

## Study of Quality of Life, Body Mass Index and Mobility in Rural and Urban Post Menopausal Women

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## Abstract

**Background:** Menopause is a condition caused by the depletion of ovarian function followed by cessation of menstruation in women.

Due to the regional, cultural and level of activity variations, symptoms vary in rural and urban post menopausal women.

**Objective:** To find mobility with timed up and go test, body mass index with the formula weight in kilogram divided by height in meter square and quality of life with WHOQOL-BREF questionnaire in urban and rural post menopausal women. To compare the three parameters in rural and urban postmenopausal women and find out what parameters are affected in both the populations.

**Methodology:** 700 postmenopausal women below 60 years of age will be included in the study out of which 350 were from rural population and 350 were from urban population. After considering inclusion criteria written informed consent form will be taken. All participants will be assessed using the outcome measures. Comparison will be done of individual parameters in both the group of population. Also comparison will be done between the individual parameters in one group of population.

**Result:** Within the same group the comparison of parameters will be tested with the paired t test and Wilcoxon signed ranks test. The comparison between both the groups will be statistically significant with the unpaired t test and Mann-Whitney test.

**Conclusion:** Within the same group of population it would be seen that women with higher body mass index will have reduced mobility and lower quality of life. In urban population the mobility was reduced but the quality of life was better compared to rural population. Whereas the body mass index will be lower in rural women than in urban women.

**Key words:** Body mass index, quality of life, mobility, postmenopausal women.

## THESIS SUMMARY

### Introduction

Menopause is a condition caused by the depletion of ovarian function followed by cessation of menstruation in women. Modern medicine has significantly prolonged the life span of humans and most women spend one-third to half of their lifetime in post-menopause[1]. Information regarding experiences in menopause among different racial and ethnic groups should be given importance by healthcare personnel to provide appropriate and specific interventions[2,3]. Menopause is a degenerative transition associated with aging and

loss of fertility. Women during menopause experience not only biological changes but also social and cultural changes. These changes make them more vulnerable to physical health problems and mental health disorders. Several studies in western countries have demonstrated that menopause related symptoms may impact health[4].

Menopausal symptoms vary according to racial groups and areas of living. Vasomotor, sexual and psychological symptoms are more frequent among peri-menopausal and postmenopausal women[5-8].

During menopause, women often experience some symptoms which may affect their daily activities. Recent years, studies have shown that menopausal symptoms may affect health-related quality of life[8].

It is observed that there are dietary and nutritional variation seen in rural and urban postmenopausal women. This affects the height weight and thus the body mass index in them. Studies have shown that the body mass index is more in the urban women than the rural postmenopausal women[9].

Osteoporosis is a systemic disease in which bone density is reduced, leading to the weakening of the skeleton and increased vulnerability to fractures. It is a widespread disease in which about 75 million people are affected, mostly postmenopausal women. It is called "the silent disease" since there are very few associated symptoms; osteoporotic fractures are the chief clinical feature with an enormous burden on health-related quality of life and mortality[10].

Osteoporosis that is low bone mineral density can be caused due to the increased body mass index and low level of activities[10].

Osteoporosis can reduce mobility and might be painful, which may limit everyday activities, can lead to increasing isolation, which has a negative impact upon self-esteem, causes depression, and affects emotional state and quality of life[11-13].

The quality of life and body mass index along with the systemic illnesses affect the mobility of the individual.

The level of activity differs in rural and urban population. The rural postmenopausal women were seen to be more active than the urban postmenopausal women. This was one of the reason the body mass index was more in urban women due to their sedentary lifestyle and the nutritional habits[14].

The educational level was also one of the factors contributing to the affection of the quality of life in the rural postmenopausal women than the urban women[12].

There are more facilities and better infrastructures available for the urban population and the literacy level is also higher in urban population than rural population. Thus the quality of life is better in urban than in rural postmenopausal women[13].

Need for the study was to find out what extent the menopause affects the quality of life rural and urban population. The difference in the body mass index and thus the mobility in the rural and urban post menopausal women are necessary to be considered. These three factors and their differences will help in further designing a wholistic programme specifically for the postmenopausal group of population and thus improve their physical fitness level and their quality of life.

