Consumption of Home cooked Meals and Nutrient Adequacy among Working & Non-working Women of Vadodara City: A Cross-Sectional Study

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Consumption of Home cooked Meals and Nutrient Adequacy among Working & Non-working Women of Vadodara City: A Cross-Sectional Study

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By

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CERTIFICATE

This is to certify that the research work presented in this thesis has been carried out independently by Mr. Abhishek Jain under the guidance of Dr. Swati Dhruv in partial fulfillment of the degree of Master of Science (Family and Community Sciences) with major in Foods and Nutrition (Dietetics) and this is his original work.

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LIST OF ABBREVIATIONS

NCD – Non Communicable Diseases

WC- Waist Circumference

HC- Hip Circumference

WHR – Waist to Hip Ratio

WSR – Waist to Stature Ratio

BMI – Body Mass Index

CHD – Coronary Heart Disease

FFQ- Food Frequency Questionnaire

EAR- Estimated Average Requirement

RDA- Recommended Dietary Allowance

IPAQ- International Physical Activity Questionnaire

NAR- Nutrient Adequacy Ratio

NWW- Non-Working Women

WW- Working Women

ABSTRACT

India is witnessing a gradual increase in women's workforce participation, driven by higher education and evolving professional opportunities. This has resulted in reduced time for traditional cooking,impacting their dietary habits, and leading to dietary shifts towards higher sodium, fat, and sugar intake. This, coupled with time-constrained lifestyles, may contribute to rising rates of obesity and non-communicable diseases among women within urban populations. Diet plays a crucial role in women's lives, not only affecting their nutritional status and risk of non-communicable diseases, but also influencing the health and dietary patterns of their families. This necessitates the generation of data on dietary intakes affected due to their professional involvement and understanding its impact on their health.

Hence,the present cross-sectional study was carried out on 450 participants to assess the consumption of home-cooked meals and nutrient adequacy among working and non-working women aged 30–60 years, residing in 4 administrative zones of Vadodara city. The study observed notable differences in socio-demographic characteristics, lifestyle behaviors, and dietary patterns between the two groups. Working women enrolled in the study exhibited higher physical activity levels as compared to non-working women. However, they reported facing greater challenges in maintaining dietary regularity, 43.5% slept for less than 6 hours/day, and 41.3% reported skipping meals, especially breakfast. In contrast, non-working women had more consistent meal habits, with 78.3% consuming breakfast daily, but were less physically active, with 47.8% classified as inactive. These could have contributed to the higher prevalence of obesity (63% vs. 40.2%) and hypertension (13.9% Vs. 11.1%) in non-working women than working women. However the prevalence of overweight (21.4% Vs. 12%),central adiposity (50.8% Vs. 47.2%), and Diabetes (8.5% Vs.8.3%) was higher among working women as compared to non-working women.

Data in dietary intakes indicated that while the average caloric intake exceeded RDA in both groups, Non-working women demonstrated better nutrient adequacy, particularly in terms (28.2 ± 5.91 mg), calcium (561 ± 73.45 mg), and vitamin C (51.3 ± 10.5 mg). Food frequency data also showed more frequent consumption of green leafy vegetables among working women. This study on Vadodara women revealed distinct lifestyle and dietary patterns between working and non-working groups, highlighting complex health disparities:

working women showed better nutrient adequacy but faced challenges in dietary regularity and sleep, while non-working women had consistent meal patterns but higher rates of inactivity and obesity.

INTRODUCTION

1.1 BACKGROUND INFORMATION

1.1.1 Importance of nutrition & diet in women's health

Maintaining and Promoting women's health throughout different stages of life depends heavily on nutrition, which is crucial for physiological, hormonal and metabolic processes. Diet balance not only prevents nutritional deficiencies but also reduces the risk of chronic diseases and improves overall well-being (Feskens et al., 2022).

The nutritional requirements of women fluctuate across different phases of life, starting in adolescence, reproductive years, pregnancy, menopause, and old age. The transitions which occur as age advances are supported by adequate nutrition which supports growth, reproductive health, and ageing processes (Feskens et al., 2022). Adolescence is characterized by rapid physical and hormonal changes, Adolescence, demands sufficient intake of macronutrients and micronutrients, such as iron, calcium, and folic acid, to support bone development and menstrual health (Prentice et al., 2013). Inevitable long-term consequences can be seen through poor dietary choices in this phase, such as anemia, osteoporosis, and metabolic disorders (Bailey et al., 2022).

