

# EFFECTIVENESS OF BACK STRETCHING EXERCISE ON LOW BACK PAIN AMONG PERIMENOPAUSAL WOMEN

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## ABSTRACT

A pre experimental study was conducted to assess the effectiveness of back stretching exercise on low back pain among perimenopausal women in a selected industrial factory at Pathanamthitta district. The objectives of the study were to assess the pre test and post test level of low back pain among perimenopausal women, to find out the effectiveness of back stretching exercise on low back pain among perimenopausal women and to find out the association between pre test level of low back pain and selected socio demographic variables. One group pretest-posttest only design was selected for the study and purposive sampling technique was used to select 40 perimenopausal women from selected industrial factory. The conceptual framework of the study was based on Ernestine Widenbach's The Art of Living Theory (1969). Pre test was conducted on the first day using Modified Oswestry Low Back Pain Questionnaire and socio demographic proforma. Back stretching exercise was administered for a period of 28 days once daily for 20 minutes. The data were tabulated and analyzed by descriptive and inferential statistics. The mean post test score 14.82 with SD 6.57 was significantly lower than the mean pre test score 25.6 with SD 8.9 with a mean difference of 10.78. Since the calculated 't' value 14.17 which was greater than table value (2.70) with degrees of freedom 39 at 0.01 level of significance. The study also found that, there was a significant association between pre test level of low back pain with area of work and type of work ( $p < 0.05$ ). The study was concluded that back stretching exercise is effective in improving the low back pain among perimenopausal women.

**Keywords-** Effectiveness; back stretching exercise; low back pain; perimenopausal women; industrial factory.

## INTRODUCTION

A woman is like a tea bag. You can't tell how strong she is until you put her in hot water. In women's life she is going through various roles and responsibilities and she has to go through various phases throughout her whole life. At the early stage she is a daughter, sister and then change to wife, mother, grandmother etc. Through out this time her body undergoes so many changes from menarche to menopause. When she becomes mature her body will attain various types of changes, the first change in her body function related to puberty is menarche. After that she becomes adolescent, then she becomes a wife and she will become a mother. After some years her body then began to accept the another body change that is menopause.

Menopause, also known as the climacteric, is the time in most women's lives when menstrual periods stop

permanently, and they are no longer able to bear children. Menopause typically occurs between 49 and 52 years of age. Medical professionals often define menopause as having occurred when a woman has not had any vaginal bleeding for a year. It may also be defined by a decrease in hormone production by the ovaries. In those who have had surgery to remove their uterus but they still have ovaries, menopause may be viewed to have occurred at the time of the surgery or when their hormone levels fall. Following the removal of the uterus, symptoms typically occur earlier, at an average of 45 years of age.

Before menopause, a woman's menstruation typically becomes irregular, which means that periods may be longer or shorter in duration or be lighter or heavier in the amount of flow. Menopause is usually a natural change. It can occur earlier in those who smoke tobacco. Other causes include surgery that removes both ovaries or some types of chemotherapy. At the physiological level, menopause happens because of a decrease in the ovaries'

production of the hormones estrogen and progesterone. While typically not needed, a diagnosis of menopause can be confirmed by measuring hormone that is estrogen and progesterone levels in the blood or urine. Menopause is the opposite of menarche, the time when a girl's periods start. Specific treatment is not usually needed. Some symptoms, however, may be improved with treatment.<sup>1</sup>

The term "perimenopause" which literally means "around the menopause" refers to the menopause transition years a time before and after the date of the final episode of flow. According to the North American Menopause Society, this transition can last for four to eight years. The Centre for Menstrual Cycle and Ovulation Research describes it as a six- to ten-year phase ending 12 months after the last menstrual period. During perimenopause, estrogen levels average about 20–30% higher than during premenopause, often with wide fluctuations. These fluctuations cause many of the physical changes during perimenopause as well as menopause. Some of these changes are hot flashes, night sweats, difficulty sleeping, vaginal dryness or atrophy, incontinence, osteoporosis, and heart disease.