### Hypothesis

Within the same group of population the women who will be having higher body mass index will have reduced mobility. The quality of life will be better in urban than the rural post menopausal women. The body mass index will be lower in rural than in urban postmenopausal women due to level of activities and nutritional habits[15]. As body mass index is directly associated with the mobility, the later will be better in rural postmenopausal women.

Women between the age group of 40 to 60 years who had attained natural menopause without hysterectomy and who were not on any hormonal replacement therapy and also without any recent traumatic, musculoskeletal or neurological injury were included in the study.

Individual woman will be evaluated for the mobility and body mass index and a questionnaire will be given to them for the quality of life assessment.

For measuring mobility the timed up and go test the patient will be

performed with the following instructions. The person may wear their usual footwear and can use any assistive device they normally use. Have the person sit in the chair with their back to the chair and their arms resting on the arm rests. Ask the person to stand up from a standard chair and walk a distance of 10 ft. (3m). Have the person turn around, walk back to the chair and sit down again. Timing begins when the person starts to rise from the chair and ends when he or she returns to the chair and sits down. The person should be given 1 practice trial and then 3 actual trial. The times from the three actual trials are averaged[16]. This test is used for elderly population but has also been used for normal adults[17-18].

Height and weight of the women will be measured. The body mass index will be calculated by the formula weight in kilogram divided by height in meter square. This formula has its validity and reliability already tested. The values of individual women were graded according to the standard ranges[19,20].

Underweight: BMI is less than 18.5[21].

Healthy: BMI is between 18.5 to 24.9[21].

Overweight: BMI between 25 to 29.9[21].

Obese: BMI is 30 or higher[21].

WHOQOL is a questionnaire used for checking the quality of life which will be given to the women individually and the questions in it were explained. The questionnaire will be given according to the individual language preference[22].

### Statistical Analysis

Test of significance will be set at 0.05. The data analysis within the same group for timed up and go test and body mass index will be done by paired t test. WHOQOL-BREF questionnaire within the same group will be analysed by Wilcoxon signed rank test. For comparison in between two groups data analysis of timed up and go test and body mass index will be done by unpaired t test and for the WHOQOL BREF questionnaire will be done using Mann-Whitney test.

### Result

Within the same group the comparison of body mass index mobility and quality of life will be statistically significant with the paired t test also the comparison between both the groups will be statistically significant with the Mann-Whitney test and Wilcoxon signed ranks test.

### Discussion

Menopause is a condition there is depletion of ovarian function followed by cessation of menstruation in women. Post menopause is the phase after menopause[1].

In the same group of population the women who had normal or slightly more than normal body mass index that is from 25 to 28 had a better mobility[15]. The higher body mass index was due to the sedentary lifestyle and the dietary and nutritional habits. The low level of physical activities have a direct impact on the body mass index and thus the mobility[9].

The educational status and the facilities available in the area of living plays an important role in the quality of life of an individual[12]. The educational status is lower in the rural as compared to the urban postmenopausal women[12]. This could be due to the cultural variation, taboos, facilities available and the infrastructural development[12]. There were better facilities available in the urban area as compared to rural areas. Because of this the quality of life rated on the WHOQOL-BREF questionnaire was observed to be

better in the urban than in rural postmenopausal women.

The post menopausal women in the rural area have higher level of physical activity compared to the urban women. Along with the sedentary life style the nutritional and dietary habits were a contributing factor to the more than normal body mass index. Thus the body mass index was moreover in the normal range in the rural. Whereas the urban post menopausal women had low level of activity as compared to their dietary intake and thus the height weight and body mass index was in the higher range. The body mass index was measured with the standard formula weight in kilogram divided by height in meters square<sup>[9]</sup>.

Due to the higher requirements of physical activities and the moreover normal body mass index the mobility which will be measured with the timed up and go test will be better in the rural post menopausal women<sup>[10]</sup>. Higher body mass index is also associated with lower bone mass density causing osteoporosis. Low bone mass density thus results in reduced mobility. As the body mass index will be higher than the normal range in urban post menopausal women the mobility will be seen to be lesser in them according to the timed up and go test<sup>[10]</sup>.

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