

A COMMUNITY BASED CROSS-SECTIONAL STUDY TO ASSESS THE
HEALTH STATUS AND SYMPTOMS OF POSTMENOPAUSAL

By

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A Community Based Cross-Sectional Study to Assess the Health Status and Symptoms of Postmenopausal Women in Rural and Urban Field Practice Areas.

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LIST OF ABBREVIATIONS USED

WHO	World Health Organization
ANM	Auxiliary Nurse Mid-Wife
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
BMI	Body Mass Index
QOL	Quality Of Life
SPSS	Statistical Package for Social Science
MENQOL	Menopause-Specific Quality of Life Questionnaire
SD	Standard Deviation
MDSM	Mean Duration Since Menopause
LSCS	Lower Segment Caesarean Section

ABSTRACT

Introduction: Menopause is an inevitable reproductive phase during midlife when various physical and mental changes may impair the quality of life. The World Health Organization states menopause can only be confirmed after 12 months of amenorrhea. Age at which menopause occurs is genetically predetermined. Menopause often occurs between the ages of 50 and 55. Age at last pregnancy or age at menarche have no bearing on menopause age. Additionally, it is unrelated to the number of pregnancies, breastfeeding, oral pill use, socioeconomic status, race, height, or weight. Menopause can have a various of symptoms related to estrogen deficiency like vaginal dryness, hot flushes, mood swings like irritability etc. Menopause is a significant risk factor for developing chronic disease later in life. The purpose of the study is to assess the health status of postmenopausal women and their symptoms in order to make these women aware of symptoms, reduction of discomfort and enable them to seek appropriate medical care.

Objectives:

- 1.** To evaluate and compare the post-menopausal symptoms of women in rural and urban field practice area.

- 2.** To assess the present health status and other co-morbid conditions of post-menopausal women.

Materials and Methods: A cross sectional study was conducted in the rural and urban field practice areas of a tertiary care hospital. A complete enumeration of all the houses under the RHTC and UHTC area was done to list all the eligible participants residing in the area. After obtaining ethical clearance from the Institutional Ethical Committee the study was undertaken. Participants were interviewed using pretested and semi-structured questionnaire. Information regarding Socio-demographic profile, Menopausal symptoms, Present health status and any Co-morbid conditions were collected. General physical examination, the systemic examination was done, and an anthropometric measurement like Height, Weight, BMI, using standard operating procedures were measured.

Vitals include: Pulse rate, Blood pressure, and Respiratory rate was recorded.

Investigations:

Random blood sugar by glucometer (Brand- Gluco one)

Haemoglobin by automated haemoglobin meter (Brand-Mission one)

Results: A total of 528 participants were included in the study, including 264 from rural area and 264 from urban area. Majority of the study population falls between the age group ranging between 51 and 55 years both in rural and urban area. Majority of them belong to upper middle-class family (40%). Postmenopausal women in the rural area show symptoms like hot flushes

(30%), night sweat (33%), aching in muscles and joints (34%), feeling of lack of energy (35%), ache in the back of head and neck (37%), weight gain (36%), low back ache (35%), avoiding intimacy (34%), being impatient with others (37%), feeling anxious or nervous (34%). Postmenopausal women from the urban area shows symptoms like night sweats (33%), hot flushes (40%), aches in back of neck or head (34%), decrease in stamina (34%), weight gain (35%), low backache (40%), frequent urination (33%), change in sexual desire (32%), avoiding intimacy (34%), and being impatient with others (32%).

Conclusion: The present study concludes that menopausal health demands priority in Indian scenario both in urban and rural areas due to increase in life expectancy and growing population of menopausal women. Large efforts are required to educate and make these women aware of menopausal symptoms.

Key words: *Urban, Rural, Menopausal, Vasomotor, Psychological, Physical, Sexual.*

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INTRODUCTION

Menopause is hard. It's like going through a rebirth

- Amenda Thebe

Menopause is an inevitable reproductive phase during midlife when various physical and mental changes may impair the quality of life.^[1]

The World Health Organization states menopause can only be confirmed after 12 months of amenorrhea. Around 25 million women globally achieved menopause in 1990; by the late 2020s, this figure is anticipated to quadruple.^[2]

Menopause can have a number of symptoms, including hot flashes, mood swings, and irritability, are linked to low estrogen levels. Early mortality from later chronic diseases is greatly increased by menopause. The quality of life for postmenopausal women could be negatively impacted by these symptoms. Women may have a wide range of symptoms and problems during the menopausal transition due to the significant shift in hormone levels. The impact of this variation differs from woman to woman. Some of the main and frequent symptoms women can experience during the menopausal transition include changes in periods, hot flashes and night sweats, problems with the vagina and bladder, changes in sexual desire, sleep concerns, mood changes/swings, changes in the body, and others. The risk of heart disease increasing with age due to age-related increases in weight, blood pressure, and cholesterol levels, as

well as the loss of bone tissue that results in osteoporosis, are other serious medical conditions that are brought on by menopause. Some women have serious symptoms that have a big influence on their social and personal lives. A woman during the menopause period experiences certain physical and psychological changes and faces various problems such as urogenital, psychological, social, cardiovascular, neurological problems etc. Management of these symptoms can greatly improve the quality of life of postmenopausal women. [3-6]

Every woman going through this era of her life does not necessarily have a bad experience with menopause. Some menopausal women experience no side effects. On the other hand, about 25% of women with substantial symptoms need long-term, ongoing treatment.^[7] There are also approximately 60% of women in menopause visit their local physician because of the severity of their symptoms.^[8] By 2015; over 130 million Indian women are anticipated to be menopausal.^[9]

Life expectancy has generally increased with the development of modern medicine; therefore, while having an estrogen shortage, most women are expected to live for at least two decades beyond menopause.^[10] These women may suffer certain menopausal symptoms that are severe enough to interfere with daily life. [11,12,13,14]

The age at which menopause occurs is genetically predetermined. The age of menopause ranges between 45-55years, the average being 50 years. Age at last pregnancy or age at menarche has no bearing on menopause age. Additionally, it is unrelated to the frequency of pregnancies, breastfeeding, oral pill use, socioeconomic status, race, height, or weight. [15,16,17,18]

Women's health has long been a global concern. From conception through death, women's health is given priority. Women go through bodily changes when they transition from the reproductive years to menopause and beyond. These changes may be expected due to the menopause's altering hormone levels, the physical impacts of ageing, or illnesses that developed throughout middle age. In most countries, there is an increase in the aging population as a result of both longer life expectancy and declining fertility rates. In 2006, there were more than 65 million Indian women who were above 45, according to the Indian Menopause Society. Menopausal health is therefore significantly more important in the Indian context. [19,20,21 ,22]

There is currently no health program in India that addresses the unique medical requirements of postmenopausal women. Furthermore, the National Rural Health Mission and Reproductive and Child Health-II programs primarily target women still in the reproductive age range, excluding those beyond the reproductive stage. [23,24,25,26] This will result in 1.2 billion postmenopausal women worldwide by 2030.[3] From the available Indian data, it is hypothesized

that the early age of menopause predisposes women to chronic health disorders a decade earlier. There will be 1.1 billion postmenopausal women in the world by 2025, according to predictions. In the year 1981 WHO scientific group defined menopause as "Permanent cessation of menstruation resulting from loss of ovarian follicular activity". Post-menopause was defined as the time following a year of amenorrhea that occurred on its own.^[27]

Over a million women have difficulty adjusting and changing their lives to deal effectively and efficiently with the changes in professions brought on by menopause. The community-based issues that are essential in addressing these people.^[28]

The aim of this study is to assess the health status of post-menopausal women and their symptoms to educate and make these women aware of symptoms, reduction of discomfort and enable them to seek appropriate medical care.

OBJECTIVES:

1. To evaluate and compare the post -menopausal symptoms of women in rural and urban field practice area.

2. To assess the present health status and other co-morbid conditions of post-menopausal women.

REVIEW OF LITERATURE:

According to WHO, twelve months of amenorrhea in women are defined as menopause. In the year 1990, there were more than 25 million women in the world who had achieved menopause; by 2020, that number would have doubled. Given the rising number of menopausal women in India, menopausal health is a top concern.^[1] Finding out what is already known about menopause was the goal of the literature review; its contributing factors internationally, and identifying potential local correlations of symptoms connected to menopause were the goals of the literature review.

A study by Nidhi Patak *et al.*, in urban Belgavi, Karnataka. A community-based cross-sectional study was conducted among 345 postmenopausal women aged 40-60years residing in the field practice area of an urban health center, Ashok Nagar, Belgavi. In this study as per the Menopause-Specific Quality of Life (MENQOL) Questionnaire, the most common menopausal symptoms were of the physical domain -feeling tired or worn out (75.7%), aching in muscles and joints (72.7%), and low backache (64.1%) followed by psychosocial domain-felling depressed (63.9%) to a vasomotor domain -sweating (63.5%). The least common symptoms were increased facial hair (22.5%), dry skin (34.2%), decrease in sexual desire (36.2%) to changes in appearance, texture, or tone of skin (38.6%). This study proves that awareness about menopause-related

problems among the general public, family members, and middle-aged women population should be undertaken.^[29]

Another study conducted by Thilagavathy Ganapathy *et al.*, brings out about the health-related quality of life among menopausal women. The prevalence of symptoms in physical, vasomotor, psychological, and sexual domains was 74.56%, 60.7%, 44.68% and 26.4% respectively. An overall mean MENQOL score of Physical (27.1±0.72), psychosocial (2.01±0.27), vasomotor (4.08±0.79), and sexual domain (3.89±0.59). It shows health-related quality of life among menopausal women showed poor QOL.^[30]

According to Sagdeo and Arora's study of rural and urban women, joint and muscle complaints (60.4%) were the most prevalent issue, followed by night sweats and hot flushes (36.7%). The current study found that feeling anxious and nervous (94 %) and feeling fatigued and having less energy were the symptoms that were most frequently mentioned (93%). Vasomotor symptoms were averagely experienced; 60% of them reported hot flushes and 47% reported sweating.^[31] Similar to this current study, Madhu kumar *et al.*, in rural Bangalore and Nayak *et al.*, in coastal Karnataka, India found that physical and psychosocial symptoms were reported more frequently than vasomotor and sexual symptoms (56.92% of the menopausal women felt strongly that menopause had negatively affected them).^[32,33]

A cross-sectional, community-based study was conducted in the field practice area of the Department of Community Medicine's Urban Health Training Center at the M V J Medical College and Research Hospital. The study's participants were 189 postmenopausal women. 49.7 years was the average age at menopause. 56.92% of menopausal women firmly believed that the menopause had a negative impact on them. The most typical menopausal symptoms included aching muscles and joints, fatigue, impaired memory, lower back pain, and trouble sleeping. When compared to the physical and psychological domains, complaints about the vasomotor and sexual domains were less common. [34]

A cross-sectional study was done on 156 women between the ages of 40 and 55 years who were purposefully chosen from four different places in Pune. 45.8 years was the average age at menopause. Nearly four symptoms were mentioned by each respondent. The most often reported symptoms were urogenital (n=68), psychological (n=154), and vasomotor (n=78). Menopause symptoms have been found to significantly correlate with nuclear family structure and income levels. Only 43% of patients used contemporary medicine, while 30% did not receive any care. The programs must carefully consider the health requirements of women who are transitioning into menopause and include certain elements. [35]

A study was done by Donald Christian *et al*, comes out with socio-demographic characteristics of postmenopausal women of rural areas of Vadodara district Gujarat. Labor work 25.2% was the most common occupation. Among all the respondents 98.5% belonged to social class IV or below, 18.4% were widows, and 40% were below the poverty line. 74.8% were not literate and 42.9% were dependent on their children for daily living. Post-menopausal rural women in India face numerous socioeconomic disadvantages that may leave them more susceptible to more severe and persistent menopausal symptoms. This unique group of women requires both geriatric care and a distinct focus on health care delivery. It shows that postmenopausal women in rural India suffer a more severe form of menopausal symptoms.^[36]

A study was conducted to look at how menopausal features differed between rural and urban women and how these differences may be anticipated from different socio-demographic factors connected to the residential status. 180 postmenopausal women from the Bengali-speaking Hindu ethnic group of eastern India were interviewed. Data about socio-demographic factors, reproductive history, and menopausal symptoms were gathered from 110 rural areas and 70 urban areas postmenopausal women. Significant predictors of some menopausal symptoms included husband's awareness of wife's menopausal state, husband's residential and literacy status, the length of the child's breastfeeding, and husband's literacy level.^[37]

The study conducted in urban and rural areas of Allahabad, UP, India by Ankita Goyal *et al.*, reveals the morbidity pattern of postmenopausal women. The majority of women had a parity of three. Vasomotor symptoms were experienced by 34.5% of rural women and 39.55% of urban women, respectively. Stress incontinence accounted for 10.5% and 8.5%, respectively, of all postmenopausal women who reported genitourinary problems, in both rural and urban locations. 2.5% of rural and 6% of urban women experienced vaginal dryness. 7% of women in rural areas and 4% of women in cities had a vaginal discharge. Uterine prolapse was reported by 6% of rural and 3.5% of urban. This study finds that it is necessary to raise awareness of menopause and the issues it causes in women.^[1]