Perimenopause refers to the time during which your body makes the natural transition to menopause, marking the end of the reproductive years. Perimenopause is also called the menopausal transition. Women start perimenopause at different ages. It may notice signs of progression toward menopause, such as menstrual irregularity, sometime in 40 years. But some women notice changes as early as their mid-30 years. The level of estrogen the main female hormone in body rises and falls unevenly during perimenopause. Menstrual cycles may lengthen or shorten, and may begin having menstrual cycles in which the ovaries don't release an egg (ovulate). At that time women may also experience menopause-like symptoms.

Musculoskeletal disorders (MSDs) can arise from a sudden exertion (e.g., lifting a heavy object), or they can arise from making the same motions repeatedly repetitive strain, or from repeated exposure to force, vibration, or awkward posture. Injuries and pain in the musculoskeletal system caused by acute traumatic events like a car accident or fall are not considered musculoskeletal disorders. MSDs can affect many different parts of the body including upper and lower back, neck, shoulders and extremities (arms, legs, feet, and hands).

Back pain is one of the most important problem that seen in the perimenopausal period due to hormonal variation.

### BACKGROUND OF THE PROBLEM

Low back pain is a very common health problem amongst population and a major cause of disability that affects work performances and well-being. Low back pain can be acute, subacute or chronic. Though several risk

factors have been identified such as occupational posture, depressive moods, obesity, body height or age, the causes of the onset of low back pain remain obscure and diagnosis difficult to make.

A community based cross sectional study was conducted at Puducherry, India (2016) to find out the prevalence of low back pain and its relation to quality of life and disability among 250 women in the age between 30-65 years by using numerical pain scale and modified Oswestry low back pain disability questionnaire and the findings revealed that 60.9% women had low back pain with moderate disability.

Low back pain can affect all age groups and both genders. Most people suffer incapacitating back pain at some stages in their lives. Many people have their 1st episodes of low back pain in their late teens or early twenties and the episode frequently reoccurs throughout adult life, leading to a chronic condition, pain in the soft tissues of the back is extremely common among adults.

### NEED AND SIGNIFICANCE OF THE STUDY

Low back pain (LBP) is a common disorder involving the muscles, nerves, and bones of the back. Pain can vary from a dull constant ache to a sudden sharp feeling. Low back pain may be classified by duration as acute (pain lasting less than 6 weeks), sub-chronic (6 to 12 weeks), or chronic (more than 12 weeks). The condition may be further classified by the underlying cause as either mechanical, non-mechanical, or referred pain. The symptoms of low back pain usually improve within a few weeks from the time they start, with 40-90% of people completely better by six weeks. Low back pain is more common among people aged 40–80 years, with the overall number of individuals affected expected to increase as the population ages.

As their life expectancy increases, contemporary women live a third of their life in menopause. Chronic pain is more prevalent in women than in men, and it increases with age. According to Whelan *et al.*, even 80% of women suffer from various symptoms (including pain) in the perimenopausal period (which is usually defined as the age range of 45-55). Going from a premenopausal period to a postmenopausal one is a result of slower production of female hormones by ovaries. This process is gradual and spread over time, and a natural part of aging. Numerous symptoms associated with the perimenopausal period have been identified. Physical ones can include spine and joint pain, hot flashes, night sweats, chronic tiredness; psychological symptoms can include irritation and anxiety, mood swings, depression and sleep disorders. The perimenopausal stage of life is associated with an increased incidence of low back pain. Increased BMI ( $\geq 30$ ) is one of the factors increasing the prevalence of pain. Suggested forms of treatment include physiotherapeutic procedures such as physical exercises, massage, and manual therapy.

### STATEMENT OF THE PROBLEM

A study to assess the effectiveness of back stretching exercise on low back pain among perimenopausal women in a selected industrial factory at Pathanamthitta district.