The Demand for key nutrients increases significantly during pregnancy and lactation. Adverse Maternal and Fetal outcomes, including low birth weight, neural tube defects, and developmental delays, can be seen in cases of deficiency in essential micronutrients such as, iron, iodine, folic acid and Omega 3 fatty acids (Rah et al., 2008). Prenatal dietary interventions and supplements are prescribed by researchers to optimize maternal and neonatal health (Procter & Campbell, 2014).

Menopause, the post-reproductive phase, is characterized by acute hormonal changes that contribute to an increased risk of osteoporosis, cardiovascular diseases, and metabolic disorders. The Rapid decline in the estrogen level is the embarked feature of this phase leading to reduced bone mineral density due to which Osteoporosis and fractures are very common in this phase, which necessitates adequate consumption of calcium, vitamin D, and protein to prevent osteoporosis and fractures (Camacho et al., 2020). Additionally, dietary modifications, such as increased fiber, plant-based proteins and healthy fats,

should be performed because the redistribution of body fat post-menopause is associated with an increased risk of metabolic syndrome (Chait & den Hartigh, 2020).

1.1.2 Role of diet in maintaining overall health and productivity

Maintaining a balanced diet is not only crucial for disease prevention but also for enhancing physical and mental productivity. Proper nutrition fuels the body with essential macronutrients including carbohydrates, proteins, and fats along with micronutrients such as vitamins and minerals, all of which contribute to optimal bodily function.

Cognitive Function and Mental Well-being

A steady supply of nutrients to the brain is required for maintaining cognitive function, concentration, and memory. Fish and Nuts, both high in Omega-3 fatty acids, have been linked to improved brain health and reduced risk of neurodegenerative diseases (Wu et al., 2021). Both Cognitive function and mood regulation are performed by B6, B12, folate, and B vitamins by influencing the neurotransmitter synthesis (Bailey et al., 2022). As far as the Cognitive decline and mental health disorders with the advancing age are concerned, Mediterranean diet, diet thought to be rich in antioxidants, lower risks of both including depression and anxiety (Cena & Calder, 2020).

Physical Performance and Energy Levels

Adequate nutrition directly influences energy levels and physical performance. Carbohydrates serve as the primary energy source, while proteins support muscle repair and growth. Deficiencies in iron, a key component of hemoglobin, can lead to fatigue and decreased work efficiency, particularly in women of reproductive age who are more prone to anemia (Rah et al., 2008). Hydration is equally critical, as water plays a fundamental role in metabolic processes, thermoregulation, and overall bodily functions.

Immune Function and Disease Resistance

A robust immune system is essential for overall health, and diet plays a central role in supporting immune function. Vitamins C and D, along with zinc and selenium, enhance immune response and reduce susceptibility to infections (Rivera et al., 2016). Probiotic-

rich foods, such as yogurt and fermented vegetables, support gut health, which is closely linked to immune regulation and inflammation control (Cena & Calder, 2020).

Workplace Productivity and Quality of Life

Nutritional status significantly impacts workplace productivity. Malnutrition, whether due to deficiencies or excesses, is associated with reduced efficiency, absenteeism, and increased healthcare costs. Studies have shown that employees with a nutrient-rich diet exhibit higher levels of concentration, problem-solving abilities, and overall job performance (Willett et al., 2019). Employers and public health initiatives should prioritize workplace nutrition programs to enhance employee well-being and economic productivity.

1.1.3 Differences in lifestyle and dietary patterns of working vs. Non-working women

The dietary habits and lifestyle choices of women vary significantly based on their employment status. Working women often face time constraints, leading to irregular meal patterns, higher consumption of processed foods, and lower intake of home-cooked meals (Devine et al., 2009). In contrast, non-working women may have more flexibility in meal preparation and healthier dietary choices but may also face challenges related to physical activity and metabolic health due to a sedentary lifestyle (Faghri et al., 2015).

