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NUTRITIONAL STATUS ASSESSMENT OF MENOPAUSAL WORKING WOMEN

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RESEARCH BASED BOOK CHAPTER

NUTRITIONAL STATUS ASSESSMENT OF MENOPAUSAL WORKING WOMEN

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Abstract

Hormonal changes associated with menopause, a normal biological process that usually happens between the ages of 45 and 55, have a major effect on women's health and wellbeing. This period of transition frequently presents physiological, psychological, and dietary difficulties that call for a thorough evaluation. The current study sought to assess menopausal working women in District Sargodha's about their nutritional status, lifestyle choices, and attitudes towards diet. A cross-sectional survey was done using a standardized questionnaire addressing key dimensions such as food patterns, physical activity, mental health, family support, medication use, and barriers to good eating. The results showed low levels of physical activity, poor food habits, and little adherence to expert nutritional advice. Although, the majority of participants agreed that, diet plays a significant role in controlling menopausal health, actual dietary changes and nutritionist consults were rare. Along with pragmatic barriers like lack of time, desire, and financial resources that impede the adoption of healthy behaviors, psychological well-being has come to light as a problem. According to the study, menopausal women urgently require focused nutritional interventions, education campaigns, and easily available counseling services. Overcoming these disparities can improve quality of life, lessen the severity of symptoms, and encourage healthier lifestyle choices at this crucial juncture.

Keywords
Menopause, Physical Activity, Dietary Habits, Nutritional Status, Nutritional Awareness

Introduction

Women transition from the reproductive to the non-reproductive stages of life, after the ages of 45 to 55 years. Women may have a range of symptoms at this time, including hot flashes, night sweats, anxiety and depression, mood and sleep disturbances, memory and concentration issues, bones and joints issues, and muscle loss. Menopause-specific questionnaire assessment in US population-based study shows

negative impact on health-related quality of life [1]. Menopause-related issues included increasing fractures, sexual dysfunction, cardiovascular illness, reproductive malignancies, osteoporosis, and heart disease [2]. Women's quality of life is adversely affected by menopausal symptoms. These symptoms' length, intensity, and effects differ greatly between individuals and populations. The symptoms of poor health-related quality of life can be distressing since they arise while women are responsible for important tasks in the home, the job, and society [3]. A lot of women also have menopausal symptoms, most of which are unpleasant, self-limiting, and occasionally incapacitating. As a result, menopausal women's quality of life is crucial, and managing their symptoms improves their health-related quality of life. The severity of these symptoms has been linked to a lower quality of life (QoL) and has been linked to both biological and psychological and social factors. Quality of Life (QoL) is defined by the World Health Organization (WHO) as "The individual's perceived place in life with respect to their objectives, standards, expectations, and issues, as well as the cultural and value systems in which they live." As a result, quality of life is a broad notion that is influenced by a person's social interactions, psychological state, and degree of independence, physical health, and relationship to notable environmental elements, demonstrating that it is a subjective and multifaceted concept [4]. Ethnicity, level of education, employment, marital status, personal financial circumstances, family support, monthly family income, age at marriage, age at first pregnancy, use of medication or treatment for health issues, physical activity, yoga, and meditation, and, finally, health issues are all factors that have a significant impact on quality of life. Factors such as age, education, ethnicity, length of time since menopause, and not living with a partner Health-related quality of life among menopausal women is influenced by a number of factors, including, food, exercise, beliefs about reproductive history, and attitudes towards menopausal symptoms. The main determinants of menopausal women's quality of life are their level of education, their use of medications or treatments for medical conditions, and their level of physical activity [5]. Obesity, metabolic syndrome, cardiovascular disease, and osteoporosis are all more common during menopause. Midlife women often experience weight increase, which has been linked to both the menopause transition and chronological ageing [6].

Lowering estrogen levels has been linked to an increase in fat mass (FM) and a decrease in lean body mass (LBM) during the menopausal transition. During the menopausal transition, FM grew by 1.7% annually (mean annual absolute rise of 0.45 kg) while LBM loss averaged 0.5% (mean annual absolute decrease of 0.2 kg) in the longitudinal Study of Women's Health across the Nation. A change in body composition is link to a higher risk of coronary heart disease, which might affect the overall health of the women [7].

