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Assessment of dietary intake and association of sociodemographic characteristics with menopausal symptom severity among menopausal women aged 45-65 years

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Abstract
The study aimed to assess the sociodemographic details, severity of menopausal symptoms, dietary intake and the association between sociodemographic details and severity of menopausal symptoms among 100 menopausal women aged 45-65 years in Telangana. A cross-sectional study was conducted, using a structured questionnaire covering socio-demographic characteristics, family patterns and lifestyle habits, medical history, dietary information, menopause rating scale and menopausal symptom relieving specified food frequency assessment. Descriptive statistics and chi-square tests were used for analysis. The results indicated that Menopausal symptom severity among the participants were noticed from mild to moderate, while heart discomfort was reported less frequently than other symptoms. Dietary intake of participants indicated inadequate intake of phytoestrogen rich foods, omega-3-fatty acid rich foods, whole grains, legumes, fruits, low consumption of calcium rich foods whereas vegetables were consumed more frequently. Age and occupation were significantly associated whereas education and marital status were not significantly associated with menopausal symptom severity. The findings highlight the need for balanced dietary practices and targeted interventions to improve the management of menopausal symptoms among women.

Keywords: Menopause, menopausal women, menopausal symptoms, dietary intake, sociodemographic characteristics, Menopause Rating Scale (MRS)

Introduction

Menopause is a universal and inevitable biological event in every woman's life, marking the permanent cessation of menstruation due to the depletion of ovarian follicular activity. According to the World Health Organization (WHO), menopause is diagnosed after twelve consecutive months of amenorrhea in the absence of any pathological or physiological cause. It represents the transition from the reproductive phase to the non-reproductive phase and is accompanied by profound hormonal, physiological, metabolic, and psychological changes. Although menopause is a natural process rather than a disease, it is associated with a variety of symptoms that may adversely affect women's physical, emotional, and social well-being. (WHO, 2022).

In India, menopause generally occurs between 46 and 48 years of age, which is earlier than in many Western countries where the average age is approximately 51 years. Indian women often experience menopause at a younger age due to genetic, nutritional, environmental, and socioeconomic factors. As life expectancy among Indian women continues to rise, the number of women living with menopause-related health concerns is expected to increase substantially, making menopause an important public health issue (Indian Menopause Society, 2020) [6].

Significance of the Study

India is experiencing rapid demographic ageing, resulting in a growing population of menopausal women. Despite increasing awareness regarding women's health, menopause remains an under-recognized issue in many communities. Many women accept menopausal symptoms as an inevitable part of ageing and therefore do not seek medical or nutritional guidance. Limited awareness regarding healthy dietary practices, physical activity, and lifestyle modifications further increases the burden of menopausal symptoms and associated chronic diseases.

Understanding the relationship between sociodemographic characteristics, dietary intake, and menopausal symptom severity is essential for developing effective nutrition education programmes and public health interventions. Identifying dietary patterns associated with symptom severity may help healthcare professionals provide evidence-based dietary counselling to improve quality of life among menopausal women.

Influence of sociodemographic characteristics on Menopausal health

Sociodemographic characteristics also influence menopausal health. Age remains one of the strongest determinants of menopausal symptoms because hormonal decline progresses with advancing years. Educational status influences awareness regarding menopause, health-seeking behaviour, nutritional knowledge, and adoption of healthy lifestyles. Occupational status determines physical workload, stress levels, income, and access to healthcare services. Marital status and family support influence emotional well-being and coping mechanisms during menopause. Socioeconomic status further affects food security, healthcare utilization, and access to preventive services. Consequently, women belonging to lower socioeconomic groups frequently experience more severe

menopausal symptoms than those with higher educational and economic status (Indian Menopause Society, 2020) [6],

Dietary components associated with Menopausal health

India is experiencing rapid demographic ageing, resulting in a growing population of menopausal women. Despite increasing awareness regarding women's health, menopause remains an under-recognized issue in many communities. Many women accept menopausal symptoms as an inevitable part of ageing and therefore do not seek medical or nutritional guidance. Limited awareness regarding healthy dietary practices, physical activity, and lifestyle modifications further increases the burden of menopausal symptoms and associated chronic diseases.

Understanding the relationship between sociodemographic characteristics, dietary intake, and menopausal symptom severity is essential for developing effective nutrition education programmes and public health interventions. Identifying dietary patterns associated with symptom severity may help healthcare professionals provide evidence-based dietary counselling to improve quality of life among menopausal women (Ahsan 2017) [1].

Need for the Study

Therefore, the present study entitled "Assessment of Sociodemographic Details, Dietary Intake and Menopausal Symptom Severity in Menopausal Women" was undertaken to assess the sociodemographic profile, evaluate dietary intake using a Food Frequency Questionnaire, determine the severity of menopausal symptoms using the Menopause Rating Scale, and examine the association between selected sociodemographic variables and menopausal symptom severity. The findings of this study may contribute to the development of appropriate nutritional strategies and health education programmes aimed at promoting healthy ageing among menopausal women.