Nutritional Challenges among Working Women

Working women frequently experience increased stress levels and work-related pressures, which can lead to unhealthy eating behaviors such as skipping meals, consuming fast food, and relying on caffeine and sugary snacks for energy (Devine et al., 2009). These habits contribute to nutritional deficiencies, weight gain, and a higher risk of metabolic disorders. Limited time for physical activity further exacerbates these health risks, leading to a sedentary lifestyle that increases the likelihood of obesity and cardiovascular diseases (Chau et al., 2012).

Dietary Patterns of Non-Working Women

Non-working women, particularly homemakers, often have greater control over meal planning and preparation, allowing for a more balanced and nutrient-dense diet (Faghri et al., 2015). However, they may be at risk of reduced physical activity levels, which can contribute to weight gain and metabolic imbalances. Additionally, socio-economic factors can play a crucial role, as non-working women in lower-income households may face challenges in accessing a diverse and nutritious diet (Mokdad et al., 2005).

1.2 THE IMPACT OF GLOBALIZATION, URBANIZATION, AND CHANGING TIMES ON WOMEN'S WORKFORCE PARTICIPATION

The forces of globalization, rapid urbanization, and evolving socio-economic structures have significantly transformed gender roles, particularly concerning women's participation in the workforce. Historically, women were primarily responsible for domestic duties, including child-rearing, household maintenance, and other caregiving responsibilities. However, as economies have grown, new opportunities have emerged, and societal expectations have shifted, driving women into the workforce in unprecedented numbers. This shift, while empowering in many ways, has also been shaped by external pressures, including economic necessity and changing family structures.

1.2.1 Globalization and economic shifts

Globalization has ushered in a highly competitive, interconnected global economy, creating a need for dual-income households to maintain financial stability. With the expansion of multinational corporations and the rise of global industries, more women are compelled to seek employment outside the home. This economic shift is particularly evident in developing economies where rising living costs and the desire for upward social mobility have made it essential for both partners in a household to contribute financially (Smith et al., 2013). In many cases, the entry of women into the workforce has been driven by economic pressures, particularly in lower-income households where men's wages alone are insufficient to support a family.

1.2.2 Urbanization and changing household dynamics

As people migrate to urban areas in search of better employment opportunities, household structures have evolved. Urbanization has resulted in the emergence of nuclear families, where both parents are often employed full-time, leading to the restructuring of domestic roles. The traditional extended family system, which provided support in child-rearing and household responsibilities, has become less common in urban settings. Women, especially in cities, face increased pressure to balance professional and domestic responsibilities, further shifting gender dynamics within households (Lachat et al., 2012). This shift has reshaped the ways in which women engage with both their families and their careers.

1.2.3 Shifting social norms and gender roles

Despite increased workforce participation, societal expectations around women's roles at home have been slow to evolve. Women continue to bear a disproportionate share of domestic responsibilities, including childcare and household management, even while working full-time (Devine et al., 2009). This dual burden—balancing professional commitments with domestic duties—has led to increasing challenges in achieving work-life balance. While some households have embraced shared responsibilities, many still adhere to traditional gender roles that place the onus of caregiving and home management primarily on women.

1.2.4 Women's workforce participation: global and indian trends

As of 2020, the global labor force participation rate for women was approximately 47%, compared to 74% for men, highlighting a persistent gender gap in employment (United Nations, 2023). In India, female labor force participation has seen significant fluctuations, declining from 32% in 2005 to 19% in 2021 (NPR, 2023). However, recent data indicates an improvement, with the female labor force participation rate increasing from 23.3% in 2017-18 to 41.7% in 2023-24 (Press Information Bureau, Government of India, 2024). These statistics underscore the dynamic and evolving nature of women's engagement in the labor market, influenced by economic policies, social structures, and cultural expectations.

1.2.5 Anticipated differences in nutritional status based on dietary patterns

The shift from home-cooked meals to commercially prepared foods has significant implications for nutritional status. Research consistently highlights those individuals who rely on convenience foods exhibit poorer dietary quality compared to those who prepare meals at home. Studies suggest that frequent consumption of processed and fast foods is associated with higher energy intake, increased saturated fat and sodium consumption, and lower intake of essential nutrients such as fiber, vitamins, and minerals (Mills et al., 2017).