One significant modifiable risk factor for menopause is diet. The possible effects of certain foods or nutrients are the main focus of nutritional epidemiology's conventional methodology. The following nutritious eating pattern is advised by scientific societies to lower the risk of serious chronic illnesses and improve general health. At least five servings of fruits and vegetables per day; moderate dairy consumption; fat mostly from unsaturated plant sources; carbs primarily from whole grains; and protein sources primarily from plants, nuts, fish, or other sources of omega-3 fatty acids. Midlife women who follow a diet low in processed meat, red meat, deep-fried foods, and sugar-sweetened beverages are at a lower risk of developing atherosclerosis in the future [8]. The objective of this study is to check the status of menopausal working women by analyzing the anthropometric status, vital signs clinical data, and food frequency questionnaire for nutritional assessment.

Materials and Methods

Study Population

This study was conducted on 50 menopausal women between the ages of 45 and 60 years who were willing to participate were taken from Sargodha. The participants received a briefing on the study's objectives and methods prior to data collection. Informed written consent was acquired, guaranteeing both the confidentiality of personal information and voluntary participation.

Data Collection Tool

A detailed questionnaire was used to collect necessary information of the subject about socio demographic, anthropometric, health and nutritional status, vital signs and dietary pattern.

Socio demographic data

Participants' age, marital status, educational attainment, employment type, monthly household income, family structure, number of dependents, and access to basic healthcare facilities were all documented.

Anthropometric Calculations

Body weight, height, waist circumference, mid-arm circumference, and BMI (body mass index) were measured using standardized methods. Based on work routine, the amount of activity was also recorded (e.g., sedentary, moderate, or physically active).

Health and nutritional status

Common dietary issues such under nutrition, overweight, obesity, and possible deficiencies (iron, calcium, and vitamin D) were evaluated in the participants. Menopausal symptoms, such as mood swings, sleep disturbances, bone pain, and exhaustion, as well as any ongoing medications or medical conditions, were also recorded.

Vital signs

Vital signs such body temperature, blood pressure, and pulse rate were noted. To find any obvious indications of nutritional inadequacy, physical indicators such as general look, edema, and the state of the hair and nails were examined.

Dietary patterns

Meal frequency, portion sizes, food kinds, snacking patterns, and supplement use were all evaluated as part of the diet. The amount and quality of food consumed were evaluated using a 24-hour dietary recall. Particular attention was paid to hydration practices, protein sources, dairy, fruits, and vegetables.

Statistical Analysis

Microsoft Excel was used to tabulate and arrange the gathered data. The responses of subjects were expressed in frequency and percentages.

Results and Discussion

Menopause is a normal biological process that causes major changes in a woman's body, hormones, and emotions. Modified eating patterns, sedentary lifestyles, emotional strain, medication use, and ignorance can all have an impact on nutritional status. In order to address these issues and improved health outcomes during this

transitional stage, it is critical to assess and encourage healthier eating habits among menopausal women. A cross-sectional survey was carried out in District Sargodha to evaluate the dietary practices, lifestyle choices, and associated health issues of working women going through menopause. Finding the current dietary habits, physical activity levels, mental health issues, and obstacles to leading a healthy lifestyle was the goal in order to recommend suitable interventions.

Demographic, BMI, physical activity and blood group

Age group of Menopausal Women

The participants' age distribution mostly matched the natural menopausal range documented in international literature, suggesting that the majority of women go through menopause between the ages of 45 and 55. The fact that fewer respondents went through menopause earlier than anticipated raises the possibility of factors like heredity, malnutrition, chronic illness, or surgical history—all of which have been found to be important drivers in earlier research.

Interestingly, several women who were beyond 60 continued to work. This pattern is similar to findings in other developing nations where long-term employment is frequently required due to financial obligations and minimal retirement benefits. On the other hand, women over 65 made up the smallest group; previous demographic studies have shown that this trend is probably due to health constraints and cultural norms that encourage older people to stop participating in economic activities.

BMI range

The majority of participants were overweight or obese, according to the BMI assessment, suggesting that menopausal working women in this area have serious nutritional concerns. The prevalence of overweight-related health risks in this population is further highlighted by the lack of under nutrition cases. This pattern is consistent with studies that show hormonal fluctuations, decreased physical activity, and lifestyle factors are frequently linked to weight gain and changes in fat distribution during menopause [9, 10].

Similar research has highlighted how the menopausal transition raises the risk of chronic diseases by hastening changes in body composition and central adiposity. These problems are made worse by sedentary behaviors and physical inactivity, which are

frequently noted in this age group. Research continuously shows that regular exercise is essential for preventing weight gain during menopause, making lifestyle interventions important for this group.