A study led by Dr. Sangeeta Ramteke *et al.*, divulges the health status of postmenopausal women. The average age of menopause was 47.56 SD. The most prevalent medical issues investigated included joint and muscular pain, eye and dental issues, high blood pressure, and diabetes. Prior to or following menopause, 78% of the women did not exercise. The most common psychomotor symptoms seen in the exercise group were hot flushes, night sweats, and irritability. The study also observed that the overall attitude of the women towards menopause was found to be negative (66%).^[3]

At the Outpatient and Inpatient Department of Obstetrics and Gynecology, Amrita Institute of Medical Sciences and Research Centre, Kochi a hospital-based descriptive study with 150 postmenopausal women. 51 (34%) of the 150 postmenopausal women in the study (n = 116, or 77.3% of the total population) were in the age range of 55 to 59. 28 (18.7%) women took the menopausal symptom management regiment seriously. The most prevalent menopausal symptoms were vaginal dryness, nocturnal sweats, and hot flushes in women aged 50 to 65, with prevalence rates of 75.3%, 58%, and 30.7%, respectively. The correlations between QOL scores and socioeconomic status and marital status were statistically significant with $P = 0.05$ and statistically highly significant with $P = 0.01$ respectively.^[10]

Anjarakandy, a field practice area run by Kannur Medical College, underwent a community-based cross-sectional house-to-house survey. 106 postmenopausal women staying at Anjarakandy for more than six months participated in this study. Average age at which menopause was reached was 48.26 years. In women, emotional issues, headache (72.9%), lethargy (65.4%), dysuria (58.9%), forgetfulness (57%) and musculoskeletal issues (53.3%), sexual issues (decreased libido, dyspareunia) and genital issues (itching, vaginal dryness) (31.8%) were the most common symptoms. Only 22.4% of women could accurately identify the reason of menopause. According to this study, 100% of

the women experienced one or more menopausal symptoms. Educating women about these symptoms, their causes, and appropriate treatments is important.^[11]

Similar to the existing study, Poomala and Arounassalame in Pondichery and Sarkar *et al.*, in Jamnagar ^[38] found that lower back pain (79%) and muscle, joint pain (77.2%) were the less frequent symptoms, followed by an increase in facial hair (15%) and a sensation of dryness during intimacy (10.8%). In a study of rural Punjabi middle-aged women, Bansal *et al.*, discovered that headache (94.1%) and dizziness (81.5%) were the most often reported vasomotor complaints. Sleep disturbance was the most commonly reported psychogenic issue (68.9%). Reduced libido was the urogenital issue that was most frequently reported (81.5%). This study's prevalence of vasomotor symptoms was average, with 60% of participants reporting hot flushes and 47% reporting perspiration. The two most common psychosocial symptoms mentioned were anxiety and apprehension (94%) and depressed (12%). ^[39,40]

A cross-sectional study was conducted at the Sri Manakula Vinayagar Medical College and Hospital in Puducherry. The study involved 500 women who traveled to our hospital from rural areas between the ages of 40 and 65. Women who declined to take part in the trial or who were on hormonal therapy were

excluded. The study group's average menopausal age was 45 years. The two symptoms were low back pain (79%) and musculoskeletal and joint pain (77.2%) that affected survey participants the most frequently. Increased facial hair (15%) and a sense of dryness during intercourse (10.8%) were the least frequent symptoms. The menopausal transition group had considerably higher vasomotor domain scores. The late postmenopausal group had significantly higher scores in the physical domain. The symptoms of menopause have a detrimental effect on the quality of life in perimenopausal and postmenopausal women. These regional studies can help educate and inform women on the early recognition of common menopausal symptoms.^[9]

According to N Ghimire *et al.*, states the majority of the women (59.2%) in the study did not know about menopausal health problems among Nepalese. Moreover, most of the women (46.3%) accepted menopause as a part of life.^[41]

A study was done to describe the menopausal symptoms experienced by middle-aged women in the Kushtia region of Bangladesh. Menopause began on average at 51.14 years old. Physical and mental exhaustion (60.90%), headaches (88.80%), joint and muscular pain (76.20%), and insomnia (54.40%) are the symptoms that are most frequently reported, followed by depression (37.30%),

irritability (36%), vaginal dryness (36%), hot flashes and sweating (35.80%), and anxiety (34.20%). However, fewer common symptoms were identified for bladder issues (12.80%), heart pain (19.10%), and sexual issues (31.20%). The prevalence of menopausal symptoms was similar to that found in other studies on Asian women. Still, it was lower than that observed in studies on Caucasian women for hot flushes and sweating.^[42]

In the western region of Bangladesh, in the town of Kushtia, which has a large population, a study was carried out. Menopause began on average at 51.14 years old. Physical and mental exhaustion (60.90%), headaches (88.80%), joint and muscular pain (76.20%), and insomnia (54.40%) are the symptoms that are most frequently reported, followed by depression (37.30%), irritability (36%), vaginal dryness (36%), hot flashes and sweating (35.80%), and anxiety (34.20%). However, less common symptoms were identified for bladder issues (12.80%), heart pain (19.10%), and sexual issues (31.20%). The prevalence of menopausal symptoms was similar to that found in other studies on Asian women, but it was lower than that observed in studies on Caucasian women for hot flushes and sweating.^[43]

A survey by Bahareh Abdolmalakiet *al.*, apprise about the evaluation of the health literacy rate of postmenopausal women covered by Mashhad health centers. The average literacy rate between the target groups was 54. In this

study 47.8 of the subjects were inadequate about health literacy, 17.2 borderlines about the literacy and 35.1 adequate level of health literacy. This indicates that a high percentage of women do not have good health literacy.^[44]

According to a study by Nisar and Sohoo, bodily aches were the most common symptom among the study individuals (81.7%). There were 134 (66.3%) reports of "hot flushes," 139 (68.8 %), 134 (66.3%) reports of "lack of energy" then a decline in "physical strengths" accordingly for some classical symptoms. The current study found that feeling anxious and nervous (94%) and feeling fatigued and having less energy were the symptoms that were most frequently mentioned (93%). Vasomotor symptoms were averagely experienced; 60% of the women reported hot flushes and 47% reported sweating according to their study.^[45]

A study was done to comprehend the intricacies of menopause in American women from various socioeconomic and racial origins. The precise objectives of this phenomenological study were to (a) explore and interpret the menopausal transition as it is actually experienced by American women, and (b) uncover common components and themes that arise as a result of the complexity of this experience. The statistics are consistent with the idea that each woman's menopausal experience is particular to themselves and that each woman interprets menopause differently. By elucidating individual meanings associated with experiences, expectations, attitudes, and beliefs about menopause, the results illustrated the complexity of this human experience.^[28]

MATERIAL AND METHODS:

Study area: The present study was conducted at the Rural Health Training Centre (RHTC) and Urban Health Training Centre (UHTC), which are the field practice areas of the Department of Community Medicine of Shri B.M. Patil Medical College, Hospital and Research Centre, Vijayapura.

Study population: Eligible women in the age group Of 40-60years.

Study design: Cross-sectional study.

Study period: January 2021 to June 2022

Study technique: Interview technique.

Sample size:

With an anticipated Proportion of rural and urban postmenopausal women at 9% and 7.5% ¹respectively a sample size of 240 for each group (i.e., a total sample size of 480, assuming equal group sizes), to achieve a power of 99% and at a 5% level of significance was taken for the study.

Formula used: $n = \frac{(z_{\alpha} + z_{\beta})^2 2 p * q}{MD^2}$

$$MD^2$$

Where ,

Z = Z statistic at a level of significance, MD = Anticipated difference between two proportion

P = Common Proportion, $q = 100 - p$

With a non-response rate 10%, the sample size = $480 + 48 = 528$.

RHTC caters to five sub-centers in which 2 sub-centers was selected by lottery method by simple random sampling and by using systematic random the sampling population was selected.

UHTC covers to 16 colonies; in which 8 colonies were selected by lottery method by simple random sampling and by using systematic random sampling population was selected.

INCLUSION CRITERIA:

- 1) Women with natural menopause were alone included in the study.
- 2) Postmenopausal women aged up to 60 years were included in the study.
- 3) Women who are a permanent resident of the locality. (At least 6 months).

EXCLUSION CRITERIA:

- 1) Women not willing to participate and co-operate in the study.
- 2) Women who had undergone medical or surgical menopause or had undergone chemotherapy/radiotherapy-induced ovarian failure or were taking hormone replacement therapy
- 3) Women with mental instability and critically ill.

METHODOLOGY:

After obtaining ethical clearance from the Institutional Ethical Committee the study was conducted in the rural and urban field practice areas of Shri B. M. Patil Medical College, Hospital and Research centre. With the help of medico-social workers of RHTC and UHTC, Anganwadi workers and ASHA workers the data was collected after the objectives were explained to them.

The present study was led in the urban and rural field practice areas of the tertiary health care centre. Urban covers 16 colonies, in which 8 colonies were selected by lottery method by simple random sampling, namely Shiralashetty chowk, Avi masjid, Katarakar Galli, samagar oni, Dohar galli, Patel galli, Ramprasad galli, Beedi galli.

In rural, RHTC caters to five sub-centers in which 2 sub centers was selected by lottery method by simple random sampling namely Masjid area, Japanpur area and by using systematic random sampling households were selected in both the areas. The study was done in January 2021 to June 2022 among the participants residing in study area.

In addition to being informed that, their participation was completely voluntary, their anonymity would be guaranteed, they could withdraw from the study at any time, and the information they would be providing would be used solely for the study's purpose, interviewers were also given a brief overview of the study at the time of the interview. The participants were assured of the confidentiality of the data and outcomes, and their consent was obtained.

A sample size 264 for each group in total 528 respondents were chosen from as many houses. To balance the selection in the number of houses among the areas 50% were targeted from rural area and 50% from urban area. These houses were chosen by systematic random sampling method in which every 10th house (starting from the first house chosen by using last digit number of a currency note) in a randomly chosen land was surveyed. In case the house was locked or members were ineligible for inclusion in this study or non-consenting, adjacent houses were selected. Then participants were interviewed using pretested and semi-structured questionnaire.

The interview was conducted in the local language, (Kannada) and carried out with the help of medico-social workers of health centers ASHA and myself, at each eligible participant's residence with minimal distractions and discomfort and assuring convenience and comfort. A preliminary study was done among 15 women within 40-60 years old to make necessary changes in the questionnaire to check the feasibility, and they were also included in the study.

Information regarding Socio-demographic profile, Menopausal symptoms, Health status and co-morbid conditions. General physical examination, the systemic examination was done, and an anthropometric measurement that includes: Height, Weight, BMI, using standard operating procedures. Vitals events include Pulse rate, Blood pressure, and Respiratory rate was recorded.

Investigations: Random blood sugar by glucometer (Brand- Gluco one),
Hemoglobin by automated hemoglobin meter (Brand-Mission one)

Measurement of height:

In order to measure height, participants were required to take off their shoes, stand with their toes apart and heels together, and lean against a wall with their heads perpendicular to their bodies (the Frankfurt line). The head, back, buttocks, and heels were in touch with the wall, while the arms were hanging freely by the sides. The highest point on the skull was measured using a wooden scale before a mark was placed on the wall. Centimeters were used as the unit of measurement (cm). Height was recorded to nearest 0.5 cm. ^[46]

Measurement of weight:

The subject of the study was weighed in kilograms (kg) using a standardized bathroom scale while standing upright in the middle of the platform, with the body weight uniformly divided between both feet together and apart, wearing the appropriate apparel and facing straight ahead. The measurement was made to the nearest 0.5 kilograms. ^[46]

Body Mass Index (BMI)

The International Obesity Task Force steering committee and the WHO Western Pacific Regional Office's suggested BMI classification for Asians were used in this investigation. It is also called as Quetlet Index and was used to assess obesity and is computed by $BMI = \text{Weight (in kg)} / \text{Height (in meter)}^2$. ^[46]

Classification	BMI
Underweight	<18.50
Normal range	18.50-24.99
overweight	≥25.00

Random blood sugar by glucometer:

This is done by turning on the glucometer followed by inserting a test strip. The glucometer screen will show when it's time to put blood on the strip. Then the lancing device is used to pierce the side of the participant's finger, next to the fingernail. The finger of the participant is squeezed until it has produced a sufficient-size drop.

Then Participant drop of blood on the strip. Blot the finger with the alcohol prep pad to stop the bleeding, wait for few moments for the glucometer to generate the reading. According to WHO random blood sugar diagnostic cut off value of 200mg/dl and above is considered as diabetes mellitus.^[47]

Measurement of hemoglobin by automated hemoglobinometer:

First, turn on the hemoglobinometer by holding the power button for 3 seconds. Then the investigator will insert a fresh strip into the meter it will show drop of blood sign on the screen. The participant of the finger is pricked with a lancet, first two drops of the blood will be wiped off then the third drop will be placed on the strip. Then we will get the results in a minute. ^[48] And then it is classified according to national cancer institute.^[49]

Severity	Hemoglobin values
Normal	12.0-16.0 g/dl
Mild	10 g/dl
Moderate	8.0-10.0 g/dl
Severe	6.5-7.9 g/dl
Life threatening	<6.5 g/dl

Measurement of blood pressure by Sphygmo-manometer:

In order to access the upper arm, ask the patient to take off any long sleeves or relax any tight clothing. Use caution when using an arm that might be ill. The patient's arm should then be resting on a surface that is level with their arm after the cuff tubing and sphygmo-manometer tubing connections have been secured. Check the pulse by placing the stethoscope over the brachial artery at the bend of the elbow. Slowly pump the cuff up and listen for the pulse to stop. This is a signal to cease puffing up the cuff. Watching the mercury level in the sphygmomanometer, begin to progressively deflate the cuff.