Women who work longer hours are more likely to consume ready-to-eat meals, which are often energy-dense and nutrient-poor. This dietary pattern is linked to an increased risk of obesity, metabolic syndrome, and cardiovascular diseases (Lachat et al., 2012). Additionally, research indicates that working women, particularly those in high-stress jobs, tend to skip meals or consume irregular meals, leading to compromised nutrient intake and poorer overall health outcomes (Devine et al., 2009).

Conversely, individuals who prioritize home-cooked meals tend to have higher dietary diversity and improved micronutrient intake. Studies have found that home meal preparation is associated with greater consumption of vegetables, whole grains, and lean proteins, all of which contribute to better health outcomes (Wolfson & Bleich, 2015). Furthermore, home cooking promotes portion control, reducing the risk of overeating and weight gain.

1.3 FACTORS INFLUENCING HEALTH, PRODUCTIVITY, AND DIET

Health, productivity, and diet are intricately linked, with several individual factors playing a significant role in shaping overall well-being. Key contributors to health and productivity include:

Nutritional Intake – A balanced diet rich in essential nutrients supports cognitive function, energy levels, and immune health, all of which contribute to increased productivity (Micha et al., 2017).

- Physical Activity – Regular exercise is crucial for maintaining overall health, reducing the risk of chronic diseases, and improving mental well-being (Booth et al., 2012).

- Sleep Patterns – Adequate sleep enhances cognitive performance, decision-making abilities, and overall physical health (Hirshkowitz et al., 2015).
- Work-Life Balance – Managing professional and personal responsibilities effectively reduces stress and improves overall health outcomes (Demerouti et al., 2001).
- Socioeconomic Factors – Economic stability and access to quality food sources significantly impact dietary habits and long-term health (Darmon & Drewnowski, 2008).

These factors highlight the importance of an integrated approach to health, diet, and productivity, emphasizing the need for supportive policies and lifestyle choices that promote overall well-being.

1.4 DIFFER BETWEEN WORKING AND NON-WORKING WOMEN

1.4.1 How dietary patterns differ between working and non-working women

Dietary patterns among women vary significantly based on employment status, with working women exhibiting distinct eating behaviors compared to non-working women. These differences are influenced by lifestyle, time availability, food access, and health awareness.

Meal Frequency and Skipping Meals

Working women are more likely to skip meals due to busy schedules, work stress, and lack of time for meal preparation (Devine et al., 2009). Skipping meals, especially breakfast, has been linked to increased snacking on unhealthy foods, poor energy levels, and higher susceptibility to metabolic disorders (Goon et al., 2021). Non-working women, in contrast, have more structured meal routines and are more likely to consume regular, home-cooked meals.

Dependence on Processed and Convenience Foods

Due to time constraints, working women tend to rely more on processed, ready-to-eat, or restaurant meals, which often contain high levels of saturated fats, sodium, and refined sugars (Mills et al., 2017). In contrast, non-working women have greater control over food choices

and meal preparation, allowing them to incorporate more fresh and nutrient-dense foods into their diets.

Nutrient Intake and Dietary Diversity

Studies indicate that non-working women consume a more diverse diet, including higher intakes of fiber, vitamins, and minerals, compared to working women who may have lower intakes of essential nutrients due to reliance on quick, processed meals (Laska et al., 2015) . The lack of dietary diversity among working women can contribute to long-term nutrient deficiencies and associated health risks.

Eating Out and Fast-Food Consumption

Working women, especially those in urban settings, are more likely to eat out frequently due to professional commitments. Fast food consumption has been associated with increased calorie intake and a higher risk of obesity and cardiovascular diseases (Smith et al., 2013). Non-working women, who tend to eat at home more often, are generally exposed to fewer processed foods and excessive calorie consumption.

Hydration and Beverage Consumption

Working women often consume more caffeinated beverages, such as coffee and energy drinks, to sustain energy levels throughout the day (Devine et al., 2009). In contrast, non-working women are more likely to consume herbal teas and homemade drinks that may contribute to better hydration and reduced caffeine dependency.