Ages of Menopausal Women

Most participants experienced menopause between the age of 45 and 55, which is the average worldwide range and consistent with patterns found in earlier research [11]. Similar research has shown that a smaller percentage of women went through early menopause, which may be related to lifestyle-related stressors, chronic illness, nutritional deficiencies, or genetic predisposition.

The fact that some women were still premenopausal at the time of data collection is noteworthy because it shows how menopausal onset varies even amongst similar age groups. Research indicates that body weight may affect when menopause occurs, with underweight women more likely to experience an early onset and overweight or obese women more likely to experience a delayed menopause [11]. These findings emphasize that in order to manage age-specific menopausal health, focused interventions and counseling is required.

Physical Activity level

Participants' levels of physical activity were typically low to moderate, and no instances of intense or structured exercise were noted. This pattern is consistent with findings from previous studies showing that age, cultural norms, domestic duties, and time constraints are some of the reasons why physical inactivity during menopause is common [12].

Previous studies have shown that low levels of physical activity in this group may increase the risk of obesity, cardiovascular disease, and osteoporosis [12]. Research indicates that menopausal women who lead active lives have lower healthcare costs and a higher quality of life [13]. Aerobic exercise has also been demonstrated to reduce menopausal symptoms, such as mood swings, insomnia, and depression, highlighting the significance of encouraging regular physical activity in this group [5].

Blood group distribution

According to the analysis, the most common blood group among participants was A positive (A+), which was followed by O positive (O+). Other blood groups were less common. There were no B negative or AB negative cases found. Despite not having a

direct impact on menopausal symptoms, blood group distribution is clinically significant because some blood types have been linked to a higher risk of developing chronic illnesses.

Non-O blood groups may have a marginally increased risk of cardiovascular disease, according to prior research, especially in postmenopausal women who are already at risk for the condition because of hormonal changes [14]. This result emphasizes how crucial it is to incorporate blood group information into risk assessments and preventative measures for this demographic.

Table 1. Demographic, anthropometric, menopausal, physical activity, and blood group of postmenopausal women (n = 50)

Particulars	Variables	Frequency
Age group of women	>45	3
	45-49	6
	50-54	13
	55-59	12
	60-64	10
	65-69	5
BMI range	>17.0	0
	17-24	8
	25-30	25
	31-35	13
Ages of Menopausal Women	>40	3
	40-44	6
	45-49	10
	50-54	14
	55-60	9
Physical Activity level	Sedentary	7
	Light activity	23
	Moderately active	20
	Very active	0
Blood group distribution	A	21
	B	7
	AB	4
	O	18

Vital signs

Pulse Rate (BPM)

The majority of participants showed pulse rates that were within the typical resting range of 72–82 BPM, suggesting that a sizable section of the group had stable

cardiovascular function. But a sizable portion had high rates, which could be related to things like stress, obesity, sedentary lifestyles, or hormonal fluctuations during menopause. In this population, persistently elevated pulse rates may indicate decreased fitness levels or cardiovascular strain.

These results are consistent with earlier studies that show that lower estrogen levels during the postmenopausal and perimenopausal stages can affect cardiac autonomic function, raising the risk of cardiovascular disease [15]. Additionally, research indicates that regular exercise, especially resistance training, mind-body techniques, and low-to-moderate intensity aerobic exercise, can raise estrogen levels, improve heart rate variability, and support cardiovascular health in this population.

Oxygen Saturation (%)

The majority of participants showed stable respiratory function and effective oxygen delivery to body tissues by exhibiting oxygen saturation within the typical healthy range. Only a small percentage had slightly lower levels, and none of the participants had dangerously low or abnormally high values.

These results are in line with earlier studies that found comparable patterns in this age group, indicating that menopausal working women have generally adequate respiratory health [16]. In certain instances, early respiratory problems, sedentary lifestyles, obesity, or menopausal hormonal changes may be connected to slight drops in oxygen saturation. Environmental elements like indoor air quality may also play a role, especially for women who spend a lot of time indoors.

Table 2. Distribution of participants according to vital signs (n=50)

Particulars	Variables	Frequency
Pulse Rate (BPM)	>72 BPM	7
	72-82 BPM	20
	82-92 BPM	10
	92-102	11
	<102 BPM	1
Oxygen Saturation (%)	>85%	0
	85–89%	4
	90–94%	6
	95–99%	40
	<100%	0

Socio economic status

Marital Status

The majority of participants were married, which is consistent with the region's cultural norm of early and common marriage. A number of health-related variables, such as eating patterns, stress levels, and family support availability, can be impacted by this social pattern. Existing research indicates that menopausal women's lifestyle choices and general nutritional health may be impacted by marital duties in addition to work-related demands [17].