Note the sphygmomanometer reading, when the pulse reappears record this as the systolic pressure. Deflate the cuff further until the pulse disappears, record this reading as the diastolic pressure. And it is classified according to WHO.^[50]

Category	Systolic (mm of Hg)	Diastolic (mm of Hg)
Normal	<120	<80
High normal	120-129	80-84
Grade 1 Hypertension	140-159	90-99
Grade 2 Hypertension	160-179	100-109
Grade 3 Hypertension	≥ 180	> 110

STATISTICAL ANALYSIS:

The data was compiled in Microsoft Excel-2020 worksheet and analyzed using Statistical Package for Social Sciences (SPSS) version 20 software. The data was presented in the form of tables and graphs wherever necessary. All characteristics were summarized descriptively.

For continuous variables, the summary statistics of N, were used.

For categorical data, the number and percentage were used in the data summarized. The Chi-square test was applied to know the association between the categorical variable. $p < 0.05$ will be considered statistically significant.

RESEARCH TOOL

Interview schedule for women was categorized into nine sections. They were;

Section A: Checklist before proceeding

Section B: Screening for selection of eligible women

Section C: Socio-demographic and economic data

Section D: Reproductive health history (Parity)

Section E: Menopause related symptoms using list of menopausal symptoms.

Section F: Present health status, co-morbid conditions and other health history.

Section G: General physical examination

Section H: Vital signs and systemic examination

Section I: Investigations (Random blood sugar, hemoglobin)

Study variables:

- Age: Age was recorded in completed years as revealed by the subjects

- Type of family: ^[51]

Nuclear: It consists of number of married couple and their children while still they are regarded as dependents.

Joint family: It consists of number of married couple and their children live together in the same household. All men are related by blood and women of household are their wives, unmarried sisters and their family kinsmen.

- Marital status:^[51]

Married: Married persons are those who got married before a competent body in concordance with valid regulations.

Widowed: Persons whose marriage ceased to exist by death of one spouses or by declaring a missing spouse dead respectfully

Separated: persons are those marriage was terminated.

➤ Education:^[51]

Primary school: Studied up to 7th standard

High school: Studied up to 8th standard to SSLC

PUC/Diploma: Studied up to PUC or any diploma

Graduate and above: Studied up to graduation and above

➤ Occupation:^[52]

Unemployed: People who are not employed

Unskilled: Watchman, Peon, Domestic servant etc.

Semi-skilled: Factory, workshop, laborer, shopkeeper etc.

Skilled: Clerk, typist, Station master, Salesman etc.

Professional: Engineers, teachers, doctors, managers etc.

➤ Socio-Economic status: ^[53]

Self- reported per capita monthly income was recorded.

Modified BG Prasad's classification was used to assess the social class of the study subjects.

Multiplication factor = Current Index value (118.2)/Base Index value (100)

$$=118.2/100 =1.182$$

New income value =Multiplication Factor X Old income value X 4.63 X 4.93 X 2.88.

Social class	Original classification of per capita income (Rs/month)	Revised classification for 2021 (Rs/month)
I (Upper class)	100 and above	7770 and above
II (Upper middle class)	50-99	33808-7769
III (Middle class)	30-49	2253 – 3808
IV (Lower middle class)	15-29	1166-2253
V(Lower class)	<15	<1166

Definition of Postmenopausal women ^[54]

Postmenopausal women in this study are defined as those who are employed or unemployed at the age of 40 years of age or older with 12 or more straight months of amenorrhea and who are not on replenishment of hormones (HRT).

Sleep:

Normal sleep of 8.5-9.5 hours per night. We assessed the sleep quality by asking the participants the sleep hours at night (minimum 8 hours), ability to fall asleep easily, not waking up in the middle of sleep, and feeling refreshed awake in the morning.^[29]

RESULTS:

Figure 1: Distribution of study participants according to their age.

The below graph describes that majority of the post-menopausal women belong to the age group of 51-55 years in rural area (40%) and in urban area (37%). 21% of postmenopausal women belongs to the age group of 40-45 years are from an urban area, and 14.3% were from a rural area. Among the rural women (24.1%) belongs to the age group of 46-50 age group and 21.2% from urban area.

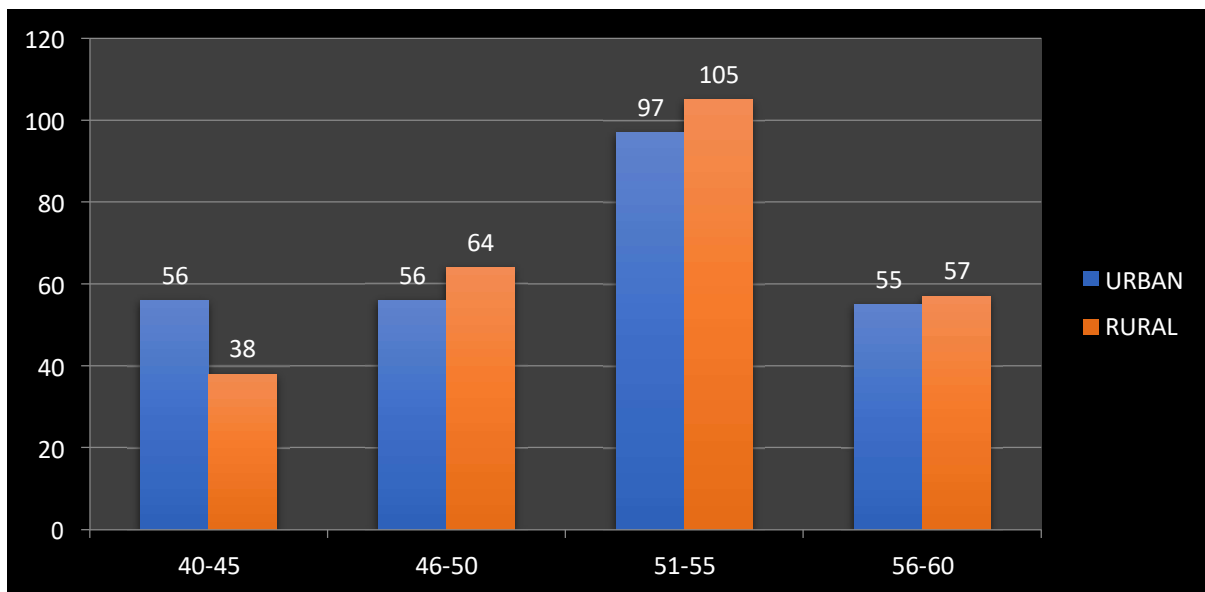


Figure 2: Distribution of study participants according to their socio-economic status.

Monthly per capita income that was self-reported was noted. In order to determine the socioeconomic class of the study subjects, Modified BG Prasad's classification was applied. It is altruistic to know that majority of the people belong to the upper middle class were from rural areas (37.5%) and urban areas (32.1%). The respondent belong to the lower middle class were 8.3% in rural area and 5.6% in urban areas.

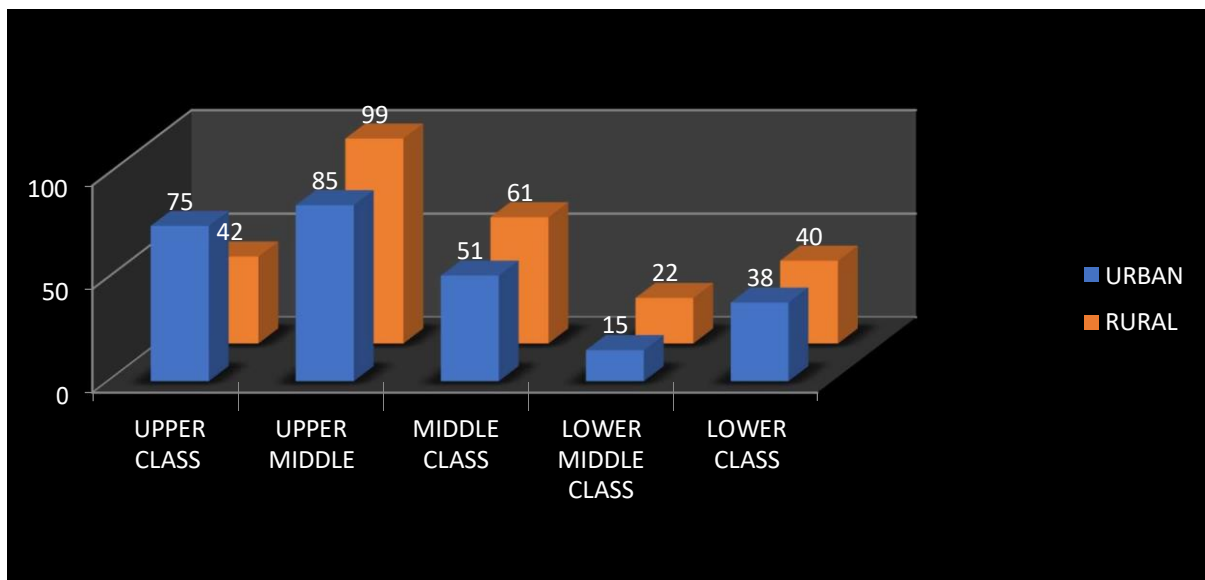


Figure 3: Distribution of study participants according to their educational status

It is congenial to know that none of the study participants are illiterate. Majority of the participants completed high school in urban and rural area were 57.1% and 57.5% respectively, followed by postmenopausal women completed their diploma in urban area (17%) and in rural area most of the participants completed their degree (16.6%).

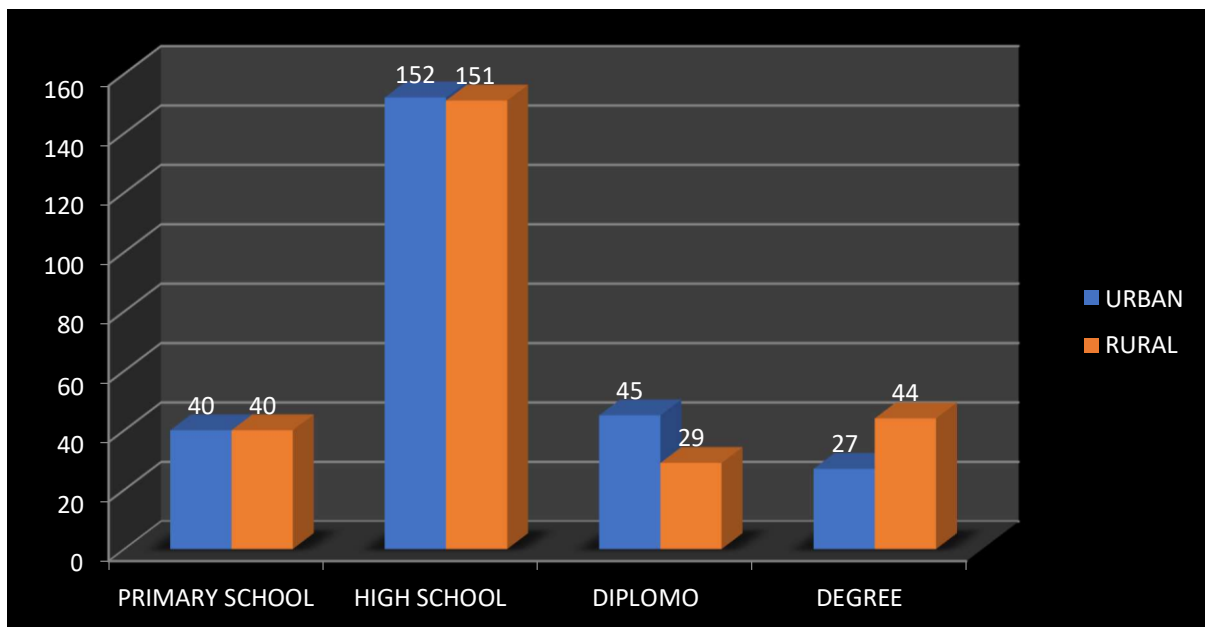


Figure 4: Distribution of study participants according to their type of family.

Major proportion of the postmenopausal belonged to nuclear family both in urban (71.5%) and rural areas (68.1%). Joint family in urban area constitutes 28.4% and 32 % in rural areas.

