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Awareness of Musculoskeletal Changes in Postmenopausal Women in Rural Areas

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Abstract

Aim: This study aims to study the awareness of musculoskeletal changes in postmenopausal women in rural areas. Postmenopausal women experience many changes due to menopause and musculoskeletal changes are highly prevalent which adversely affects the health of women. **Objectives:** The objective was to determine the awareness of musculoskeletal changes among the postmenopausal women in rural areas, and to determine the awareness about adverse effects of these musculoskeletal changes. **Methods:** This was an observational study with 94 participants aged above 50 years. This study was done by using a standardized validated questionnaire. **Results:** Out of 94 participants in this study 8.51% of women were completely aware of menopause effects on the musculoskeletal system, 27.66% of women had good knowledge whereas 63.83% were unaware. **Conclusion:** According to the study awareness of musculoskeletal changes due to menopause in women in rural areas is poor. Few women were completely aware of musculoskeletal changes due to menopause whereas most women were unaware.

Keywords: Awareness, Joint, Musculoskeletal, Oestrogen, Osteoarthritis, Postmenopausal, Rural

1. Introduction

Menopause is defined as the permanent stopping of menses for 12 months. Reduced ovarian function is the cause of this permanent stopping of menstruation. In the world, the majority of women go through menopause between the ages of 49 and 52. Menopause has numerous detrimental effects on women's health. During menopause, women experience several physiological and psychological changes.

Hormonal changes during the transition into menopause, chiefly a decrease in estrogen levels, are characteristic. The hormone estrogen, which has many different uses, is essential for preserving joint health, muscle mass, and bone density. Women who enter menopause may experience faster bone loss, muscle atrophy, and a greater vulnerability to joint-related problems because of the decrease in estrogen levels. These musculoskeletal abnormalities not only compromise the structural integrity of bones and muscles but also raise the risk of fractures and decreased mobility in postmenopausal women[1].

Vasomotor symptoms like hot flashes, vulvovaginal atrophy, sleeping disturbances, genitourinary symptoms like incontinence, vaginal dryness, also sleep problems, mood changes, and weight gain. Many women also experience emotional changes like irritability, depression, and mood swings. Musculoskeletal symptoms like joint pain, muscle aches, reduced muscle mass, muscular weakness, and reduced physical strength[2].

The musculoskeletal system consists of muscles, joints, tendons, ligaments, articular cartilage and bones. Ageing causes various changes in the musculoskeletal system. These are degenerative changes which can

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lead to musculoskeletal pain and weakness. It may also lead to conditions like osteoporosis, sarcopenia, and osteoarthritis. These changes are common in both women and men, however, the symptoms are more common and severe in postmenopausal women[3].

Musculoskeletal pain and changes have a high prevalence in women and postmenopausal women are more prone to experience these symptoms than premenopausal women[4]. This is the result of the decline in the production of ovarian hormone oestrogen. Oestrogen indirectly and directly affects the musculoskeletal system. Women experience drastic hormonal changes due to ovarian ageing. Menopause has many negative effects on the health of women. During menopause, women experience several physiological and psychological changes[3].

Oestrogen has a positive impact on the musculoskeletal health of women and, the integrity of the musculoskeletal system, it also helps in maintaining joints and articular structures. It also affects capsules, ligaments and muscles. Since oestrogen plays such an important role in maintaining the musculoskeletal system, a decrease of this hormone has some negative effects on health, it may lead to impaired muscle function, a rise in body fat leading to an increase in body mass index, metabolic rate is reduced, cartilage wear and tear, reduced muscle strength and muscle mass[4]. Oestrogen supports healthy bones by preventing bone resorption. It suppresses osteoclasts and increases the activity of osteoblasts. Osteoblasts are in charge of creating new bone, and the osteoclasts are in charge of breaking down existing bone. Osteoporosis is brought on by low estrogen, which occurs during menopause and increases bone turnover and accelerated bone loss[5]. Oestrogen promotes protein synthesis and inhibits protein degradation in skeletal muscle; therefore menopause causes degeneration in muscle. Menopause causes muscle weakness and increases the risk of muscle wasting. It helps maintain the integrity of articular cartilage, the smooth tissue covering the ends of bones in joints. Postmenopausal women therefore have a higher chance of developing osteoarthritis and experiencing joint pain and stiffness.

Osteoporosis, sarcopenia, and osteoarthritis are caused by these alterations. The skeletal disorder known as osteoporosis is also called low bone mass, bone tissue deterioration that increases bone fragility, and a higher risk of fracture. It is a progressive disorder where bone strength is compromised and so it predisposes individuals to fracture from even trivial trauma. As we've seen, that low estrogen can cause faster bone loss and increased bone resorption. To sustain muscle protein synthesis, muscle function, and muscle repair, oestrogen is essential. Sarcopenia is a progressive skeletal muscle disease that results in the normal ageing-related loss of muscle mass and function. Muscle strength loss during menopause is linked to serious consequences for women's general health and also functional abilities[3]. Understanding the underlying mechanisms and implementing appropriate interventions, such as hormone replacement therapy, resistance training, and nutritional strategies, can help mitigate the negative effects of menopause on muscle strength.

