group 52.7%.
- It was analyzed by using Student's independent t-test.
- Comparison of level of low back pain on experimental and control group was analyzed using Pearson chi square test.
- In pretest, there was no statistically significant difference between experimental and control group on level of low back pain. In posttest, there was a statistically significant difference between experimental and control group on level of low back pain.
- Considering the overall findings, experimental group was reduced to 23.1% of low back pain and it was 2.4% in control group.
- This percentage of reduction 23.1% is the net benefit of body mechanics on low back pain, which indicates the effectiveness of the study.
- In association of post test level of low back pain with demographic variables in control group.
- There was no significant in all variables.
- But in experimental group, the age group of <50 years, 88.8 women were scored moderately, 11.2 were severe.
- But, in >50 years, there is 50 of women were moderate and 50 severe functional disability.

- Among type of delivery 82.6% of normal delivery women were in moderate and 17.4% in severe level of pain score.
- Among caesarian, 42.8% of women were in moderate and 57.2% women were severe level.
- Among 100 of normal body mass index women were in moderate level of pain and in others 66.7% of women were in moderate and 33.3% of women were in severe level of pain.
- Considering the above all findings, in experimental group, younger, normal delivery and normal body mass index women had reduction in level of low back pain than others.

NURSING IMPLICATION

The study has implication on nursing practice, nursing administration, nursing education and nursing research.

IMPLICATION FOR NURSING PRACTICE

We are moving from curative aspect to preventive aspect which is more client oriented. In the present era of cost quality effective quality nurses have a major role in preventing low back pain. Nurses can do early assessment of low back pain and by intervention nurses can improve the quality of life of perimenopausal women. Nurses can demonstrate the spinal exercise and body mechanic through video assisted to the perimenopausal women in the community. So that the exercise can regularly added to protocols in community and clinical area to practice. So the quality of life of perimenopausal women can be improved by preventing the physical disability in activity of daily living.

IMPLICATION OF NURSING EDUCATION

Nurse educator can encourage students with information on spinal exercise with video assisted in managing clients with low back pain.

Importance of video assisted teaching and exercises can be incorporated into the curriculum of nursing students.

NURSING ADMINISTRATION

Nursing administration shall organize continue nursing education and encourage nurses to use video assisted teaching and demonstration as a strategy to educate low back pain clients.

Nursing administrators need to supervise and monitor the practice of video assisted teaching as a health education method by nurses in community areas.

NURSING RESEARCH

Nurse researchers can disseminate this information to the students and nurses.

Findings of this study provide baseline data about the level of physical status among low back pain patients and improving using the video educative intervention, it can be a baseline for further studies to build upon.

RECOMMENDATIONS

- Similar studies can be repeated using true experimental design.
- Similar studies can be conducted for a longer group for a longer period.
- Similar study can be conducted in different settings.
- A comparative study can be done to compare the intervention of spinal exercises with other home remedies.
- Similar study can be conducted in both men and women in different age groups.

CONCLUSION

Low back pain is a major health problem among perimenopausal women in India. Since nurses have a key role in preventive, curative and rehabilitative aspects of health care. Nursing personnel should educate the women, so that the quality of life will be improved. The intervention was found to be very effective in prevention of low back pain and rehabilitative measures also among perimenopausal women.

LIMITATIONS

- The perimenopausal women were seeking for privacy which was inadequate in community set up.
- Since the study was in community set up it was not feasible to get the answers from the perimenopausal women continuously due to domestic work.
- It was difficult to the investigator to motivate the women to follow spinal exercise in morning time because of their domestic work.

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