1.4.2 The gap in research related to home-cooked meal frequency and nutrient adequacy in indian urban settings

Despite the known benefits of home-cooked meals in improving dietary quality, limited research exists on the relationship between the frequency of home-cooked meals and nutrient adequacy in Indian urban settings. Rapid urbanization, changing work environments, and evolving dietary habits have influenced food consumption patterns, leading to increased dependence on commercially prepared meals (Anand et al., 2015). While global studies highlight the benefits of home-cooked meals, research specific to Indian urban populations

remains scarce. Existing studies primarily focus on rural dietary patterns or broader nutrition-related public health concerns, overlooking the role of home-cooked meals in nutrient adequacy among working and non-working urban women (Narayanan et al., 2021).

Urbanization has significantly altered traditional meal patterns, contributing to reduced home cooking due to time constraints and lifestyle changes. The shift toward convenience foods, restaurant dining, and food delivery services raises concerns about the long-term health implications of reduced home-cooked meal consumption (Pingali, 2019). With increased consumption of processed and convenience foods, there is a higher risk of nutrient deficiencies, particularly in micronutrients such as iron, vitamin D, and fiber. However, comprehensive studies examining the link between home-cooked meal frequency and nutrient adequacy in urban Indian women are lacking (Satija et al., 2018). Given the growing reliance on commercially prepared meals, there is an urgent need for dietary interventions promoting home cooking. Future research should focus on understanding how meal preparation frequency influences nutrient adequacy, particularly in the context of India's diverse dietary habits and socioeconomic backgrounds (Rao et al., 2020).

1.5 SCOPE OF THE STUDY

1.5.1 Geographical and demographic focus (Vadodara city)

This study focuses on Vadodara, a rapidly developing city in the state of Gujarat, India. As an urban center with a diverse population, Vadodara presents an ideal setting for examining dietary patterns and nutritional adequacy among working and non-working women. The city is characterized by a mix of traditional and modern lifestyles, which influence food choices, meal preparation habits, and overall dietary behaviors. The demographic composition of Vadodara includes individuals from various socioeconomic backgrounds, providing a comprehensive representation of different dietary practices.

Rapid urbanization in Vadodara has led to an increase in fast food consumption, dining out, and reliance on processed foods, particularly among working women with demanding schedules. At the same time, non-working women may have better access to home-cooked meals but might still face challenges related to dietary diversity and nutrient adequacy. This study aims to assess how these contrasting lifestyles impact nutrient intake and overall health

outcomes. By focusing on Vadodara, the research will contribute valuable insights into urban dietary patterns, helping to inform future public health interventions and nutrition policies targeted at improving the dietary habits of women in similar urban settings.

1.5.2 The relevance of findings for public health policies and interventions

The findings of this study hold significant relevance for public health policies and interventions aimed at improving dietary habits and nutritional adequacy among urban women. By identifying the key differences in dietary patterns between working and non-working women, this research can inform targeted nutritional programs that promote healthier eating habits. Public health initiatives can use this evidence to design educational campaigns that emphasize the benefits of home-cooked meals, meal planning, and nutrient-dense food choices.

Additionally, policymakers can develop interventions that address the barriers to home cooking, such as time constraints and access to fresh, affordable ingredients. Workplace wellness programs can be introduced to encourage healthier meal options for working women, while community-based initiatives can support non-working women in improving dietary diversity. Furthermore, the study's findings can contribute to the development of urban nutrition policies that focus on reducing processed food consumption and enhancing access to fresh, whole foods. Ultimately, integrating these insights into public health frameworks can help mitigate the risk of chronic diseases and promote long-term well-being among urban women in India.

REVIEW OF LITERATURE

Women have unique nutritional requirements that vary across different life stages due to physiological, hormonal, and metabolic differences. Adequate nutrition plays a critical role in supporting overall health, reproductive functions, and disease prevention. During adolescence, higher intakes of iron, calcium, and protein are essential to support rapid growth and menstrual health (Das et al., 2020). In adulthood, women require balanced macronutrients and micronutrients to sustain energy levels, immune function, and cognitive well-being (Micha et al., 2017). Additionally, pregnancy and lactation demand increased intake of folic acid, iron, and omega-3 fatty acids to support fetal development and maternal health (Black et al., 2013). As women age, the risk of osteoporosis, cardiovascular diseases, and metabolic disorders increases, making calcium, vitamin D, and fiber-rich diets essential for longevity and well-being (Rizzoli, 2014). Socioeconomic factors, work-life balance, and access to nutritious foods further influence dietary choices, often leading to variations in nutritional status across different populations (Darmon & Drewnowski, 2008).