**OBJECTIVES**

- 1.To assess the pre test and post test level of low back pain among perimenopausal women.
- 2.To find out the effectiveness of back stretching exercise on low back pain among perimenopausal women.
- 3.To find out the association between pre test level of low back pain and selected socio-demographic variables.

**ASSUMPTION**

- 1.Perimenopausal women may have increased level of low back pain.
- 2.Back stretching exercises may help to reduce the low back pain among perimenopausal women.

**HYPOTHESIS**

H<sub>01</sub>:- There will be no significant difference in mean pre test and post test levels of low back pain among perimenopausal women.

H<sub>1</sub>: There will be a significant difference in mean pre test and post test levels of low back pain among perimenopausal women.

H<sub>02</sub>:- There will be no significant association with pre test level of low back pain and selected socio-demographic variables.

H<sub>2</sub>: There will be a significant association with pre test level of low back pain and selected socio-demographic variables.

**DEMOGRAPHIC VARIABLES**

The characteristics and attributes of the study subjects are considered socio demographic variables.

In this study, the demographic variables were age, type of family, educational status, area of residence, religion, dietary pattern, type of work, monthly income, age at menarche, age at marriage, number of children, attained menopause, type of menopause, duration of menopause, main type of exercise, exercise pattern.

**Dependent variable**

Level of low back pain among perimenopausal women were the dependent variable.

**Independent variable**

Back stretching exercise

**METHODOLOGY****Research Approach**

Quantitative research approach

**Research Design**

One group pre test post test only design

**Population****Target population**

Perimenopausal women

**Accessible population**

Perimenopausal women of the age group between 40-55 years and who are working in the beverage factory at valajavattom

**Sample size -40****Sampling technique**

Non probability purposive sampling technique

**Tool / Technique**

Data collection tool or instruments used by the researcher to observe or measure the key variables in the research problem.

The data from the subjects were collected using:

**Tool 1:** Socio demographic proforma.

**Technique:** Structured interview schedule.

**Tool 2:** The Modified Oswestry Low Back Pain Questionnaire.

**Technique:** Self administered structured 6 point rating scale.

**Development/ Selection of the tool**

An instrument is a device used to measure the concept of interest in a research project. The instrument in a research should be the vehicle that would best obtain data for drawing conclusions, which were pertinent to the study.

The sources for the tool construction were:

- ◆ Review of literature from books, journals and other publications.
- ◆ Discussion with doctors and experts in the field of obstetrics and pediatrics.
- ◆ Discussion with nursing experts which includes the guide and others.

Review of the standardized tool and related tools developed by others.

**Validation of tool**

In order to infer the content validity of the tools, the prepared instruments along with the problem statement, objectives, hypothesis, operational definitions and tool 1 and tool 2 were submitted to ten experts. The experts were from the field of Obstetrics and Gynecological Nursing, Clinical Psychology, Statistician. The selection of experts was done based on their experience and clinical expertise. The experts were requested to give their opinion and suggestions regarding the adequacy, relevance and appropriateness of the items for further modifications.

**Reliability of tool**

For establishing the reliability of the instrument, Chronbachs alpha should be used for the tool 2.

The scores of the sum of the items variance should find out and then find out the variance of the each persons and the no of the items . The reliability was estimated by Chronbachs alpha method and was found to be significant,  $r = 0.72$ .

**Conceptual framework-** Ernstine Widenbach's helping heart theory.

### Inclusion Criteria

The criteria that specify the characteristics of the subjects in the population are referred to as the inclusion criteria.

Perimenopausal women who are:-

- willing to participate in the study.
- able to comprehend the instructions provided to them.
- in the age group of 40-55years.
- having low back pain score 12 and above.
- able to understand Malayalam or English.

### Exclusion criteria

The criteria that specify the characteristics that a study population does not possess are referred to as exclusion criteria.