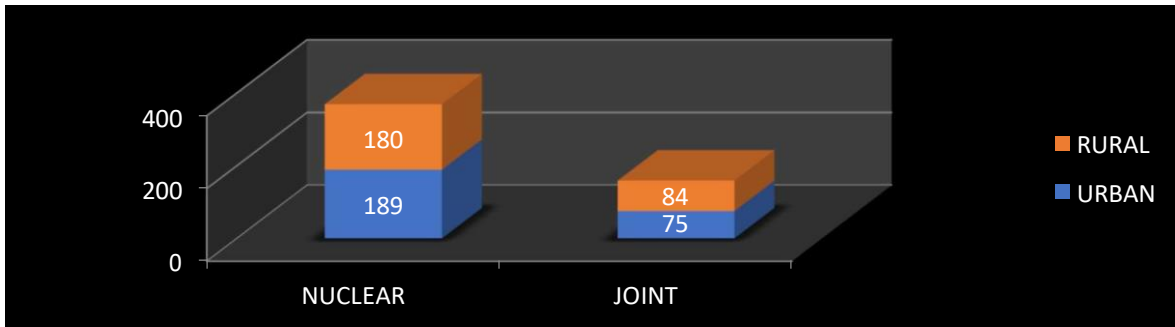


Figure 5: Distribution of study participants according to their marital status

This graph shows in rural area married women were 71% and in urban 61%, followed by women who were separated from their spouse is 20% in urban area and 17.4% in rural area.

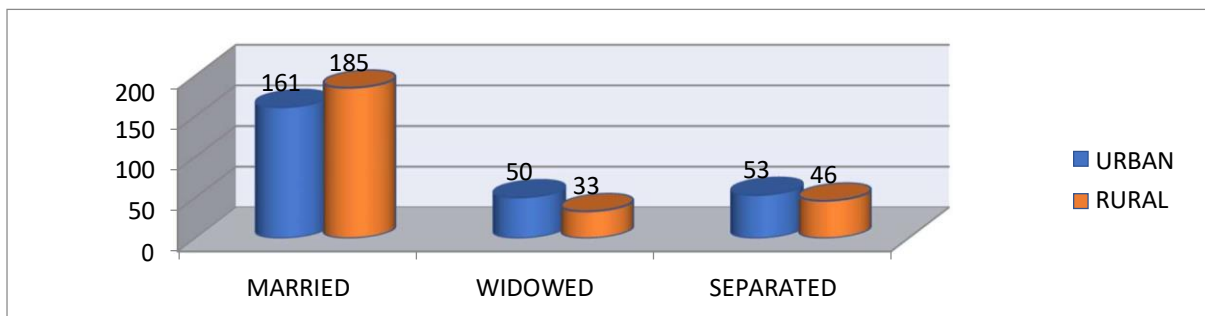


Figure 6: Distribution of study participants according to their occupational status.

The below graph shows that majority of the women in urban area were doing semi-skilled type of work (24.6%) followed by unemployed (23.4%) i.e they are home maker. In rural area majority of the participants are involved in one or the other work constitutes 24.2% followed by unemployed (23.4%). Women are doing other works in our study are doing clerical, shop owner, semi-professional respectively.

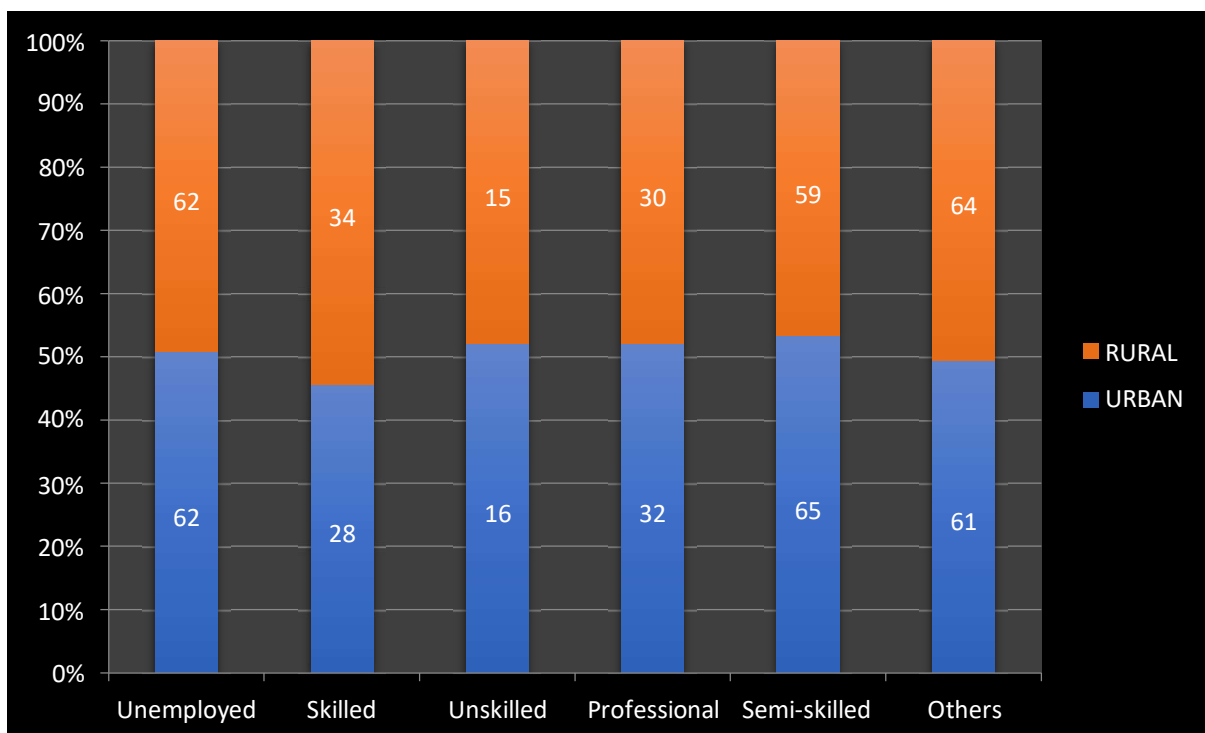


Figure 7: Distribution of study participants according to their religion.

Major proportion of the postmenopausal women belongs to Hindu religion both in urban (77%) and in rural area (78.4%). Muslim women were 23.1% from urban and 21.5% in rural area.

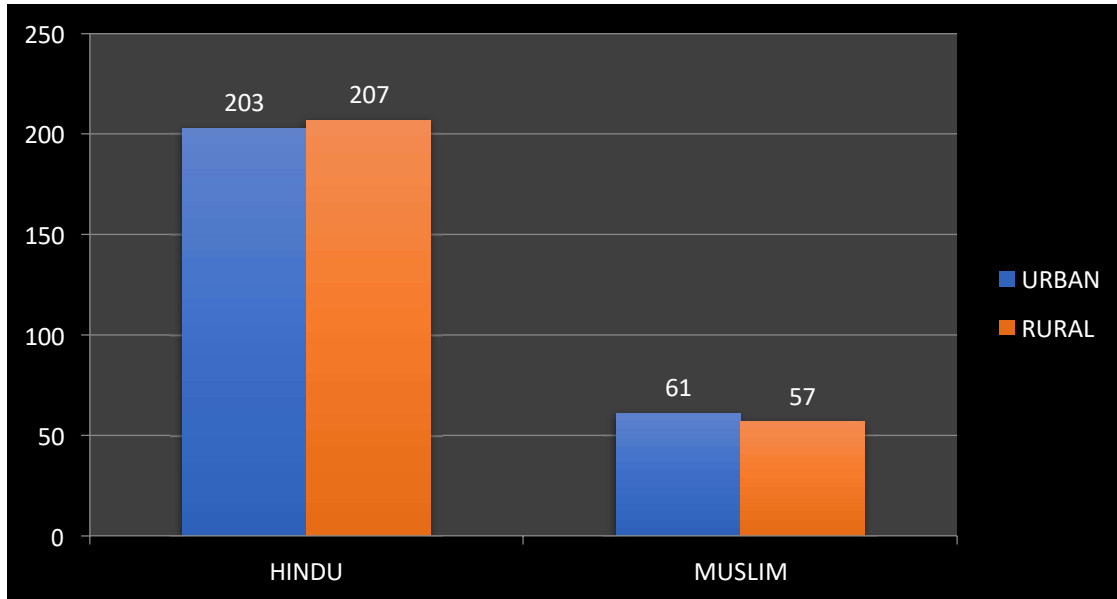


TABLE 1: Distribution of study participants according to the number of children

No. of. children	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
1	93	19	95	19.5	188	38
2	135	28	125	25.6	260	53.6
3	13	2.6	15	3	28	5.6
4	4	0.8	2	0.4	6	1.2
>4	5	1.0	0	0	5	1
Total	250	51.4	237	48.5	487	100

In the present study, maximum number of women were having two children both in urban (28%) and in rural area (25.6%). We observed one child norm in both urban (19%) and rural area (19.5%).

Table 2: Distribution of study participants according to their type of delivery

Type of delivery	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Vaginal	94	19%	142	29%	236	48%
LSCS	125	26%	126	26%	251	52%
TOTAL	219	45%	268	55%	487%	100%

Over all more than 50% of them had undergone lower segment caesarean section (LSCS) in both urban and rural areas. Vaginal delivery constitutes 29% in rural and 19% in urban. 26% of participants from both the areas underwent lower segment caesarean section. Vaginal delivery was observed more in rural area.

Table 3: Distribution of study participants according to their present health status

Health status	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Respiratory symptoms	139	26.3%	179	34%	318	60.4%
Gastrointestinal symptoms	98	18.5%	92	17.4%	190	36%
Genitourinary symptoms	79	15%	182	34.4%	261	49.4%
TOTAL	316	60%	453	86%	769	146%

***Multiple responses**

The above table shows the various present health statuses of the study participants. The study participants belonging to rural area present with various

health problems constitutes 86%. Gastrointestinal problems are seen high in urban area with a percentage of 18.5. And in urban majority of the participants presented with respiratory complaints were 26.3%

Table 4: Distribution of study participants with history of co-morbid conditions.

Co-morbid Conditions	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Yes	72	14%	68	13%	140	27%
No	192	36%	196	37%	388	73%
TOTAL	264	50%	264	50%	528	100%

Table 4: Shows the co-morbid conditions of the participants. Here, the yes signifies 27% of the participants were suffering from one or the other co-morbid condition among them, urban participants were 14% and rural were 13%.

Table 5: Distribution of study participants with co-morbid conditions

Co-morbid conditions	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Diabetes	85	16%	90	17%	175	33%
Hypertension	83	16%	89	17%	172	33%
Tuberculosis	12	2%	14	3%	26	5%
Asthma	20	4%	21	4%	41	7%
Epilepsy	4	1%	5	1%	9	2%
Others	10	1.8%	25	4.7%	105	6.5%
TOTAL*	214	40%	244	46%	458	86%

***Multiple responses**

Table 5: Both in an urban and rural area we found majority of the participants were suffering diabetes and hypertension (33%). The other conditions include osteoarthritis, spondylosis, rheumatoid arthritis and peptic ulcer. It constitutes 6.5% both in urban and rural areas.

Table 6: Distribution of study participants under medication for their co-morbid condition.

Under medication	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Yes	54	38.5%	40	28.5%	94	67%
No	18	13%	28	20%	46	33%
Total	72	51.5%	68	48.5%	140	100%

Table 6: Shows the medication history of the study participants. Majority of the participants were on regular treatment in urban areas (38.5%) and in rural area (28.5%).

Table 7: Distribution of study participants who has undergone surgery

Surgical history	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Yes	101	19%	91	17%	192	36%
No	163	31%	173	33%	336	64%
Total	264	50%	50264	50%	528	100%

Among the 528 women (36%) of them have undergone surgeries like appendectomy, haemorrhoidectomy, amputations, partial knee replacement and surgeries for urinary calculi, soft tissue abscess and fractures. The distribution shows surgeries underwent by urban women were more comparing to the rural area.

Table 8: Distribution of study participants according to their diet.

Diet Pattern	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Vegetarian	74	14%	54	10%	128	24%
Mixed	190	36%	210	40%	400	76%
TOTAL	264	50%	264	50%	528	100%

The dietary pattern in our study shows a maximum number of participants were consuming mixed diet both in urban (36%) and rural areas (40%).

Table 9: Distribution of study participants according to their presence of menopausal symptoms.

Menopausal Symptoms	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Yes	189	36%	195	37%	384	72.6%
No	75	14.2%	69	13.0%	144	27.2%
Total	264	50%	264	50%	528	100%

The above table shows whether the study participants presented with menopausal symptoms or not. 72.6% of the study participants presented with one or the other menopausal symptoms both in urban and rural areas.

Table 10: Distribution of study participants according to their report of menopausal symptoms.

Menopausal symptoms	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Self - reported	70	18.2%	55	14.3%	125	32.5%
List of menopausal symptoms	119	31%	140	36.4%	259	67.4%
Total	189	49.2%	195	50.7%	384	100%

32.5% of the total study participants self - reported about the menopausal symptoms. Among this, participants residing in urban area had higher percentage of self- reporting with 18.2%. The other menopausal symptoms were found out through various questions that were asked to the participants.