Musculoskeletal changes thus lead to a high risk of fractures and other musculoskeletal disorders. The majority of women in rural areas are not usually aware of these changes. This is because of a lack of education and knowledge. These musculoskeletal changes are mistaken as changes due to ageing but menopause adds to ageing to progress these changes even faster.

Efficacious awareness campaigns ought to be customized to meet the unique requirements of rural postmenopausal women. A successful engagement requires cultural sensitivity and an understanding of community dynamics. Including local influencers, customs, and beliefs in awareness campaigns can increase their impact and relevance. Women can prioritize their musculoskeletal health by working with community leaders and taking advantage of existing social structures to develop a supportive environment[6].

Due to their poor healthcare infrastructure, remote location, and scarcity of medical professionals, rural areas frequently struggle with healthcare access disparities. These barriers may make it more challenging for postmenopausal women to receive the care and information they require for conditions related to their musculoskeletal system.

The rural area lacks basic health education due to a lack of learning resources. Comprehensive health education is frequently unavailable in rural areas. It can also be difficult to get healthcare services in rural places. Menopause awareness can enlighten about accessible healthcare options and emphasize the value of routine health check-ups[7].

Menopause symptoms, like anxiety and mood fluctuations, can have a major negative influence on mental health. Raising awareness might lessen stigma

and encourage women in remote regions to seek care by helping them comprehend these developments[8].

The clinics, and specialists in comparison to urban areas. The limited access makes it difficult for women in rural areas to get information and guidance about menopause. They also have a lack of education therefore they are exposed to less information about menopause. Cultural norms and traditions may also prevent women from openly discussing menopause.

2. Materials and Methods

The study was an observational type of study with 94 participants. Ethical clearance was taken from the institutional ethical committee in the area where this study was conducted**.** Based on the inclusion and exclusion criteria sample population was selected. The procedure of the study was described to the participants and informed consent was taken by the participants. Then a questionnaire was given to participants. Subjects were given instructions to fill out the questionnaire. After that, responses were collected. After analyzing the responses, statistical data was analyzed. Results and conclusions were determined. This procedure was done according to the given time of study which is 6 months.

3. Inclusion and Exclusion Criteria

The population that was included was women with age above 50 years, women from rural areas and postmenopausal women who participated in this study whereas the population that was excluded was women who were not willing to participate did not participate in the study.

4. Results

4.1 Age Distribution

As per the Chart 1 data, 47% of the female population belonged to the 50-52 age group, 26% 53-55 age group, 19% 56-58 age group, and 8% 59-60 age group (Figure 1).

4.2 Occupation

According to Chart 2, the count of occupation and percentage of occupation were 77% housewives, 12% working women, 6% teachers, 2% bank workers, and 1% social workers (Figure 2).

4.3 Awareness of Menopause

The questionnaire was given to the patient and the following responses were recorded and the percentages are shown in Table 1.

The following responses are for if women are aware that these musculoskeletal changes are due to menopause (Table 2).

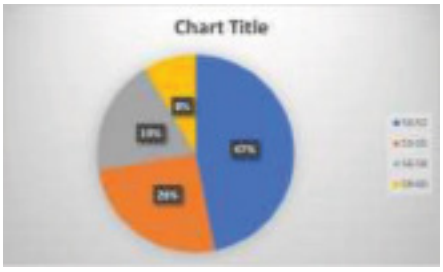

Figure 1. Age Distribution

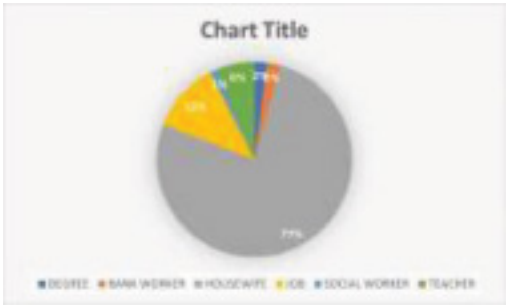

Figure 2. Occupation Distribution

Table 1. Awareness about menopause

Questions	Yes%	No %
1) Are you aware of the term menopause?	39%	61%
2) Are you aware that the stoppage of periods for more than 12 months is called menopause?	37%	63%
3) Are you aware that menopause causes hormonal imbalance?	40%	60%
4)Are you aware that hormonal imbalance affects your bone density?	28%	72%

5. Interpretation

According to the responses following were the results-8.51% of women were completely aware of menopause's effects on the musculoskeletal system, 27.66% of women had good knowledge whereas 63.83% were unaware (Table 3 and Figure 3).

6. Discussion

With advancing age, women undergo many changes which include all systems of the body. Musculoskeletal changes are highly prevalent. Advancing age is not the only factor but menstrual health also affects musculoskeletal health. Menopause affects the overall health of women, where the musculoskeletal system is significantly affected. These changes are the result of hormonal imbalances. Menopause leads to an imbalance of estrogen hormone.