Perimenopausal women who are:-

- unavailable at the time of data collection period.
- suffering from illness which are restricted to practice back stretch exercises.
- taking treatment for low back pain
- presently doing exercises for low back pain.
- known case of gynaecological or spinal diseases.

### Data collection process

Data collection is the precise, systematic gathering of odd data information relevant to the research purpose or objectives, questions or hypothesis of a study.

#### Step 1 :

Prior to data collection, the researcher obtained permission from the concerned authority of the selected industrial factory and informed consent was taken from the participant. The data collection period was from 1-12-2016 to 30-12-2016. Pretest was conducted on the first day by using the modified Oswestry low back pain questionnaire for assessing the low back pain of perimenopausal women who selected by non probability purposive sampling technique and socio demographic data was collected by using structured interview schedule.

#### Step 2:

Back stretching exercise given for a duration of 20 minutes for 28 days.

#### Step 3:

Post test level of low back pain was assessed on the 29<sup>th</sup> day of by using modified Oswestry low back pain questionnaire.

## DATA ANALYSIS

### Descriptive statistics

1. Frequency, percentage distribution, mean percentage and standard deviation.

### Inferential statistics

1. Paired 't', Chi square test.

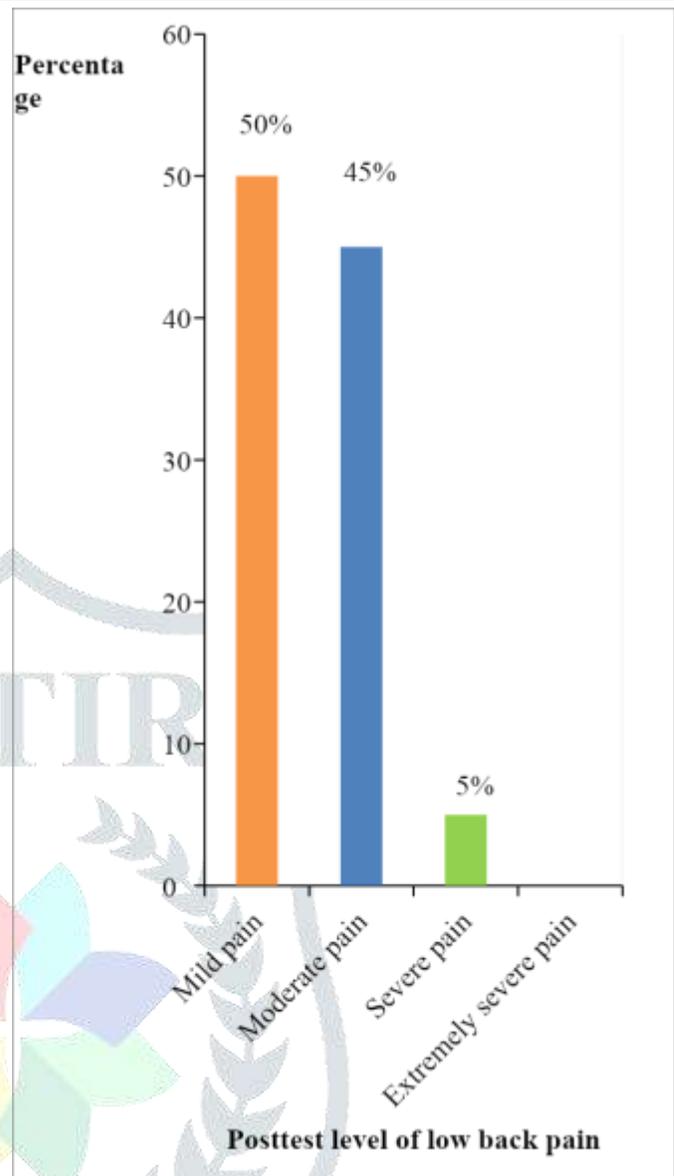
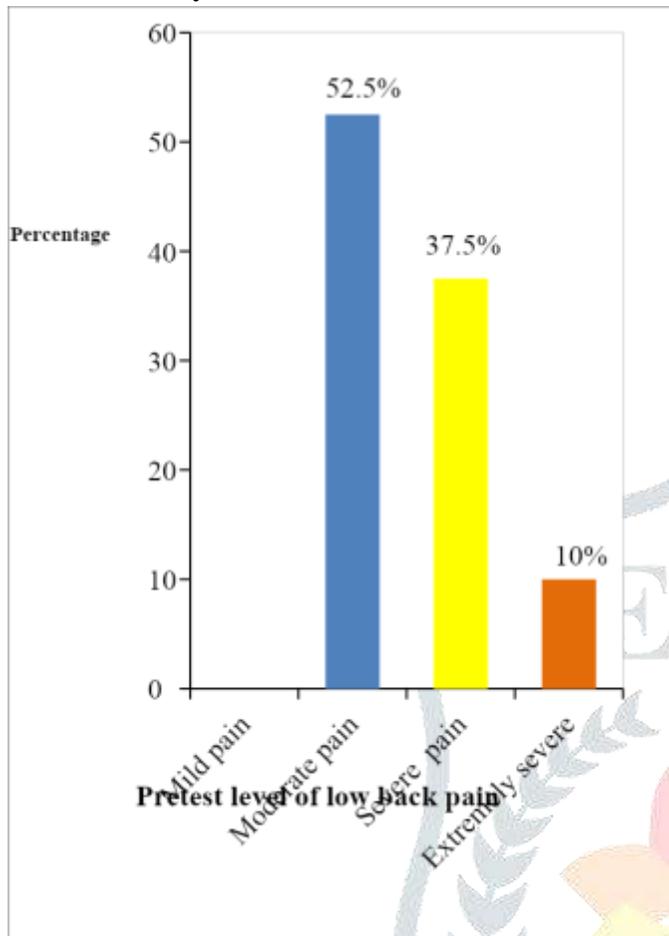
## RESULTS