Table 11: Distribution of study participants based on their Menopausal symptoms

Menopausal symptoms	Rural		Urban		Total n=528		X ²	P value
	Yes	(%)	Yes	(%)	N	(%)		
Vasomotor							0.2286	0.8920
Hot flushes	158	30	148	28	306	58%		
Night sweats	174	33	174	33	348	66%		
Sweating	185	35	174	33	359	68%		
Psychological							2.092	0.9111
Dissatisfied	190	36	180	34	370	70%		
Anxious or nervous	180	34	174	33	354	67%		
Poor memory	185	35	169	32	354	67%		
Accomplishing less than used to	190	36	169	32	359	68%		
Feeling depressed	180	34	185	35	365	69%		
Being impatient	195	37	169	32	364	69%		

Wanting to be alone	185	35	185	35	370	70%		
Sexual								
Change in your sexual desire	174	33	169	32	343	65%	0.0153	0.9924
Vaginal dryness	174	33	174	33	348	66%		
Avoiding intimacy	180	34	180	34	360	68%		
Physical								
Flatulence	201	38	180	34	381	72%	7.299	0.948
Aching in muscles and joints	180	34	190	36	370	70%		
Tired or worn out	185	35	180	34	365	69%		
Difficulty sleeping	180	34	190	36	370	70%		
Aches in back of neck or head	195	37	180	34	375	71%		
Decrease in physical strength	190	36	180	34	370	70%		
Decrease in stamina	180	34	169	32	349	66%		
Feeling a lack of energy	185	35	185	35	370	70%		
Drying skin	190	36	174	33	364	69%		
Weight gain	190	36	185	35	375	71%		
Increased facial hair	190	36	180	34	370	70%		
Changes in appearance	185	35	195	37	380	72%		
Feeling bloated	185	35	169	32	354	67%		
Low backache	185	35	211	40	396	75%		
Frequent urination	180	34	174	33	354	37%		
Involuntary urination	153	29	169	32	322	61%		

***Multiple responses**

The above table includes all the postmenopausal symptoms both by self-reported and using list of menopausal symptoms.

Menopausal symptoms were evaluated using four domains: psychological symptoms, physical symptoms, vasomotor symptoms, and sexual symptoms. There were 21 questions distributed among the four domains.

Vasomotor symptoms:

In both urban and rural areas among vasomotor symptoms sweating 68% was predominant followed by night sweats 66% and hot flushes 58%. It shows that most women in a rural and urban area have complaints of sweating, about (35%) in rural population and (33%) in urban population. Followed by night sweats in rural area which is about (33%) and in urban area it is also about (33%). Participants presented with complaints of hot flushes in rural is about (30%) and in urban it is (28%) respectively.

Psychological symptoms:

In both urban and rural areas among psychological symptoms, dissatisfaction and feeling depressed 70% were equally prevalent in both urban and rural areas.

In rural areas majority of the postmenopausal women presented with the complaints of being impatient 37%, followed by dissatisfied with personal life, accomplishing less than I used to constitute 36%.

In urban area majority of the participants presented with feeling depressed, wanting to be alone were 35% respectively, followed by dissatisfied with personal life is about 34%.

Sexual symptoms:

With respect to sexual symptoms, avoiding intimacy were more prevalent in both urban areas and rural areas (68%).

Majority of the participants in both rural and urban mentioned about avoiding intimacy which is 34%, followed by vaginal dryness in rural area is 33%. In the urban area and rural area vaginal dryness, changes in sexual desire constitutes 33%.

Physical symptoms:

With respect to physical symptoms flatulence and changes in appearance were equally prevalent in both urban and rural areas (72%).

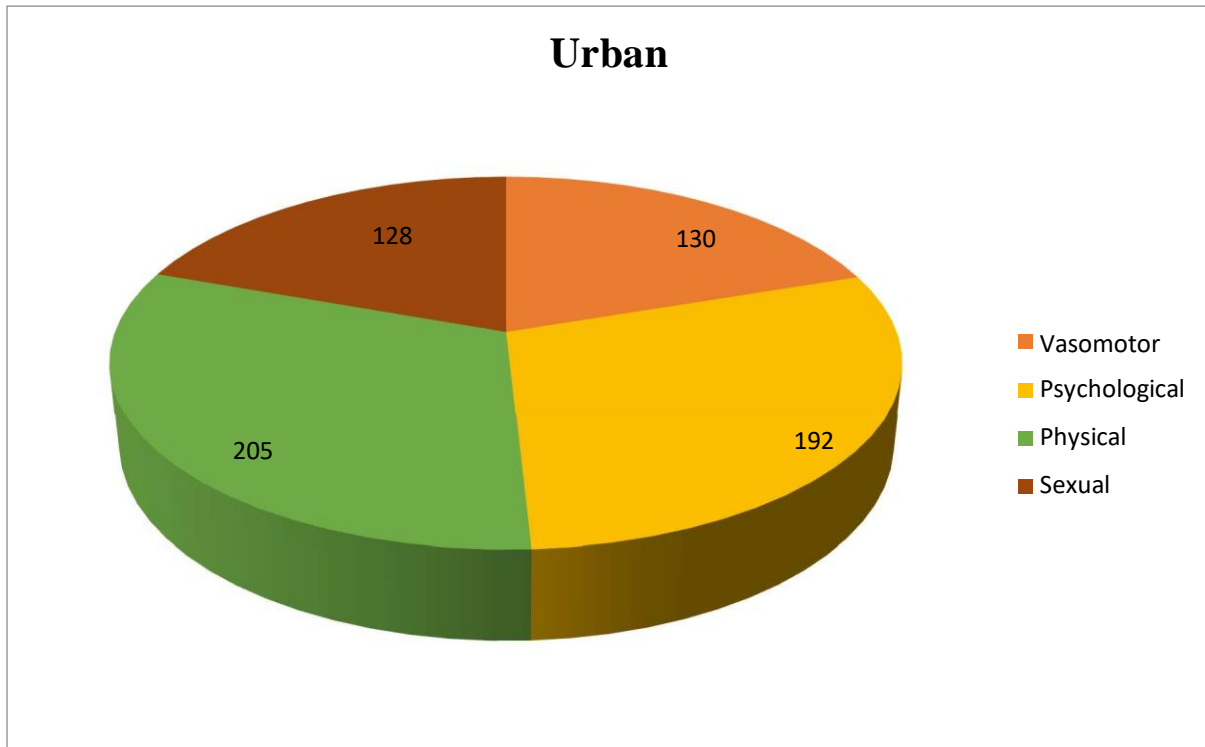
Majority of the women in rural area reported about the history of flatulence which is 38%, followed by aches in back of neck or head (37%). It was bombshell to know that 36% of the women reported decrease in physical strength, weight gain and increased facial hair, drying skin. Post-menopausal women who reported changes in appearance, feeling bloated, low back ache, feeling a lack of energy, tired or worn out were 35%. Participants reported with frequent urination, decrease in stamina, difficulty sleeping and aches in muscles

and joints were 34% respectively. The least reported was involuntary urination 29%.

In urban area majority of the participants presented with low back ache is 40% followed by changes in appearance constitutes 37%. Postmenopausal women also presented with aching in muscles ,joints and difficulty sleeping were 36%.Urban residents who were presented with feeling a lack of energy and weight gain were 35%.It was a thunderbolt moment to know that most of them were suffering with increased facial hair along with decrease in physical strength, aches in back of neck or head ,flatulence and tired or worn out constitutes 34% .Participants reported with frequent urination and drying of skin were 33%.Women's with complaints of involuntary urination, feeling bloated and decrease in stamina were 32% respectively.

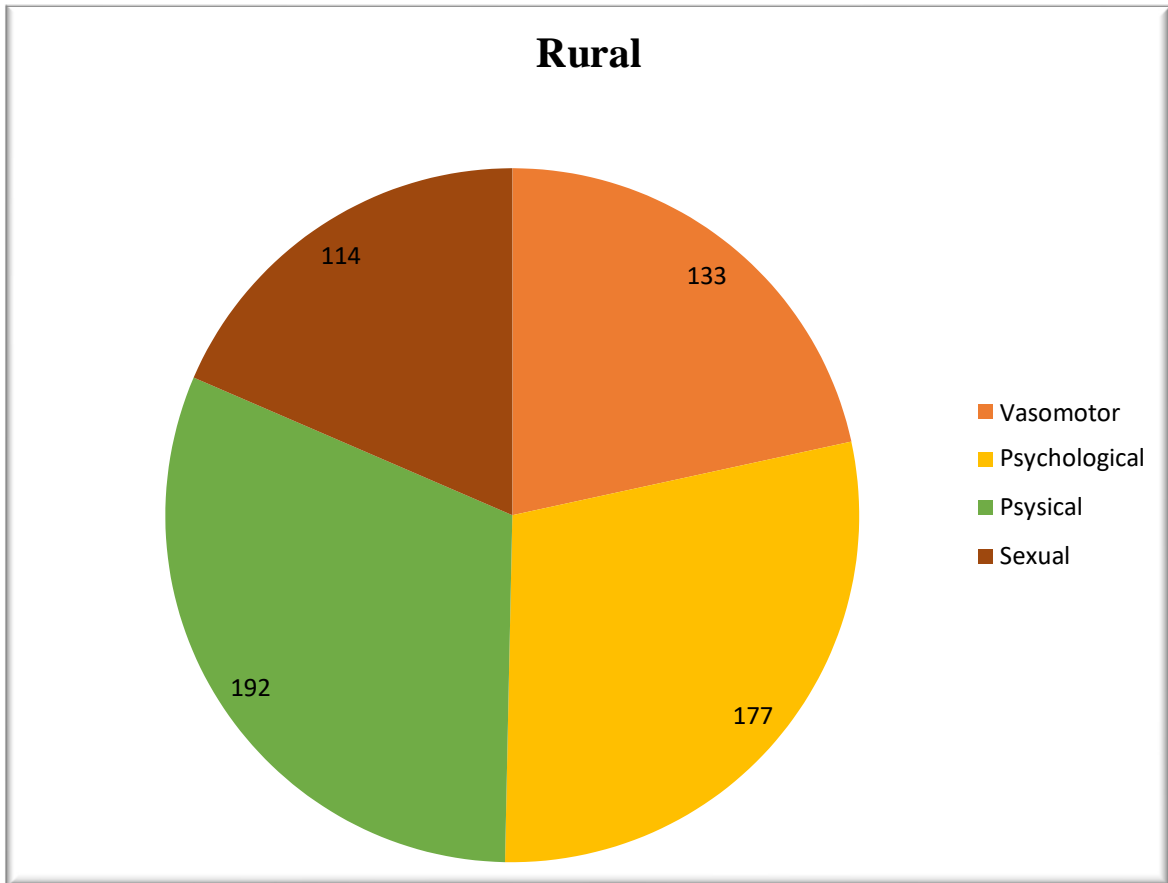
Rural and urban menopausal symptoms doesn't show any statistical significance.

Figure 8: Proportion of study subjects with menopausal symptoms in urban area.



Out of 264 participants from urban area, majority of the participants presented with physical symptoms 205 and 128 participants presented with sexual symptoms.

Figure:9: Proportion of study subjects with menopausal symptoms in rural area.



Out of 264 participants from rural area,192 presented with physical symptoms and 114 presented with sexual symptoms.

Table 12: Distribution of study participants according to their sleep pattern

Sleep pattern	Urban		Rural		Total	
	Frequency	%	Frequency	%		%
Normal (>8hours)	153	29%	172	32.5%	325	61.5%
Disturbed(<8hours)	111	21%	92	17.4%	203	38.4%
Total	264	50%	264	50	528	100%

Majority of the study participants reported they have normal sleep both in urban and rural areas (61.5%).

Table 13: Body Mass Index (BMI) of the study participants

Body Mass Index		Urban		Rural		Total	
		Frequency	%	Frequency	%		%
Underweight	<18.50	45	9%	44	8%	89	17%
Normal	18.5-24.9	63	12%	83	16%	146	28%
Over weight	>25.00	156	29%	137	26%	293	55%
TOTAL		264	50%	264	50%	528	100%

We found in our study maximum number of respondents were showing their BMI of more than 25 both in urban (29%) and rural area (26%). It was observed

more among urban post-menopausal women. Overall 17% of them were showing underweight in urban (9%) and rural area (8%).

Table 14: Distribution of study participants according to their blood pressure level

Blood Pressure (mm of Hg)		Urban		Rural		Total	
		Frequency	%	Frequency	%		%
Normal	120-129/ 80-84	54	10%	57	11%	111	21%
High Normal	130-139/85-89	95	18%	100	19%	195	37%
Grade 1 hypertension	140-159/90-99	73	14%	59	11%	132	25%
Grade 2 hypertension	160-179/100-109	42	8%	48	9%	90	17%
TOTAL		264	50%	264	50%	528	100%

Table 14: The above table is classified according to WHO classification; it is surprising to know that majority of the participant's falls on high normal (37%) and grade 1 hypertension (25%). The study participants from the urban area who lies is high normal constitutes 18% and 19% in rural area. Participants who were on grade I hypertension in urban were 14% and in rural were 11%. Grade II hypertension were 8% and 9% in urban and rural areas respectively.