2.1 INTRODUCTION TO WOMEN'S NUTRITIONAL NEEDS

2.1.1 Energy and nutrient requirements for women based on age and activity level

Women's energy and nutrient requirements are influenced by physiological changes, metabolic demands, and activity levels across different life stages. Adequate nutrient intake is essential for supporting growth, reproductive health, and aging processes while preventing diet-related non-communicable diseases (NCDs) (Liu et al., 2021). Nutritional requirements vary significantly among adolescent, adult, and postmenopausal women, necessitating tailored dietary recommendations.

During adolescence (ages 10–19 years), increased metabolic demands due to rapid growth and hormonal changes necessitate higher energy and nutrient intake. The Recommended Dietary Allowance (RDA) for adolescent girls ranges between 2,000 and 2,400 kcal/day, depending on physical activity levels (Patel et al., 2020). Protein intake is crucial for lean body mass development, with recommendations of 0.85–1.0 g/kg body weight/day (Misra et al., 2019). Iron requirements increase to 15 mg/day due to menarche, while calcium intake

(1,300 mg/day) is critical for achieving peak bone mass, reducing osteoporosis risk later in life (Rizzoli et al., 2021).

For adult women (ages 20–50 years), energy requirements range from 1,800 to 2,400 kcal/day, varying based on sedentary, moderate, or active lifestyles (Kuhnle et al., 2020). Protein needs remain at approximately 0.8–1.2 g/kg body weight/day, supporting muscle maintenance and immune function (Phillips et al., 2021). Micronutrient requirements include 18 mg/day of iron to compensate for menstrual blood loss, 400 mcg/day of folic acid for reproductive health, and 1,000 mg/day of calcium for skeletal integrity (WHO, 2022). Women engaging in high-intensity physical activity may require additional protein (1.2–2.0 g/kg body weight/day) and hydration adjustments, with fluid intake recommendations ranging between 2.2 and 3.0 liters per day (Sawka et al., 2020).

In postmenopausal women (ages 50 years and above), energy requirements decline due to a reduction in basal metabolic rate and changes in body composition (Lordan et al., 2021). Daily energy intake ranges from 1,600 to 2,200 kcal, with macronutrient distribution focusing on adequate protein intake (1.0–1.2 g/kg body weight/day) to mitigate sarcopenia risk (Walrand, 2022). Increased calcium (1,200 mg/day) and vitamin D (800 IU/day) intake is essential for bone mineral density preservation and osteoporosis prevention (Reid et al., 2021). Fiber intake should be maintained at 25–30 g/day to support gastrointestinal health and reduce cardiovascular risk (Gupta et al., 2020).

The influence of physical activity on nutritional needs is significant, necessitating adjustments in macronutrient and micronutrient intake to optimize performance and recovery. Antioxidant requirements, particularly for vitamins C and E, increase in physically active women to counteract oxidative stress (Nikolaidis et al., 2018). A well-balanced diet, tailored to age and activity levels, is essential for promoting health, preventing nutrient deficiencies, and reducing the risk of chronic diseases in women.

2.1.2 The impact of poor nutrition on women’s health

Poor nutrition has profound implications for women's health, affecting their physical, mental, and reproductive well-being. Inadequate dietary intake can lead to nutrient deficiencies, increasing susceptibility to infectious diseases, impaired cognitive function, and chronic

conditions such as cardiovascular disease, osteoporosis, and type 2 diabetes (Black et al., 2020). Micronutrient deficiencies, particularly iron, calcium, and folic acid, are common among women and contribute to anemia, weakened bone health, and complications during pregnancy (Allen et al., 2019).