The major findings of the study are presented below;

### Section I : Distribution of subjects according to their socio demographic variables.

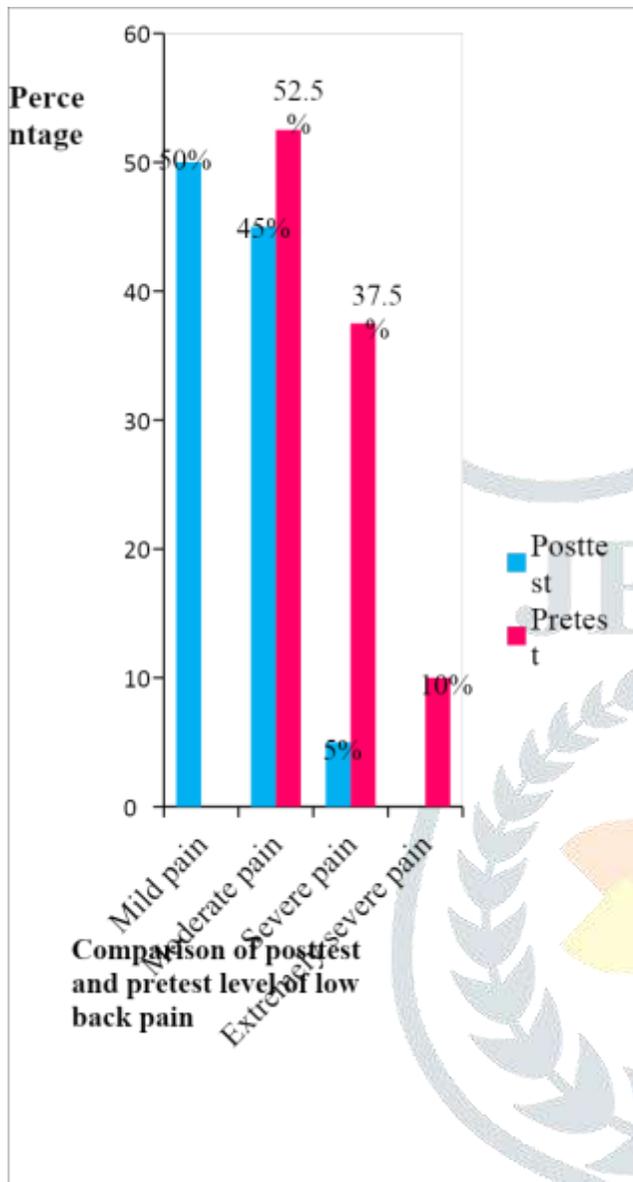
- Half of the subjects (50%) were in the age group of 45-50years.
- Less than half of the subjects (45%) were Hindu.
- A vast majority of the subjects (92.5%) belonged to nuclear family.
- Majority of the subjects (85%) were residing in Panchayath.
- Less than three fourth of the subjects (70%) were had high school education.
- A vast majority of the subjects (90%) were non vegetarian.
- Less than two third of the subjects (62.5%) were working in mixing section.
- Less than two third of the subjects (62.5%) were doing heavy work.
- Less than two third of the subjects (62.5%) were had monthly income  $\geq$  Rs. 10001
- Less than two third of the subjects (55%) had menarche at the age of 12-15 years.
- Less than two third of the subjects (65%) had marriage at the age of 20-25 years.
- Majority of the subjects (87.5%) were had 1-2 children
- All the samples (100%) were not attained menopause.
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- Majority of the subjects (85%) were had no type of exercise.
- Majority of the subjects (85%) were never doing exercises.
- More than half of the subjects (52.5%) had no major comorbidity.