Another issue raised in earlier research is premature menopause, which is frequently linked to ovarian estrogen deficiency and can worsen nutritional and physiological difficulties during this stage of life. These findings highlight the significance of tailored dietary recommendations and stress-reduction strategies that take cultural norms and marital responsibilities into account.

Residence

Every participant in this study came from an urban area, which is indicative of higher employment rates and more professional engagement among women in urban settings as opposed to rural ones. In general, urban women are more likely to use healthcare facilities, work in formal industries, and take use of educational possibilities, all of which may have an impact on their general health and nutritional status.

According to past studies, rural women report more frequent and severe menopausal symptoms and suffer an earlier onset of menopause than their urban counterparts [18]. These results highlight the necessity of context-specific health interventions by indicating that geographic location might have a substantial impact on menopausal experiences and health outcomes.

Education

Menopausal working women in the study area had a high level of education, as evidenced by the fact that most participants had graduate-level degrees. This indicates advantages like improved access to healthcare, heightened health consciousness, and well-informed dietary choices all of which have a substantial impact on nutritional status during menopause—and reflects the sample's urban, professional background.

Because working women frequently have fewer menopausal symptoms, perhaps as a result of stress-relieving opportunities and increased self-realization through their jobs, employment and education are linked to better health outcomes and psychological well-being [19]. However, community programs, supportive workplace policies, and useful interventions catered to menopausal women are necessary for effective health promotion; education alone is insufficient.

Economic Status

The majority of participants were middle-class and upper-class, indicating a population that was educated, urban, and engaged in the workforce. Although this distribution points to improved access to resources and healthcare, studies show that income by itself does not ensure better nutritional outcomes. Beyond financial status, differences in attitudes, awareness, and access to healthcare may have an impact on menopausal health. Even among wealthy populations, these results emphasize the necessity of focused awareness campaigns and lifestyle modifications [20].

Table 3. Socio economic status of participants (n=50)

Variable	Category	Frequency
Marital Status	Married	46
	Unmarried	4
Residence	Urban	50
	Rural	0
Education	Undergraduate	5
	Graduate	45
Economic Status	Low income	0
	Lower middle	10
	Middle	15
	High	25

Medical history

PCOS

Polycystic ovarian syndrome (PCOS), which mainly affects women during their reproductive years but can have long-lasting effects into menopause, was mentioned by some participants as a past condition. As people age, PCOS changes from a reproductive disorder to a metabolic condition and is associated with a higher risk of cardiovascular disease and type 2 diabetes. Additionally, prior research indicates links between depression, PCOS, and differences in menopausal timing [21, 22]. These results

emphasize how crucial it is to take menopausal women's reproductive and hormonal histories into account when evaluating their nutritional status and developing focused interventions.

Miscarriage

A smaller percentage of participants had lost a pregnancy, but the majority had no history of miscarriage. Miscarriage is crucial to comprehending one's entire reproductive history and can have long-lasting effects on one's physical and mental well-being, even years after the incident. According to earlier studies, miscarriage, infertility, and an elevated risk of an early or premature menopause are all related, with Asian women showing the strongest correlations [23]. These results could be caused by nutritional deficiencies, hormonal imbalances, or long-term illnesses like polycystic ovary syndrome (PCOS), insulin resistance, or thyroid issues.

Hormonal issues

A smaller percentage of participants reported having hormonal problems during or after the menopausal transition, whereas the majority reported having no history of such problems. At this point, hormonal imbalances can include changes in androgens, estrogen, progesterone, insulin, or thyroid hormones. These changes can have a big impact on body weight, metabolism, mood, and nutritional status. According to earlier studies, hormonal changes brought on by obesity, specifically those involving adipokines, insulin, and estrogen, can raise the risk and speed up the development of diseases like endometrial cancer [24]. These results highlight the value of regular hormone tests and all-encompassing care strategies that incorporate exercise, diet, and, if required, medical supervision.

Hypertension

The majority of participants had a diagnosis of hypertension, indicating that menopausal working women have a serious cardiovascular health concern (Table 4). This result reflects a combination of menopausal lifestyle and nutritional factors with age-related physiological changes. According to previous research, hypertension plays a significant role in the elevated cardiovascular morbidity and mortality among postmenopausal women [25].