Table 15: Distribution of the study participants according to their random blood sugar level (RBS)

RBS (mg/dl)	Urban		Rural		Total	
	Frequency	%	Frequency (%)	%		%
<200	241	46%	255	48	496	94%
>200	23	4%	9	2	32	6%
TOTAL	264	50%	264	50	528	100%

Table 15: Maximum number of postmenopausal women were having blood sugar level <200mg/dl both in urban and rural area (94%). Only 6% of them were having blood sugar level >200mg/dl

Table 16: Distribution of the study participants according to their Hemoglobin level

Hemoglobin		Urban		Rural		Total	
		Frequency	%	Frequency	%		%
Life threatening	<6.5g/dl	18	3%	21	4%	39	7%
Severe	6.5-7.9g/dl	6	1%	7	1%	13	2.5%
Moderate	8.0-10.0g/dl	93	18%	89	17%	182	34.5%
Mild	10g/dl	41	8%	47	9%	88	17%
Normal	12.0-16g/dl	106	20%	100	19%	206	39%
	TOTAL	264	50%	264	50%	528	100%

Table16: This table is classified under Grading of anaemia according to national cancer institute. It is altruistic to know that majority of the urban and rural postmenopausal women fall under the category of normal (39%). In urban majority of residents are in normal category of 20% followed by moderate

(18%) similarly it was observed in rural residents also. Here the data shows people who lies in the range of normal (19%) followed by moderate (17%). Overall only 2.5% of the women hemoglobin level showed severe anaemia.

Table 17: Association of post-menopausal symptoms in relation to age of the study participants of urban area.

Age of study population (Urban)	Vasomotor (n=264)		Psychological(n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
40-50	38	14.3%	27	10.2%	75	28.4%	82	42.7%
51-60	92	34.8%	165	62.5%	130	49.2%	46	23.9%
Chi-square(χ^2)	0.135		3.317		3.401		0.788	
p value	0.704		0.019*		0.051		0.333	

Table 17: Our finding shows vasomotor symptoms, psychological symptoms, and physical symptoms were more prevalent in 51-60 years of age group and sexual symptoms were among 40-50 years.

Age group of urban population was significantly associated with psychological domain with p values of 0.019.

Table 18: Association of post-menopausal symptoms in relation to the age of the study participants of rural area.

Age of study population (rural)	Vasomotor(n=264)		Psychological(n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
40-50	40	15.1%	12	4.5%	67	25.3%	75	39.0%
51-60	93	35.2%	165	62.5%	125	47.3%	39	20.3%
Chi-square(x²)	0.132		4.315		4.401		0.795	
P	0.604		0.020*		0.061		0.343	

Table 18: similar to urban area, here also it shows vasomotor symptoms, Psychological, physical symptoms were more prevalent in 51-60 years and sexual symptoms were more among the women in the age group of 40-50 years.

Age of the rural study population rural shows significant association with psychological domain with p=0.020.

Table 19: Association of post-menopausal symptoms in relation to their religion.

Type of religion	Vasomotor (n=528)		Psychological (n=528)		Physical (n=528)		Sexual (n=384)	
	Present	%	Present	%	Present	%	Present	%
Hindu	223	42.2%	314	59.4%	354	67%	147	38.2%
Muslim	40	7.5%	55	10.4%	43	8.4%	95	24.7%
Chi-square(x²)	3.752		2.113		0.476		1.529	
p value	0.059		0.272		0.574		0.154	

The postmenopausal symptoms were observed more among the Hindu religion. But there was no statistical significance association between the postmenopausal symptoms and religion.

Table 20: Distribution of study participants in relation to their marital status

Marital status	Vasomotor(n=528)		Psychological(n=528)		Physical (n=528)		Sexual (n=384)	
	Present	%	Present	%	Present	%	Present	%
Married	208	39.3%	294	55.6%	335	63.4%	156	40.6%
Widowed & Separated	55	10.4%	75	14.2%	62	11.7%	86	22.3%
Chi-square(χ^2)	6.679		2.579		2.425		0.075	
p value	0.067		0.101		0.125		0.729	

Overall Postmenopausal symptoms were more prevalent among married women, but no statistical association observed between postmenopausal symptoms and marital status.

Table 21: Association of post-menopausal symptoms in relation to socio-economic status of the study participant of urban area.

Socio-economic status (urban)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Below Class 3 (Lower)	78	29.5%	68	25.7%	110	41.6%	65	33.8%
Above and Equal to class 3 (Upper)	52	19.6%	124	46.9%	95	35.9%	63	32.8%
Chi-square(x²)	4.572		12.915		0.025		0.235	
p value	0.018*		0.007*		0.0625		0.515	

In present study we observed vasomotor, physical, sexual, were more prevalent in lower socio-economic status and psychological symptoms were more prevalent in upper socio-economic status.

Here the vasomotor symptom shows significance with socio-economic status with the p value of 0.018 and psychological symptoms with the p value of 0.007 respectively.

Table 22: Association of post-menopausal symptoms in relation to socio economic status of the study participant of rural area

Socio-economic status (rural)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Below Class 3 (Lower)	58	21.9%	62	23.4%	73	27.6%	58	30.2%
Above and Equal to class 3 (Upper)	75	28.4%	115	43.5%	119	45.0%	56	29.1%
Chi-square(x²)	5.742		15.911		0.045		0.275	
p value	0.015*		0.009*		0.726		0.615	

We observed sexual symptoms were more prevalent in lower socio-economic status. Other domains were prevalent in upper socio-economic status .

The association between socio-economic status and vasomotor symptoms has been found to be statistically significant with the p value of 0.015. We also found significant association between socio-economic status and psychological symptoms (p = 0.009) in this study.

Table :23 Association of post-menopausal symptoms in relation to their co-morbid condition in urban area.

CATEGORY (urban)	Vasomotor	Psychological	Physical	Sexual	Chi square(X²)	P Value
Diabetes (85)	25(29.4%)	16(18.8%)	22(25.8%)	10(11.7%)	3.479	0.063
Hypertension (83)	32(38.5%)	12(14.4%)	29(34.9%)	6(7.2%)		
Tuberculosis (12)	6(50%)	4(33.3%)	9(75%)	0		
Asthma (20)	5(25%)	8(40%)	12(60%)	0		
Epilepsy (4)	2(50%)	0	0	1(25%)		
Others (10)	1(10%)	3(30%)	7(70%)	0		

Overall vasomotor symptoms were more prevalent among participants with diabetes, hypertension and epilepsy. Among participants with tuberculosis and asthma, and with other conditions physical symptoms were more prevalent in urban area.

Here a postmenopausal symptom doesn't show significance with co-morbid condition in urban area.

Table 24: Association of postmenopausal women in relation to their co-morbid conditions of the study participants in rural area.

Variables (rural)	MENOPAUSAL SYMPTOMS				Chi - square (X ²)	P Value
	Vasomotor	Psychological	Physical	Sexual		
Diabetes (90)	42(46.6%)	25(27.7%)	29(32.2%)	15(16.6%)	6.498	0.007
Hypertension (89)	48(53.9%)	39(43.8%)	52(58.4%)	10(11.2%)		
Tuberculosis (14)	7(50%)	4(28.5%)	5(35.7%)	0		
Asthma (21)	17(80.9%)	0	0	1(4.76%)		
Epilepsy (5)	2(40%)	1(20%)	1(20%)	0		
Others (25)	12(48%)	14(56%)	5(20%)	0		

Vasomotor symptoms were more prevalent in participants with diabetes, tuberculosis, asthma, epilepsy and other health conditions. Physical symptoms were more prevalent among participants with hypertension in rural area. Statistical significance is found between the group with p value 0.007.

Table :25 Association of post-menopausal symptoms in relation to their sleep pattern.

Sleep pattern	Vasomotor (n=528)		Psychological (n=528)		Physical (n=528)		Sexual (n=384)	
	Present	%	Present	%	Present	%	Present	%
Normal	192	36.3%	271	51.3%	294	55.6%	166	31.4%
Disturbed	71	13.4%	98	18.5%	103	19.5%	76	14.3%
Chi - square(X²)	35.01		1.429		12.86		6.93	
p value	<0.001		0.231		0.0003		0.008	

Postmenopausal symptoms were more prevalent among women's with normal sleep.

The association between sleep pattern and vasomotor symptoms has been found to be statistically significant with the p value of <0.001. We also found significant association between sleep pattern and psychological symptoms (p = 0.0003) in this study.

Table 26: Association of post-menopausal symptoms in relation to BMI of the study participant of urban area.

BMI (Urban)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Less than and equal to 25	66	25%	114	43.1%	143	54.1%	72	37.5%
25 and above	64	24.2%	78	29.5%	62	23.4%	56	29.1%
Chi - square(X²)	6.625		2.319		2.278		0.075	
P value	0.005 *		0.176		0.185		0.529	

Menopausal symptoms were more prevalent with the BMI of less than and equal to 25. A comparison of postmenopausal symptoms with Body mass index for urban area shows vasomotor symptoms was statistically significant with $p = 0.005$.

Table 27: Association of post-menopausal symptoms in relation to BMI of the study participant of rural area.

BMI (Rural)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Less than and equal to 25	81	30.6%	108	40.9%	127	48.1%	42	21.8%
25 and above	52	19.6%	69	26.1%	65	24.6%	72	37.5%
Chi - square(X²)	4.435		1.119		0.326		1.752	
p value	0.015		0.278		0.524		0.179	

Vasomotor, psychological, physical symptoms were more prevalent with the postmenopausal women less than and equal to 25 and sexual symptoms were prevalent with women 25 and above.

There is no statistical significance association of rural women BMI with postmenopausal symptoms.

Table 28: Association of post-menopausal symptoms in relation to RBS of the study participant of urban area.

Random blood sugar (urban)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Less than and equal to 200	79	29.9%	107	40.5%	123	46.5%	73	38.0%
200 and above	51	19.3%	85	32.1%	82	31.0%	55	28.6%
Chi - square(X^2)	4.701		12.265		0.548		0.511	
p value	0.759		0.528		0.752		0.558	

Here menopausal symptoms were more prevalent towards the women with random blood sugar less than and equal to 200 mg/dl.

As such our study does not show any significance towards random blood sugar with postmenopausal symptoms.

Table 29: Association of post-menopausal symptoms in relation to RBS of the study participant of rural area.

Random blood sugar (rural)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Less than and equal to 200	72	27.2%	109	41.2%	117	44.8%	72	37.5%
200 and above	61	23.1%	68	25.7%	75	28.4%	42	21.8%
Chi - square(X ²)	0.155		12.525		4.475		0.663	
p value	0.726		0.725		0.052		0.753	

Vasomotor, Psychological, Physical, and sexual symptoms were more prevalent towards the women with random blood sugar of less than and equal to 200mg/dl.

Statistical association was not observed with random blood sugar level among postmenopausal women in rural area.

Table 30: Association of post-menopausal symptoms in relation to hemoglobin value with related to of the study participant of urban area.

Hemoglobin (urban)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Less than and equal to 9	85	32.1%	113	42.8%	140	53.0%	66	34.3%
10 and above	45	17.0%	79	29.9%	65	24.6%	62	32.2%
Chi - square(X^2)	4.159		12.215		0.126		0.679	
P value	0.256		0.063		0.512		0.256	

It shows that hemoglobin doesn't have association with menopausal symptoms.

Menopausal symptoms of vasomotor, psychological, physical, sexual were more prevalent among urban people with haemoglobin level less than and equal to 9g/dl.

Table 31: Association of post-menopausal symptoms in relation to the hemoglobin value with related to the study participant of rural area.

Hemoglobin level (Rural)	Vasomotor (n=264)		Psychological (n=264)		Physical (n=264)		Sexual (n=192)	
	Present	%	Present	%	Present	%	Present	%
Less than and equal to 9	72	27.2%	62	23.4%	69	26.1%	69	35.9%
10 and above	61	23.1%	115	43.5%	123	46.5%	45	23.4%
Chi -square(X ²)	4.512		12.956		0.102		0.270	
P value	0.172		0.039*		0.615		0.556	

Vasomotor symptoms and sexual symptoms were more prevalent in the women with the haemoglobin level of less than and equal to 9. Physical and psychological symptoms show more prevalence towards the post-menopausal women with the haemoglobin level of 10 and above.

Statistical association is seen with the hemoglobin level and the psychological domain, with p values of 0.039.

DISCUSSION

Every woman experience menopause as a natural biological process. Many post-menopausal women responded differently to menopausal symptoms.

Socio-demographic profile of the participants:

A total of 528 postmenopausal women's were included in the study. Participants 50% were from rural area and 50% from urban area. Among them 39.7% and 36.7% belonging to rural and urban area of the study population falls between the age group ranging between 51-55 years. 57.1% and 57.5% belonging to rural and urban area of the participants has completed their under graduation.64 (24.2%), belonging to rural and urban area were in unemployed category. 369 (70%) of the total study population reside in a nuclear family.

Mean age of menopause in our study is 51.12 ± 5.69 (Mean \pm SD) and is more prevalent between the age group of 51-60 years in our study. In the Jammu study, the average age at menopause was 47.35 years. According to the study, symptoms in this area among urban population varied by type with age and MDSM (Mean Duration since Menopause), with vasomotor symptoms being more common with lower MDSM and psychological and rheumatic complaints being more common with rising age and MDSM. ^[55]

Similarly, a study from south india, Menopause began on average at 48.7 years old. Aches in the muscles and joints, fatigue, memory loss, lower back pain, and trouble sleeping were the most common menopausal symptoms. Compared to the physical and psychological categories, the vasomotor and sexual domains received fewer complaints.