**Section II: : Assessment of pretest level of low back pain among perimenopausal women in a selected industrial factory.**



**Section III: Assessment of posttest level of low back pain among perimenopausal women in a selected industrial factory.**

**Section IV: Comparison of pretest and posttest level of low back pain among perimenopausal women. (n=40)**



**Section V: Effectiveness of back stretching exercise on low back pain among perimenopausal women.**

Paired 't' test was used to assess the effectiveness of back stretching exercise after administering back stretching exercise. The mean posttest score 14.82 with SD 6.57 was significantly lower than the mean pretest score 25.6 with SD 8.9 with a mean difference of 10.78. Since the calculated 't' value 14.17 which was greater than table

value (2.70) with degrees of freedom 39 at 0.01 level of significance. So the null hypotheses ( $H_0$ ) was rejected and research hypotheses ( $H_1$ ) was accepted. Hence we can conclude that the back stretching exercise is very much useful in reducing low back pain level of perimenopausal women in the selected industrial factory.

Test	Mean	df	SD	Mean 't'	df	p-value	
Pre test	25.6		8.9	10.78	14.17	39	p < 0.01**
Post test	14.82		6.57				

Table value 2.70

\*\*Highly significant at 0.01 level

**Section VI: Association between the pre test level of low back pain and selected socio- demographic variables.**

The calculated chi-square value for type of work and area of work 12.105 was greater than the table value (9.49) with degrees of freedom 4 at 0.05 level of significance. Hence the null hypotheses  $H_{02}$  can be rejected and research hypotheses  $H_2$  can be accepted. So it can be concluded that there was a significant association with the pre test level of low back pain and type of work and there was no association with pre test level of low back pain with other socio demographic variables such as age, religion, type of family, educational status, area of residence, dietary pattern, monthly income, age at menarche, age at marriage, number of children, menstrual irregularities, duration of menstrual irregularities, attained menopause, type of menopause, duration of menopause, main type of exercise, exercise pattern and major co-morbidity.

**CONCLUSION**

The study aimed to assess the effectiveness of Back stretching exercise on low back pain among perimenopausal women in a selected industrial factory at Pathanmthitta district. This study was very much effective among perimenopausal women in the selected industrial factory. This type of studies can be conducted in other settings.

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