Blood pressure regulation is significantly influenced by dietary practices. The high prevalence of hypertension may be a sign of hidden dietary imbalances like excessive sodium intake, low potassium intake, or patterns typical of urban living, even though many participants reported following a "healthy" diet. Affected participants' frequent use of antihypertensive drugs emphasizes the need for dietary changes, lifestyle adjustments, and long-term monitoring.

Osteoporosis

A sizable percentage of participants had osteoporosis, suggesting that bone health during menopause is a major concern. This pattern is a reflection of the physiological effects of falling estrogen levels, which decrease bone mineral density and hasten calcium depletion. As prior studies have shown, vitamin D is essential for bone health because it promotes calcium absorption [26].

These results highlight the importance of proactive measures like regular exercise, consuming enough calcium and vitamin D, and getting screened early to prevent or treat osteoporosis in menopausal women.

Medications for Any Disease

The prevalence of chronic and lifestyle-related diseases among menopausal working women is significant, as evidenced by the fact that over half of the participants reported regularly taking medication for one or more medical conditions. Conditions that frequently surface during or after the menopausal transition include hypertension, diabetes, thyroid disorders, joint pain, and cardiovascular problems.

This research emphasizes how crucial it is to incorporate nutrition counseling and routine dietary evaluations into health management plans. Appropriate medication schedules and healthy eating habits can lower the chance of developing new issues and enhance general health.

Hormonal Therapy

Hormone replacement therapy (HRT) is not widely used to treat menopausal symptoms like mood swings, hot flashes, osteoporosis, and hormonal imbalances, as evidenced by the low number of participants who reported using it. The low utilization seen in this study population may be explained by a lack of knowledge, limited access, financial worries, and fear of negative consequences. According to earlier studies, the

advantages of hormone therapy typically exceed the disadvantages for younger symptomatic women fewer than 60 and within ten years of the onset of menopause [27].

These results underline how important it is to increase access to all-encompassing menopause care so that patients can make well-informed decisions about hormonal therapy. Nutritional approaches that promote hormonal balance, bone health, and cardiovascular function are particularly important for women who are not taking hormone replacement therapy.

Table 4. Medical history of participants (n = 50)

Particulars	Variable	Frequency
PCOS	Yes	10
	No	40
Miscarriage	Yes	10
	No	10
Hormonal Issues	Yes	12
	No	38
Hypertension	Yes	32
	No	18
Osteoporosis	Yes	26
	No	24
Medications for Any Disease	Yes	29
	No	21
Hormonal Therapy	Yes	4
	No	46

Menopausal Symptoms

Hot Flashes

Since hot flashes were so prevalent during the menopausal transition, they were one of the most frequently reported symptoms among the participants. This result is consistent with other research showing that most women going through menopause have hot flashes, which tend to become more frequent and intense in the late transition period before progressively decreasing [28].

Given how common hot flashes were in this study, it is likely that participants experienced active hormonal fluctuations, especially a decrease in estrogen levels. This emphasizes the need for management techniques that can reduce symptom burden

and enhance quality of life, such as dietary changes, lifestyle adjustments, and, when necessary, medical assistance.

Night Sweats

The prevalence of night sweats among study participants suggests that they are a significant and bothersome menopausal symptom. These episodes frequently lead to fatigue and disturbed sleep patterns and are closely linked to hormonal changes, especially a decrease in estrogen levels. Prior studies have demonstrated a direct correlation between sleep quality and hot flash-related perspiration, with more intense night sweats substantially reducing the amount of restorative sleep [29].

It's possible that the groups of participants who didn't experience night sweats benefited from a more stable hormonal balance, useful coping mechanisms, or advantageous environmental and lifestyle elements that lower stress and improve sleep quality.

Joint Pain

More than half of the participants reported having some degree of joint pain, making it a common symptom among menopausal working women. This is consistent with earlier research showing that osteoarthritis (OA) is very common in postmenopausal women and is mostly caused by aging and a higher body mass index [30]. Joint pain and musculoskeletal degeneration are also influenced by hormonal changes that occur during menopause, especially the decrease in estrogen.

Improved musculoskeletal health, consistent exercise, or a healthy diet may be protective factors for the subgroup of participants who did not report joint pain. Additionally, these women may benefit from stronger family and social support networks, which have been linked to better health outcomes for menopausal populations.