Menopause begins at 48.7 years of age in southern Karnataka, India, which is four years older than the typical age at which Indian women reach menopause. Better socioeconomic and medical amenities in the area may be to blame for this. To dispel the preconceptions that these symptoms have no clinical significance and do not require treatment, women must become more aware of them in order to minimize the severity of the overall ailment.^[29] In order to minimize the symptoms and improve their quality of life, more women in the rural group than the urban group require medical examination and treatment.

A study which was conducted by Sudha *et al.*, shows that the mean number of postmenopausal symptoms was significantly higher in the > 50 years age group as compared to those in the \leq 50 years age group. ^[55] This is because certain women may not have reached menopause or may not have felt any of these symptoms.

Our study demonstrates a relationship between participant age and the psychological component of postmenopausal symptoms. In a similar view, Sharma and Mahajan's study revealed that the age group of people who were >50 years old had considerably more postmenopausal symptoms on average, demonstrating that ageing and social deprivation may potentially have a negative impact on the quality of life of postmenopausal women in addition to menopausal symptoms ^[42] but a study done by Poomalar and Arounassala in the rural population of Puducherry does not show an association between the age of the population and the psychological symptoms.^[38]

The association between socio-economic status and vasomotor symptoms has been discovered to be statistically significant at $P= 0.018$. There is also a significant association between socio-economic status and psychological symptoms ($P = 0.009$) in our study. It is found to be significant in both groups. Women belonging to middle-class families had more onset of menopausal symptoms compared to women belonging to poor socio-economic status. Study was done by Wise *et al.*, also showed that adverse socio-economic conditions across the lifespan may be associated with an increased rate of entry of women into perimenopause.^[56]

In our study population, there was no association between education level and postmenopausal symptoms. However, a study done by Senthilvel *et al.*, showed an association between educational status, and socioeconomic status in the quality of life among the postmenopausal women of their study population.^[10]

In our study 346(66%) of them are married, 99(18%) of them are separated and 83(16%) of them are widowed. The postmenopausal symptoms were compared with the study participants marital status and showed no statistical significance. Of those reporting postmenopausal symptoms, the significant aggregate is within the physical domain. The physical symptoms are perceived more due to the normal ageing or overly emphasized. Thus, they fail to acknowledge other forms of vasomotor, psychosocial, or sexual symptoms.

The major proportion of the menopausal women belonged to hindu religion both in rural areas (78%) and urban areas (79%). Comparatively, more Muslims were from urban (21%) than in rural. Our study showed no significant difference when compared with the religion. The vasomotor and sexual domains are less frequently complained when compared to the physical and psychological domains this may be due to certain barriers in answering to the questions. The literature shows no studies were compared the marital status and the religion of the women with menopausal symptoms.

Menopausal Symptoms:

The findings of our study revealed that postmenopausal women in the rural area show symptoms like hot flushes (30%), night sweat (33%), aching in muscles and joints (34%), feeling of lack of energy (35%), ache in the back of head and neck (37%), weight gain (36%), low back ache (35%), avoiding intimacy (34%), being impatient with others (37%), feeling anxious or nervous (34%).

Postmenopausal women from the urban area show symptoms like night sweats (33%), Hot flushes (40%), aches in the back of neck or head (34%), Decrease in stamina (34%), weight gain (35%), low backache (40%), frequent urination (33%), change in sexual desire (32%), avoiding intimacy (34%), and being impatient with others (32%).

The widely held of menopause symptoms are linked to a drop in estrogen levels. Hot flushes are caused by a sudden drop in estrogen levels. Neurotransmitters like catecholamine and catechol estrogens regulate the thermoregulatory region in the hypothalamus. These thermoregulatory centres contain estrogen receptors Catechol estrogen is created when catecholamines and the estrogen in the blood combine. When there is a deficiency in estrogen, catecholamines and catechol estrogen become unbalanced. This consequences in hot flushes. In this way it starts the mechanism of heat loss (vasodilatation, sweating, and behavioral changes) at the beginning of the hot flush and ends it with the mechanisms of

heat conservation (vasoconstriction, behavioral changes, and shivering). Hot flush events typically begin at the beginning of menopause. Other typical signs of the perimenopausal phase include mood swings, sleeplessness, exhaustion, and memory issues. Also, Osteoporosis, coronary heart disease, diabetes, arthritis, and urine symptoms are the most frequently seen issues throughout the postmenopausal period. Because they were created from the same embryo as the vagina, the female urethra and trigone of the bladder have estrogen receptors and are impacted by a reduction in the amount of circulating estrogen. ^[57]

In our study, the prevalence of vasomotor symptoms such as hot flushes were 58%, night sweat 66%, and sweating was 66%, similarly a study done by Shukla *et al.*, in a rural area of Gujarat showed the prevalence of at least one vasomotor symptom was 21.3%.^[58] Furthermore, Chowta *et al.*, reported in their study done in Mangalore as the prevalence of vasomotor symptoms in their study population was 16%.^[59]

In our study, hot flushes were reported by 58% of postmenopausal women. This finding is equivalent to finding in the studies carried out by Madhukumar *et al.*, Nusrat *et al.*, Sharma *et al.*, and Dutta *et al.*, in which the prevalence of hot flushes was found to be 55.9%, 59.4%, 53.86% and 60.9%, respectively. This indicates that these are the most common symptom observed among all women. ^[60,61,42,62]

The prevalence of night sweats in the current study was found to be 66%. This is unswerving with the findings of the studies carried out by Sharma *et al.*, Madhukumar *et al.*, Sagdeo and Arora., and Rahman *et al.*, in which the prevalence of night sweats was found to be 53.86%, 36.7%, 35.8% and 48.3%, respectively. [42, 60, 31, 43]

Having anxiety or nervousness was a common symptom, with 34% of psychological symptoms being present, 33% feeling depressed was 34% and 35%, being impatient 37% and 32% and feelings of wanting to be alone 35% and 35% in rural and urban areas in our study. Similarly, a study by Duta *et al.*, in the rural sections of Tamil Nadu's Thiruvallur district revealed that the prevalence of feeling anxious was 35.4%, that of feeling depressed was 24.7%, and that the prevalence of being impatient with others was 9.1%., [62] likewise a study reported by Bener and Falah in the Qatar population exposed dissatisfaction with personal life was 18.5%, feeling anxious was 47.2%, feeling depressed was 26.7%, being impatient was 27.2%, and feeling of wanting to be alone was 20% [63]. This variation may be due to fluctuating and declining estrogen levels. The neurotransmitters serotonin and nor-epinephrine, which are regarded to be the ones most connected to the physiological basis of depression, are enhanced by estrogen. [64]

More than a quarter of postmenopausal women were depressed, which is cause for concern. Rahman *et al.*, identified the prevalence of depressive mood to be 37.3%^[43] Poomalar and Arounassalame reported the prevalence of depressed mood to be 57.2%.^[38] Furthermore in this study, 21.1% of postmenopausal women were found to be suffering from either mild or moderate anxiety. Poomalar and Arounassalame and Ayranci *et al.*, found the prevalence of anxious mood as 67.2% and 78.8%, respectively.^[38, 65] The increased prevalence of psychological symptoms such a lack of social support, unemployment, and poor general health may be caused by hormonal changes as well as cultural roles and expectations.^[64]

Irritability was exposed by 69% of postmenopausal women in the current study. This outcome was reliable with results of Kaulagekar *et al.*, Rahman *et al.*, and Sharma *et al.*,^[35,43,42]

Symptoms related to the physical domain were observed in our study participants, feeling a lack of energy at 70%, decreased stamina at 66%, decrease strength at 70%, low backache at 75%and , aching in muscles and joint 70%. Similarly, a study done in Kochi by Senthilvel *et al.*, showed a feeling lack of energy 84%, decreased stamina 82.7%, low backache 80%, aching in the muscle and joint 90.7%^[10]. Karmakar *et al.*, conducted a study in Dearah village of West Bengal reported physical symptoms were similar to our study.^[66] This is

because during aging, muscle mass decreases due to an imbalance in muscle protein turnover and cell atrophy. In women, aging related hormonal changes accelerate especially during post menopause, which women face in middle age.^[67]

In this study, 70% of postmenopausal women reported experiencing joint or muscular pain. Similar findings were observed in the studies conducted by Sagdeo and Arora., Nusrat *et al.*, and Sharma *et al.*, in which the prevalence of muscle or joint pain was found to be 60.4%, 66.74% and 53.86%, respectively.

[51, 61, 42]

It was detected that 69% of postmenopausal women in the current study reported tiredness. Similar results were found in the studies conducted by Monterrosa *et al.*, and Khan and Hallad *et al.*,^[68,69]

The most common symptoms in both urban and rural areas were joint and muscular pain, hot flushes, night sweats, and sleep issues. Alike study by Avis *et al.*, found psychosomatic complaints to be higher in women, although there are ethnic differences between our study group and this study, In our study group, the prevalence of classic menopausal symptoms was still lower. According to our study, urban women experience more menopausal symptoms than rural women do.^[70] Similar study by Gupta *et al.*, found that urban women

experience higher menopausal symptoms than rural women. ^[71] It is also reinforced by Puri *et al.*, study & Singh & Arora study. ^[72,73]

Sleep disturbances were reported by 38.4% of postmenopausal women in the current study. This is similar to the results in the studies shown by Dasgupta and Ray, Aaron *et al.*, and Rahman *et al.*, in which the prevalence of sleep disturbances were found to be 70.0%, 52.0% and 54.4%, respectively. ^[37, 74, 43]

The reason behind this is during menopause sleep disturbance associates with estrogen deficiency. According to a recent study, high core body temperatures are the result of postmenopausal women's higher LH levels, which are thought to cause disturbed sleep through a thermoregulatory mechanism. ^[64]

The symptoms concerning sexual domain were change sex desire was 65%, vaginal dryness during intercourse 66% and avoiding intimacy was 68%. Whereas Singh and Pradhan *et al.*, conveyed that decreased sexual desire was 33.7% and vaginal dryness 20.2%. ^[73] Although the actual incidence and causes of sexual dysfunction in women throughout menopause are unknown, this variety is caused by the fact that many of them experience it. Reduced interest or desire to initiate action, as well as diminished arousal or capacity to elicit an orgasm during sexual encounters, are all possible symptoms of sexual dysfunction. Conflict within the relationship, psychological issues like

depression or anxiety disorders, and other factors are frequently involved in the etiology of sexual dysfunction. [75]

In the present study, 61% postmenopausal women had urinary complaints. Study conducted by Rahman *et al*, (12.8%)^[43], Khan and Hallad 9.9%^[41]. Monterrosa *etal.*, found urinary complaints in 14.9% of Afro-Colombian women. [68]

In the current study, 65% of postmenopausal women reported having a diminished libido or decreased sexual desire. Rahman *et al.*, (31.2%) and Gollschewski *et al.*, (34.5%) observed similar results. [43, 76] In comparison to urban women, rural women are much less informed of sexual difficulties and reproductive health. This result might be related to increased awareness and literacy in urban areas.

The co-morbid conditions were analyzed with the menopausal symptoms and it showed that the participants residing in urban area has no association with them, whereas participants residing in the rural area had association with the co-morbid conditions with the p value of 0.07. Diabetes and hypertension were more prevalent in both groups. Diabetes is a significant risk factor for cardiovascular disease, and its prevalence is rising globally. Diabetes management in menopausal women is a therapeutic problem that necessitates careful consideration of the kind and method of administration when using

hormone replacement therapy. This study analyzed association between diabetes, hypertension, tuberculosis, epilepsy, bronchial asthma rather than studying one.^[77]

Our study demonstrates that there is a connection between menopausal symptoms and body mass index in urban area. And the vasomotor symptoms show statistical significance in this group with p value of 0.007. Most of the study shows that there is a relationship between menopausal symptoms and obesity. There is data showing that vasomotor symptoms were statistically higher in women with higher body mass indexes (BMIs).^[78] More information is needed to understand the finding that there is no association between weight and the severity of menopausal symptoms. The fact that adipose tissue converts adrenal androgens to estrogen and that obese women have higher estrogen levels even during menopause could be one explanation for the current findings.^[2] Given that decreasing estrogen levels are known to be associated with vasomotor symptoms, it makes sense that obese women would have a lower prevalence of these symptoms.^[79]

Our study shows that there is a statistical significance present with menopausal symptoms and hemoglobin in psychological variable. It is present both in urban and rural area with p value 0.035 and 0.045 respectively. However, perimenopausal irregular periods, ulcers, cancer, diseases or methods that result in nutrient malabsorption, such as Crohn's disease, celiac disease, or gastric

bypass, or regular use of over-the-counter painkillers, such as aspirin, can also contribute to iron deficiency anemia during or after menopause. Inadequate nutritional intake and iron malabsorption were cited in two recent studies that focused on iron deficiency anemia in postmenopausal women as common causes of the illness.^[80]

SUMMARY

- The present study was conducted in the rural and urban field practice areas of tertiary health care centre. A total number of study participants were 528 among which 50% were from rural area and another half were from urban area.
- Majority of the postmenopausal women belongs to the age of 51-55 years. 37.5% and 32.1% belonging to rural and urban area of the study belong to upper middle-class family.
- It is congenial to know that none of the study participants are illiterate. More than 50% belonging to rural and urban area of the study have completed their under graduation.
- 23.4% of post-menopausal women belonging to both rural and urban areas were unemployed.
- 70% of the total study population reside in a nuclear family. In which 66% of them are married, 18% of them are separated, 16% of them are widowed.
- Major proportion of postmenopausal women belonged to Hindu religion both in urban (77%) and in rural area (78.4%).
- Maximum number of women were having two children both in urban (28%) and in rural area (25.6%). We observed one child norm in both urban (19%) and rural area (19.5%).