Materials and Methods

A cross-sectional study was conducted among Menopausal women aged 45-65 years residing in Telangana who are willing to participate. Women with chronic illness or psychiatric disorders and unwilling were excluded.

Data collection and assessment tools

Data were collected using pre-structured questionnaire containing sociodemographic details, family patterns and habits, medical history, dietary information through food frequency questionnaire of menopausal symptom relieving foods and menopause rating scale.

Menopause Rating Scale tool: The Menopause Rating Scale (MRS) was developed in 1992 by German researchers Dr. Lothar A.J. Heinemann and Dr. Hermann P.G. Schneider, alongside colleagues like Peter Potthoff, at the Berlin Centre for Epidemiology and Health Research.

Scoring

Menopause Rating Scale (MRS) consisting of 11 menopausal symptoms was used to assess the severity of menopausal symptoms, was scored on a 5-point scale (None = 0; Mild = 1; Moderate = 2; Severe = 3; Extremely severe = 4.) (Khatoon 2018) [7]. The scores of all 11 symptoms were summed up to obtain the total MRS score for each participant. The total MRS scores were categorized into: ≤ 17 – Less severe menopausal symptoms and > 17 – More severe menopausal symptoms. (Singh 2025), (Mediboina 2024) [8, 9].

Food Frequency Questionnaire (FFQ) consisting of 28 food items was used to assess the frequency of consumption of menopausal symptom-relieving foods.

The food items were grouped into five food groups containing Phytoestrogen-rich foods, calcium-rich foods, omega-3 fatty acid-rich foods, cereals and pulses, fruits and vegetables.

Each food item was scored based on the frequency of consumption as follows (Daily = 3, Weekly = 2, Monthly=1, never = 0) The score for each food item was recorded individually based on the participant's response and scores of all food items within each food group were summed to obtain the total score for that food group for each participant (Anna 2021).

Data was analysed using JASP software. Chi-square test was used to examine the association between the sociodemographic characteristics and total MRS scores. Statistical significance was defined at $p<0.05$ (Singh 2025), (Chopra 2022) [3, 9].

Ethical considerations: Participation was voluntary. Prior to completion of questionnaire, participants were informed about the purpose of the study and signatures were taken at the end of the questionnaire. Participant's personal information were kept confidential throughout the study.

Results and Discussion

Sociodemographic details

A total of 100 students aged 45-65 years participated in the study. 26 subjects are between the age 45-50 years, 36 subjects are between 50-55 years, 20 subjects are in between 55-60 years, 18 subjects are in between 60-65 years. In terms of education, 8% subjects are illiterates, 34% subjects fall under 1-10th class, 26% fall under intermediate, the other women pursued higher education. Most of the women were home makers followed by teacher and other occupations include cook, agricultural labourer, teacher, business and workers. The marital status of the subjects is 95% were married, 2% were unmarried, 3% were widows.

Chi-square test analysis between the variables

The association between the sociodemographic characteristics and total MRS score were assessed using chi-square test. Age was significantly associated with the total MRS score ($\chi^2 = 9.840$, $p = 0.043$) also occupation was also shown significant association with the total MRS score. In contrast education is not significantly associated with the total MRS score ($\chi^2 = 5.633$, $p = 0.228$) and also marital status in not significantly associated with the total MRS score ($\chi^2 = 3.345$, $p = 0.188$), (Yerra 2021).

Table 1: Correlational Analysis of study variables (N=100)

Variables	Chi-square test value	P-value	Statistical significance
Association between participants Age and Total MRS Score	9.840	0.043	significant
Association between Education and Total MRS Score	5.633	0.228	Non-significant
Association between Occupation and Total MRS Score	20.20	0.003	significant
Association between Marital status and Total MRS Score	3.345	0.188	Non-significant

Chi-square test results shown statistically significant association between participants age and total MRS score (menopausal symptom severity) that is $p = 0.043$ and a statistically significant association observed between the occupation and total MRS Score (menopausal symptom severity) that is $p = 0.003$. No statistically significant association between education and total MRS score (menopausal symptom severity) that is $p = 0.228$ or association between marital status and total MRS score (menopausal symptom severity) that is $p = 0.188$ (Banskota 2022)

Conclusion

The present study concludes that menopausal women aged 45-65 years are commonly experiencing somatic, psychological and urogenital symptoms from mild to moderate in most of the participants. The study shows that there is lack of awareness on menopausal symptom relieving foods and low consumption of phytoestrogen-rich foods, calcium-rich foods, omega-3-fatty acids, whole grains, fruits and only the vegetables and green leafy vegetables were consumed on regular basis. Anyways the overall dietary intake of the foods beneficial during menopause were found to be inadequate.

The further findings imply that age and occupation were associated with menopausal symptom severity whereas education and marital status were not significantly associated with menopausal symptom severity. This emphasizes need for the awareness on menopausal symptom relieving foods through awareness campaigns, nutrition education, diet counselling, healthy dietary practices among menopausal women. Adoption to balanced dietary habits and improved nutritional awareness helps reduce menopausal symptoms, improves nutritional status and enhance overall health and well-being of menopausal women.

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Conflict of Intrest: The authors declare no conflict of interest.

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