Sleep Disturbances

Menopausal working women in the study population report experiencing sleep disturbances frequently, which suggests a strong correlation between menopausal hormonal changes and sleep quality. These results corroborate earlier studies that suggested variations in reproductive hormones at various stages of reproductive aging,

especially during progesterone decline, may be a contributing factor to insomnia and other sleep-related disorders [31].

Healthy eating habits, consistent supplementation, or strong social and familial support may help women who do not report sleep-related issues by promoting hormonal stability and lowering stress levels.

Mood Swings

More than two-thirds of participants reported feeling emotionally unstable to varied degrees, indicating that mood swings are a prevalent symptom among menopausal working women. These results are consistent with earlier studies showing that the risk of depression tends to decrease in the postmenopausal years and is generally higher during perimenopause [32].

The state of one's nutrition has a significant impact on mood management. In this study, women who suffer mood swings often eat irregularly, consume insufficient amounts of omega-3 fatty acids and protein, and use nutritional supplements infrequently. The necessity for focused therapies to promote mental well-being during menopause is further highlighted by the lack of professional nutritional supervision or planned dietary adjustments.

Weight Gain

The results of the study show that weight gain is a major concern for menopausal working women in District Sargodha. This supports the well-established data showing that hormonal changes associated with menopause, especially the drop in estrogen, which slows metabolism, increases fat deposition, and decreases lean muscle mass, frequently result in weight gain.

Hormonal changes are not the only lifestyle factors contributing to this trend; some participants also reported problems with stress, sleep deprivation, high-calorie diets, and low physical activity. Menopause is linked to an increase in total body fat and abdominal fat, according to [33]. In addition to increasing the risk of cardiovascular and metabolic diseases, this weight gain has a negative effect on sexual function and general quality of life.

Table 5. Frequency of menopausal symptoms among working women (n = 50)

Parameter	Category	Frequency
Diet Style	Balanced	14
	Healthy	26
	Average	10
	Poor	0
Mental Health(Depression)	Never	10
	Occasionally	20
	Frequently	8
	Daily	12
Family Support	Yes	40
	No	10
Impact on Quality of Life	Not at all	0
	A little	6
	Moderately	33
	A lot	7

Lifestyle and wellbeing status

Diet style

According to an analysis of menopausal working women's self-reported eating patterns, most of them have a positive opinion of their diet and believe that their eating habits are balanced or healthful. This point to a generally health-conscious eating pattern that is probably influenced by socioeconomic status, urban living, and level of education.

Adherence to healthy dietary patterns, especially the Mediterranean diet, is negatively correlated with overweight and obesity in postmenopausal and perimenopausal women [34]. Maintaining a BMI below 25 kg/m² and adhering to such a dietary pattern may greatly enhance quality of life during menopause.

Dietary awareness is demonstrated by the women in the study. To achieve the best possible health outcomes, practical nutrition education programs emphasizing topics like meal planning, nutrient adequacy, and sustainable lifestyle practices are essential.

Mental Health

Even women who have never experienced depression before are at a higher risk of developing major depression during the menopausal transition. Hormonal changes, hot flashes, insomnia, stressful life events, age, race, and employment status are all strongly associated with depressive symptoms during menopause [35].

These results demonstrate the significant emotional and psychological stress that working women going through menopause endure. They stress how crucial it is to incorporate routine care with mental health screening and support. Having access to stress management programs, counseling, workplace mental health resources, and healthy lifestyle choices like regular exercise, a balanced diet, and enough sleep can all help boost resilience and mood during menopause.

Family Support

Menopausal working women's eating patterns and general health are greatly influenced by social and emotional support. The way a woman reacts to the changes of menopause, whether in a positive or negative way, depends on her personal, familial, and social background [36]. Healthcare professionals frequently fail to take into account how women view menopause, which emphasizes the need for individualized treatment that takes into account each patient's unique requirements, preferences, and expectations.

Family support can take the form of emotional support, help with household chores, meal preparation assistance, or medication and appointment reminders. Such assistance is particularly crucial for working women who are juggling work and home obligations in order to preserve their health and wellbeing throughout menopause.

Impact on Quality of Life

Menopausal symptoms have a major impact on working women's daily lives and general quality of life. Their impact is largely determined by the severity of these symptoms as well as social and personal factors.

These results emphasize the value of offering mental health support during this transitional phase, workplace accommodations, easily accessible menopause-related care, and specialized health education. Giving women the tools to control their symptoms through stress management, healthy eating, consistent exercise, and medical advice can significantly enhance their quality of life [37].