Undernutrition in women, particularly in low-resource settings, exacerbates maternal and child health risks. Insufficient intake of essential nutrients during pregnancy can result in low birth weight, preterm births, and developmental disorders in infants (Christian et al., 2021). Additionally, prolonged poor nutrition increases the likelihood of metabolic disorders, as diets high in processed foods and refined sugars contribute to obesity and insulin resistance (Popkin et al., 2019).

Mental health is also significantly impacted by poor dietary habits. Research indicates that diets lacking in omega-3 fatty acids, B vitamins, and antioxidants are associated with an increased risk of depression and anxiety disorders (Lai et al., 2020). The gut-brain axis plays a critical role in mood regulation, and an imbalance caused by nutrient-poor diets can contribute to neurological dysfunction (Bauer et al., 2021).

Moreover, postmenopausal women are particularly vulnerable to the consequences of poor nutrition. Inadequate calcium and vitamin D intake accelerates bone loss, increasing the risk of osteoporosis and fractures (Weaver et al., 2020). Additionally, poor dietary habits and physical inactivity contribute to the rising incidence of cardiovascular diseases in older women, highlighting the need for targeted nutritional interventions (Mosca et al., 2019).

Addressing poor nutrition through dietary education, policy initiatives, and lifestyle interventions is essential for improving women's health outcomes. Promoting balanced diets rich in whole grains, lean proteins, healthy fats, and diverse micronutrients can help mitigate the risks associated with inadequate nutrition and support overall well-being.

2.2 IMPACT OF URBANIZATION ON DIETARY PATTERNS

2.2.1 Changes in food habits due to urbanization and increasing workloads

Urbanization has significantly transformed dietary patterns among women, particularly those engaged in professional and economic activities. The shift from traditional home-based food preparation to external food sources has been driven by time constraints, workplace commitments, and lifestyle modifications (Pingali, 2019). Studies indicate that urban women, especially those in full-time employment, often experience irregular meal timings and reduced dietary diversity due to the demands of their work schedules (Satija et al., 2018). This transition has contributed to a decline in the consumption of whole grains, fresh vegetables, and home-cooked meals while increasing the reliance on processed and convenience foods (Rao et al., 2020).

Moreover, increased workloads often lead to meal-skipping behaviors, particularly during breakfast and lunch, which negatively impact overall nutrient intake and metabolic health (Smith et al., 2018). Women working in high-pressure environments are also more likely to experience stress-related eating, leading to an increased intake of calorie-dense but nutrient-poor foods (Devine et al., 2009). The combined impact of urbanization and work demands has led to an increased risk of obesity, insulin resistance, and cardiovascular diseases among working women in urban areas (Goon et al., 2021).

2.2.2 Dependency on convenience foods in urban areas

The increasing dependence on convenience and processed foods is a prominent outcome of urbanization, particularly among working women. Studies highlight that urban women frequently opt for ready-to-eat meals, fast food, and packaged snacks due to their accessibility and time efficiency (Monteiro et al., 2019). These foods, while convenient, often contain excessive amounts of refined carbohydrates, unhealthy fats, sodium, and preservatives, contributing to poor dietary quality and increased risk of non-communicable diseases (Fardet, 2018).

One of the critical concerns associated with processed food consumption is its impact on micronutrient intake. Research indicates that high consumption of ultra-processed foods is

linked to deficiencies in iron, calcium, and essential vitamins, which are crucial for women's health (Moubarac et al., 2014). Additionally, these foods often have a high glycemic index, leading to rapid fluctuations in blood sugar levels, increased cravings, and a higher likelihood of overeating (Chen et al., 2021).

The growing reliance on food delivery services and packaged meals has further contributed to a decline in home-cooked meal consumption (Martínez Steele et al., 2019). While traditional Indian diets emphasize nutrient-dense foods, the shift towards convenience-based eating has resulted in lower intake of fiber-rich whole foods, essential fatty acids, and high-quality proteins (Tiwari et al., 2020). Encouraging policies and initiatives that promote home cooking, workplace meal planning, and nutritional education can help mitigate the negative impacts of urbanization and workload-related dietary changes.