A hormone with many different roles, estrogen is important for maintaining joint health, muscle mass, and bone density. The decrease in estrogen levels that occurs when women enter menopause can cause faster bone loss, muscle atrophy, and a greater risk of joint-related problems. These musculoskeletal alterations affect the structural integrity of bones and muscles as well as increase the chances of fractures and reduced mobility in women who are postmenopausal[1].

Vasomotor symptoms like hot flashes in particular, vulvovaginal atrophy, sleep disorders, and genitourinary symptoms like dry vagina, incontinence, mood swings, and weight gain. Emotional changes that include mood swings, depression, and irritability are also common in women. Muscle aches, joint pain, reduced muscle mass, muscle weakness, and decreased physical strength are examples of musculoskeletal symptoms[2].

Muscles, joints, ligaments, tendons, articular cartilage and bones make up the musculoskeletal system. The musculoskeletal system changes due to ageing in many ways. These are degenerative alterations that may cause pain and weakness in the musculoskeletal system. Additionally, it may result in diseases like osteoarthritis, sarcopenia, and osteoporosis. Although both men and also women experience these changes, postmenopausal women experience more frequent and severe symptoms.

Estrogen benefits musculoskeletal health in various ways. Oestrogen has a positive impact on the musculoskeletal health of women and, the integrity of the musculoskeletal system, it also helps in maintaining joints and articular structures. It also affects capsules, ligaments and muscles. Since oestrogen plays such an important role in maintaining the musculoskeletal system, a decrease of this hormone has some negative effects on health, it may lead to impaired muscle function, a rise in body fat leading to an increase in body mass index, metabolic rate is reduced, cartilage wear and tear, reduced muscle strength and muscle mass[3]. Most of the time, women are unaware of these changes and that menopause is the cause of them. Lack of access to healthcare and education in rural areas can result in ignorance and misinformation.

This study was done to determine the awareness about musculoskeletal changes in women who are

Table 2. Awareness about musculoskeletal changes

Awareness About	Yes%	No%
1) Menopause can lead to joint pain (knee pain, backache).	37%	63%
2) Menopause can lead to decreased physical and muscle strength.	39%	61%
3) Menopause can lead to a reduction of muscle mass.	17%	83%
4) Menopause can lead to early fatigue while doing regular chores.	38%	62%
5) Menopause can lead to severe conditions like osteoarthritis.	17%	83%

Table 3. Interpretation

Score Ranges		
7-9 (Excellent)	8	8.51%
4-6 (Good)	26	27.66%
0-3 (Poor)	60	63.83%

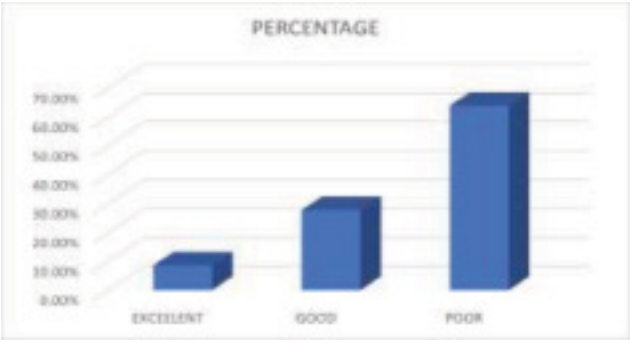

Figure 3. Interpretation

postmenopausal in rural areas and it was concluded that 8.51% of women were completely aware of menopause effects on the musculoskeletal system, 27.66% of women had good knowledge whereas 63.83% were unaware. There were only a few women were completely aware of musculoskeletal changes due to menopause whereas most women were unaware.

Many factors cause a lack of awareness among the rural population. These factors are lack of basic education, lack of resources and cultural norms[6]. In rural areas, women are not allowed to or are not given a chance to get an education. This causes an overall lack of knowledge among women. Rural populations even have a smaller number of schools, and institutions which causes a lack of resources as well. It is a taboo to discuss women's health, and menstrual health in many rural areas. These significant issues are not talked about enough because of numerous cultural and traditional norms and regulations.

Due to a lack of education and resources women are unaware of menopause and its effects on systems. Lack of knowledge increases the risk of severe symptoms as they are unable to prevent it. With proper awareness and knowledge, these symptoms can be prevented.

The lack of medical professionals, remote locations, and inadequate healthcare infrastructure in rural areas often lead to disparities in healthcare access. Postmenopausal women find it more challenging to access the information and care they require for musculoskeletal health issues as a result of these obstacles. Musculoskeletal issues may go undiagnosed in rural areas due to a lack of healthcare resources, which would increase morbidity[7].

7. Conclusion

It was found that women from rural areas were not aware of the effects of menopause on the musculoskeletal system.

According to the data collected, it is seen that 67.2% of the women population experienced musculoskeletal symptoms, while 32.8% did not experience musculoskeletal symptoms.

8.51% of women have excellent awareness about menopause's effects on the musculoskeletal system, 27.66% of women have good knowledge whereas 63.83% have poor knowledge

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