Table 6. Lifestyle and wellbeing status of participants (n = 50)

Parameter	Category	Frequency
Diet Style	Balanced	14
	Healthy	26
	Average	10
	Poor	0
Mental Health(Depression)	Never	10
	Occasionally	20
	Frequently	8
	Daily	12
Family Support	Yes	40
	No	10
Impact on Quality of Life	Not at all	0
	A little	6
	Moderately	33
	A lot	7

Dietary Patterns and Food Consumption Frequency

Mediterranean Diet

Although a Mediterranean-style diet is known to have health benefits, the majority of menopausal working women in this study do not adhere to it. Because the onset of menopause is linked to an increased risk of obesity, cardiovascular disease, metabolic syndrome, and osteoporosis, diet is especially crucial during this time [38].

Promoting the Mediterranean diet through workplace health programs, community programs, or private nutrition counseling may enhance people's nutritional status and quality of life. According to Haghshenas *et al.* [39], even a small portion of this dietary pattern can have a major positive impact on one's health during the menopausal transition.

DASH Diet

According to this study, menopausal working women do not generally follow the DASH diet, which is well-known for reducing blood pressure and fostering cardiovascular health. This diet limits added sugars, salt, and red meat while emphasizing fruits, vegetables, whole grains, lean meats, and low-fat dairy [40].

According to research, following the DASH diet can also help women with type 2 diabetes achieve better metabolic and psychological results, including lower testosterone levels, anxiety, depression, and sleep disturbances. The study population's

low adoption rate emphasizes the need for more education and support to help menopausal women adopt heart-healthy eating habits, especially in urban work environments.

High Fiber Diet

A dietitian's advice is essential for managing pre-existing conditions or lowering risk factors for chronic diseases, and nutrition counseling and dietary interventions are useful methods for enhancing eating habits during the perimenopause [41].

A high-fiber diet is crucial for blood sugar regulation, weight management, digestive health, and lowering cardiovascular risk—all major issues during menopause—and is consumed by the majority of menopausal working women in this study. Additionally, a higher intake of fiber reduces the risk of metabolic syndrome by having a positive impact on insulin secretion, metabolism, gut microbiota, and insulin sensitivity [42].

Low Caloric Diet

As the main sources of carbohydrates, whole grains, fruits, vegetables, and sugar-free dairy products are advised because consuming more fiber slows the absorption of carbohydrates, increases feelings of fullness, and promotes intestinal health [43].

Given the slower metabolism during menopause, some women may choose to follow a low-calorie diet to control their weight, but long-term efficacy depends on preserving nutritional balance and overall diet quality.

Calcium Rich Food

For bone health, calcium intake is crucial, especially for postmenopausal women who are more susceptible to osteoporosis because their estrogen levels are reduced [44]. The study found that the majority of menopausal working women frequently eat foods high in calcium, indicating an awareness of its significance that was probably influenced by medical advice, education, and urban access to dairy and fortified goods.

A balanced diet with enough calcium and vitamin D is one of the key lifestyle changes that can lower the incidence of fractures caused by osteoporosis.

Protein Rich Food

Protein is a necessary macronutrient because it promotes satiety, muscle mass maintenance, hormone balance, and tissue regeneration, especially during

menopause. Maintaining bone density, muscle strength, and metabolic health—all of which naturally deteriorate as a result of decreased estrogen levels—requires consuming enough protein [45].

The majority of the study's menopausal working women frequently eat protein, but just a small percentage incorporates it into their daily diet. This underscores the importance of maintaining sufficient protein consumption for general health after menopause.

Vegetables and Fruits

Vitamins, minerals, fiber, antioxidants, and phytochemicals found in abundance in fruits and vegetables promote heart health, lower inflammation, help people maintain a healthy weight, and reduce the risk of developing chronic diseases like diabetes, osteoporosis, and hypertension [46]. There is a discrepancy between dietary recommendations and actual intake of fruits and vegetables, as the majority of menopausal working women in this study consume less than is advised. This emphasizes the necessity of focused nutrition education and interventions to encourage a greater intake of plant foods high in nutrients during menopause.