- According to the type of delivery 29% of the participants belonging to rural group and 19% belonging to urban group has undergone vaginal delivery. Vaginal delivery was higher in rural group. Participants belonging to rural group and urban group has undergone LSCS constitutes 26%. Prevalence is equal in both groups.
- The study participants belonging to rural area present with various health problems constitutes 86%. Gastrointestinal problems are seen high in urban area with a percentage of 18.5 when comparing with rural. And in urban majority of the participants presented with respiratory complaints were 26.3%
- 27% of the participants were suffering from co-morbid conditions, among them urban participants were 14% and rural were 13%.
- The prevalence of diabetes and hypertension was found equal in both urban and rural areas 33%.
- Respondents who were under regular medication for their co-morbid condition were 38.5% in urban and 28.5% in rural.
- Our study shows women underwent different kind of surgeries were more in urban areas 19%.
- 72.6% of the study participants presented with menopausal symptoms both in urban and rural areas.
- Among this, participants residing in urban area had higher percentage of self- reporting menopausal symptoms (18.2%) and 67.4% of the

participants both from urban and rural revealed about the menopausal symptoms using list of menopausal symptoms.

- Majority of the postmenopausal women complaints about vasomotor symptoms like sweating (68%) followed by night sweats (66%) and hot flushes (58%)
- With related to psychological symptoms dissatisfaction and feeling depressed were equally prevalent in both urban and rural areas 70%.
- With respect to sexual symptoms like avoiding intimacy were more prevalent in both urban and rural areas 68%.
- Majority of the study participants reported they have normal sleep both in urban and rural areas 61.5%
- 72% of both urban and rural women have physical symptoms like flatulence and change in appearance.
- Out of 264 participants from urban area, majority of the participants presented with physical symptoms 205 and 128 participants with sexual symptoms.
- Out of 264 participants from rural area, 192 presented with physical symptoms and 114 presented with sexual symptoms.
- Majority of the study participants reported they have normal sleep both in urban and rural area.
- More than 50% of the respondents were showing body mass index (BMI) of more than 25 both in urban and rural area.

- With our recorded blood pressure measurement shows, majority of the participant's falls on high normal level of blood pressure (37%) and grade I hypertension (25%).
- Our investigation report of random blood sugar level shows >90% of postmenopausal women were in the normal range less than 200 mg/dl.
- It is altruistic to know that majority of the urban and rural postmenopausal women fall under the category of normal hemoglobin level 39%.
- We found statistically significant association between the age and psychological domain with P values of 0.019 and 0.020 in urban and rural setting respectively.
- The association between socio-economic status and vasomotor symptoms has been discovered to be statistically significant at $p = 0.018$ in urban area and in rural area (0.015).
- There is also significant association between socio-economic status and psychological symptoms $p = 0.007$ in urban area and in rural area $p = 0.005$.
- Association of menopausal symptoms with the co-morbid conditions for the participants residing in rural area shows statistical significance with $p = 0.007$.
- Sleep pattern shows significance with vasomotor symptoms (<0.001) and physical symptoms (0.0003).

- In the present study, we found statistically significant association between body mass index and postmenopausal symptoms with related to vasomotor symptoms $p=0.005$ in urban area.
- Association of postmenopausal symptoms in relation to hemoglobin of the study participants shows statistical significance with psychological domain in rural area $p=0.039$.
- No significant association was observed with religion, marital status, and random blood sugar in relation to postmenopausal symptoms.

➤ CONCLUSION

Menopause is not a disease or a disorder, and therefore it does not require any kind of medical treatment immediately. The present study concludes that overall prevalence of postmenopausal symptoms was high both in urban and rural area. Among women in their middle age, menopause-related symptoms are quite prevalent. Physical symptoms, vasomotor symptoms followed by psychological symptoms are the most commonly reported ones. When it comes to sexual symptoms, misinterpretation and shy attitude to disclosure is the main barrier among the postmenopausal women. Study also reveals that there is no role of religion, place of residence, and marital status with relation to post-menopausal symptoms. The menopausal symptoms we observed in our study are similar to findings of other studies, this shows that a significant portion of women worldwide experience menopausal symptoms as a result of ageing and certain socioeconomic conditions. Therefore, menopausal health demands priority in Indian scenario both in urban and rural areas due to increase in life expectancy and growing population of menopausal women. Large efforts are required to educate and make these women aware of menopausal symptoms. The present health status and co-morbid conditions were prevalent both in urban and rural area. Based on our study findings, we have counseled postmenopausal women regarding postmenopausal symptoms and also about seeking proper treatment whenever it is required and lifestyle modifications to stay healthy.

RECOMMENDATIONS: Based on the finding of our study we recommend

- Health care workers should be trained to recognise menopausal women and screen them for symptoms, as well as examine and investigate problems.
- Identifying culturally appropriate individualised care and encouraging a healthy lifestyle during the physiologic transition may help midlife women maintain a high quality of life.
- Establishment of women’s “wellness clinic” within current primary health care system for regular screening.
- It will take a lot of work to educate and make them aware of menopausal symptoms, therefore mass media can be involved in spreading awareness on post-menopausal changes and its management through some kind of talk shows in television, radio and articles in the newspaper among women and the community. This will facilitate early symptom detection, discomfort reduction, and the capacity to seek appropriate treatment.
- There is a need for the state and central public health systems to address the issues of middle-aged women. There is currently no health program in India that addresses the unique medical requirements of postmenopausal women. Furthermore, the National Rural Health Mission and Reproductive and Child Health-II programs primarily target women still in the reproductive age range, excluding those beyond the reproductive stage

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ANNEXURE- I PROFORMA

A) Personal data

- 1.Name:
- 2.Age:
- 3.Type of family: Nuclear/ Joint
- 4.Marital status: Married/ Widowed/ Separated
- 5.Religion:
- 6.Parity:
- 7.Education: SSLC/PUC/UG/Diploma/Graduate/post graduate.
- 8.Occupation: House wife/Service/Labor/Business/Agriculture
- 9.Socioeconomic status: Upper/Upper middle/Lower middle/Upper lower/Lower
- 10.Place of residence: urban/rural

B) Present chief complaints(4weeks)-yes/no

If yes mention it and duration.

Any treatment taken.

Menopausal symptoms-yes/no

If yes, mention the duration.

Any treatment taken.

List of menopausal symptoms:

Vasomotor symptoms

Hot flushes

Night sweats

Sweating

Psychological symptoms

Dissatisfied

Anxious or nervous

Poor memory

Accomplishing less than used to

Feeling depressed

Being impatient

Wanting to be alone

Sexual symptoms

Change in your sexual desire

Vaginal dryness

Avoiding intimacy

Physical symptoms

Flatulence

Aching in muscles and joints

Tired or worn out

Difficulty sleeping

Aches in back of neck or head

Decrease in physical strength

Decrease in stamina

Feeling a lack of energy

Drying skin

Weight gain

Increased facial hair

Changes in appearance

Feeling bloated

Low backache

Frequent urination

Involuntary urination

C)Past history

1)whether person is known case of diabetic/hypertensive/tb/asthma/epilepsy? Yes/no

If yes,

Since how many months/years?

Taking regular treatment? Yes/no

2)Any surgical history

D) Personal history

1) Any habits -yes/no -if yes mention the duration.

2) Diet: Veg/Nonveg

3) Sleep: Normal/Disturbed

4) Bowel habits: Regular/irregular

5) Bladder habits:

Micturition: Frequency/urgency/hesitancy/dribbling/burning micturition.

6) Physical activity: yes/no

Regular /irregular

walk/exercise/yoga/sports/others/

E) General physical examination

1) Pallor/Icterus/Cyanosis/Clubbing/Lymphadenopathy/Pedal edema

2) Breast self-examination.

3) Height: cm

4) Weight: kg

5) BMI

F) Vital signs:

1) PR-

2) BP-

3) RR-

4) TEMP-

G) Systemic examination:

1) Per abdomen

2) Cardiovascular system

3) Respiratory system


4) Central nervous system

H) Investigations:

Random blood sugar by glucometer

Hb investigation by automated hemoglobinometer.

ANNEXURE -II
ETHICAL CLEARANCE CERTIFICATE


B.L.D.E. (DEEMED TO BE UNIVERSITY)
(Declared vide notification No. F. 9-17/2007.U.3 (A) Dated: 29-2-2008 of the MHRD, Government of India under Section 3 of the UGC Act, 1956)
The Constituent College
SHRI. B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTRE

IEC/100-09/21
Date - 22/01/2021


INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Institutional ethical committee of this college met on 11-01-2021 at 11-00 am to scrutinize the synopsis of Postgraduate students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected and revised version synopsis of the Thesis has been accorded Ethical Clearance.

Title: A Community Based cross sectional study to assess the health status and symptoms of postmenopausal women in rural and urban field practice areas.

Name of PG student: Dr Priyanga, Department of Community Medicine

Name of Guide/Co-investigator: Dr Rekha Udgiri, Professor of Community Medicine


DR. S.V. PATIL
CHAIRMAN, IEC

Institutional Ethical Committee
B L D E (Deemed to be University)
Shri B.M. Patil Medical College,
VIJAYAPUR-586103 (Karnataka)

Following documents were placed before Ethical Committee for Scrutinization:

1. Copy of Synopsis / Research project
2. Copy of informed consent form
3. Any other relevant documents.

7

ANNEXURE – III

INFORMED CONSENT FORM

**B.L.D.E. Deemed To Be University, Shri B.M. Patil Medical
College, Hospital And Research Centre, Vijayapura.**

Department Of Community Medicine

CONSENT FORM

Title of the topic

**A Community Based Cross-Sectional Study to Assess the Health Status and
Symptoms of Postmenopausal Women in Rural and Urban Field Practice
Area.**

PG Student: Dr.K.Priyanga

Guide: Dr Rekha Udgiri

1: PURPOSE OF RESEARCH: I have been informed that this study will help to evaluate and compare the post -menopausal symptoms of women in rural and urban field practice area. To assess the present health status and other co-morbid conditions of post-menopausal women.

2: PROCEDURE : It is a Cross - sectional study. Study group will be comprised of woman is in the age group of upto 60 years who attained menopause. Participants were interviewed using pretested and semi-structures questionnaire. Information regarding Socio-demographic profile, Menopausal symptoms, Present health status and any co-morbid conditions. A questionnaire related to General physical examination, the systemic examination was done, and an anthropometric measurement that includes Height, Weight, BMI, using standard operating procedures.

Vitals events include Pulse rate, Blood pressure, and Respiratory rate.

3: RISK AND DISCOMFORTS: I understand determination of above-mentioned procedure will not cause any discomfort to me and do not involve any risk to my health.

4: BENEFITS: I understand that my participation in the study may not have a direct benefit to me but will be useful in assessing the prevalence of menopausal symptoms and about their present health status in rural and urban field practice areas of Shri B. M. Patil Medical College. Vijayapura

5: CONFIDENTIALITY: I understand that medical information produced by this study will become part of institutional records and will be subject to the confidentiality and privacy regulation of the said institute.

6: REQUEST FOR MORE INFORMATION: I understand that I may ask more questions about the study at any time. Concerned researcher is available to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of this study which might influence my continued participation. If during the study or later, I wish to discuss my participation in all concerns regarding this study with a person not directly involved, I am aware that the social worker of the Institute is available to talk with me. A copy of this consent form will be given to me to keep for careful re-reading.

7: REFUSAL OR WITHDRAWAL OF PARTICIPATION: I understand that my participation is voluntary and that I may refuse to participate or may withdraw my consent and discontinue participation in the study at any time without prejudice. I also understand that researcher may terminate my participation in this study at any time after she has explained the reasons for doing so.

I have explained to _____(Patient/Relevant guardian) the purpose of the research, procedures required and the possible risk and benefits to the best of my ability.

Investigator:

Date:

I confirm that Dr.K.Priyanga has explained to me the purpose of research, the study procedure that I will undergo, and the possible risk and discomforts as well as benefits that I may experience in my own language. I have been explained all the above in detail in my language and understand the same. Therefore, I agree to give consent to participate as a subject in this research project.

Participant:

Date:

ANNEXURE -IV

PHOTOS



ANNEXURE -V

PLAGIARISM REPORT

20BMCOM002-PRIYANGA-A Community Based Cross-Sectional Study to Assess the Health Status and Symptoms of Postmenopausal Women in Rural and Urban Field Practice Areas

ORIGINALITY REPORT

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GANTT CHART

	2020				2021												2022												
Activity	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Topic selection																													
Synopsis preparation and submission																													
Review of literature																													
Preparation of Proforma																													
Pilot study of questionnaire																													
Data collection																													
Data analysis																													
Dissertation writing																													
Dissertation submission																													