Table 7. Dietary patterns and food consumption frequency among participants (n = 50)

Dietary pattern	Response	Frequency
Mediterranean diet	Yes	9
	No	41
DASH diet	Yes	13
	No	37
High fiber diet	Yes	36
	No	14
Low caloric diet	Yes	20
	No	30
Calcium rich foods	Daily	22
	Several a week	17
	Occasionally	4
	Rarely	7
Proteins rich foods	Daily	16
	Several a week	25
	Occasionally	4
	Rarely	5
Fruits and vegetables	0-1 servings	23
	2-3 servings	20
	4-5 servings	7
	More than 5 servings	0

Dietary Practices and Challenges among Menopausal Women

Impact of Diet on Menopausal Health Problems

Working women's perceptions of how diet affects menopausal health differ. A sizable minority of participants are unclear or think diet has little impact, despite the fact that half acknowledge that diet has a significant influence [47]. Dietary intervention is crucial for the prevention and management of conditions like obesity, metabolic syndrome, cardiovascular disease, and osteoporosis, which are more prevalent during menopause.

Cultural norms, a lack of health education, or a lack of medical counseling could all contribute to the perception gap. The need for focused nutrition awareness programs is highlighted by the fact that women who undervalue the importance of diet frequently report low intake of essential nutrients and more frequent symptoms like depression, hypertension, or osteoporosis.

Change in Diet Due to Menopause

The study found that while a considerable percentage of the menopausal working women have not changed their diet in response to health concerns, nearly half have, and some plan to do so. It is common for symptoms like fatigue, weight gain, or bone pain, as well as for personal motivation, health awareness, or medical advice, to drive dietary changes like increasing protein, calcium, and fiber intake or adhering to structured plans like DASH or Mediterranean diets [47].

Barriers like cultural norms, a lack of access to health education, or a lack of knowledge may be faced by the women who have not made dietary changes. Individuals planning to make dietary changes are a transitional population that would profit from focused instruction and direction to embrace better eating habits.

Challenges in Maintaining a Healthy Diet

A healthy diet can be difficult for menopausal working women to adopt or maintain for a variety of reasons, such as time constraints, a lack of knowledge, low motivation, and influences from their families or culture. Managing work and household duties frequently leaves little time for meal preparation or planning, which makes time a significant obstacle to regular, healthful eating.

Although many women acknowledge the significance of diet, there are also notable knowledge gaps; they might not be fully aware of the ways in which nutrients like calcium, vitamin D, protein, and fiber impact menopausal health. Access to and affordability of nutrient-dense foods, such as lean meats, fresh produce, nuts, and supplements, further restrict adherence. Low motivation is another major obstacle to maintaining healthy eating habits during menopause, and it frequently stems from exhaustion, stress, or a lack of family support [47].

Consultation with a Nutritionist

Effective dietary modifications during menopause require consultation with dietitians, as this can help lower risk factors and improve common health problems related to this stage [48]. There is a notable lack of support, though, as the majority of menopausal working women in this study have not sought professional nutritional advice.

Many women are prevented from seeking expert advice due to obstacles like ignorance, lack of access, expense, or dependence on self-managed methods, even though there are established connections between diet, blood pressure, weight control, and emotional health. Unhealthy eating patterns can worsen conditions like depression, hypertension, and osteoporosis in women who do not receive professional guidance.

Table 8. Dietary practices and challenges among menopausal women

Variables	Category	Number of Women
Impact of Diet on Menopausal Health Problems	Yes, significantly	25
	Yes, somewhat	12
	No impact	9
	Unsure	4
Change in Diet Due to Menopause	Yes	23
	No	20
	Planning to Change	7
Challenges in Maintaining a Healthy Diet	Time Constraints	11
	Lack of Knowledge	9
	Affordability Issues	8
	Lack of Motivation	10
	Other Factors	12
Consultation with a Nutritionist	Yes	4
	No	40
	Planning to Consult	6

Conclusions

The study's conclusion emphasizes that many menopausal working women experience low physical activity, poor nutritional status, and untreated health conditions like obesity, hypertension, and osteoporosis despite having a good education and stable financial situation. Few women made significant lifestyle changes and, despite the fact that the majority of them understood the importance of diet in controlling menopausal symptoms, they hardly ever sought professional nutritional advice. Their lack of awareness and inadequate consumption of vital nutrients exacerbated their health issues. These results highlight how critical it is to provide women with targeted nutritional education, easily accessible diet counseling, and lifestyle interventions to promote their wellbeing throughout menopause.

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Author Contributions

Aaima Aziz: Data collection and writing original draft**. Ammara Ainee:** Reviewing and co-supervision. **Tusneem Kausar:** Writing-review, editing and supervision.

Conflict of interest

The authors do not have conflict of interest.

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