2.3 WORKING WOMEN VS. NON-WORKING WOMEN: LIFESTYLE DIFFERENCES

Women’s nutritional needs vary across different life stages, influenced by biological, physiological, and lifestyle factors. Adequate nutrition is essential for maintaining overall health, supporting reproductive functions, and reducing the ris`k of chronic diseases. Women require specific nutrients in varying amounts, such as iron to prevent anemia, calcium and vitamin D for bone health, and folic acid for fetal development during pregnancy (Black et al., 2013). Additionally, hormonal fluctuations across the menstrual cycle, pregnancy, lactation, and menopause significantly impact nutrient requirements and metabolism (Das et al., 2020). Poor dietary choices and nutrient deficiencies among women are linked to adverse health outcomes, including osteoporosis, cardiovascular diseases, and metabolic disorders (Micha et al., 2017). Socioeconomic factors, cultural food practices, and lifestyle changes also play a crucial role in shaping dietary patterns among women, highlighting the need for targeted nutritional interventions and public health strategies (Rizzoli, 2014).

2.3.1 Time constraints, meal preparation habits, and stress-related eating in working women

The dietary habits of working women are significantly influenced by time constraints, work-related stress, and the availability of quick meal options. Busy work schedules often limit the time available for meal planning and preparation, leading to increased reliance on processed foods, takeout meals, and convenience snacks, which are typically high in unhealthy fats, sodium, and refined carbohydrates (Devine et al., 2009). Research indicates that working women are more likely to skip meals, particularly breakfast, which can lead to irregular eating patterns and increased energy intake later in the day, contributing to weight gain and metabolic imbalances (Goon et al., 2021).

Stress-related eating is another concern among working women, as workplace pressure and long hours can trigger emotional eating behaviors. Studies have shown that chronic stress leads to elevated cortisol levels, which can increase cravings for high-calorie, palatable foods and contribute to unhealthy dietary choices (Adam & Epel, 2007). Emotional eating, coupled with limited time for physical activity, heightens the risk of obesity, insulin resistance, and cardiovascular diseases among working women (Torres & Nowson, 2007).

Moreover, meal preparation habits among working women are often influenced by convenience rather than nutritional quality. Limited time for grocery shopping and cooking can result in a lower intake of fresh fruits, vegetables, and whole grains, which are essential for maintaining a balanced diet and preventing chronic diseases (Laska et al., 2015). Public health interventions emphasizing meal planning, time-efficient cooking strategies, and workplace nutrition programs could play a crucial role in improving the dietary habits and overall health of working women.

2.3.2 Availability of time for meal preparation and better meal quality among non-working women

Non-working women often have greater flexibility in meal preparation, allowing them to prioritize homemade, nutritionally balanced meals. Research suggests that home-cooked meals are generally higher in dietary fiber, essential vitamins, and minerals while being lower in unhealthy fats and sodium compared to commercially prepared foods (Mills et al.,

2017). Non-working women may also have more time to engage in mindful eating practices, leading to better portion control and improved dietary diversity (Wolfson & Bleich, 2015).

Additionally, increased time availability enables non-working women to incorporate traditional cooking methods, which often emphasize fresh and whole ingredients that contribute to overall dietary quality (Tiwari et al., 2020). A well-structured meal routine further supports stable blood glucose levels and improved digestion, reducing the risk of metabolic disorders (Chen et al., 2021). These factors collectively enhance the nutritional adequacy of meals consumed by non-working women, highlighting the role of time availability in shaping healthier dietary habits.

2.4 **ROLE OF HOME-COOKED MEALS IN ENSURING NUTRITIONAL ADEQUACY**

2.4.1 **Nutritional comparison of home-cooked meals vs. Convenience/processed foods**

Home-cooked meals are generally associated with superior nutritional quality compared to convenience and processed foods. Studies have demonstrated that individuals who frequently consume home-cooked meals tend to have higher intakes of essential nutrients such as fiber, vitamins, and minerals while consuming lower amounts of saturated fats, sodium, and added sugars (Mills et al., 2017). The controlled preparation methods in home cooking allow for better portion sizes and reduced reliance on unhealthy additives, promoting overall dietary balance and long-term health benefits (Wolfson & Bleich, 2015).

Conversely, convenience and processed foods are often energy-dense but poor in other nutrients. These foods are frequently high in trans-fats, refined carbohydrates, and artificial preservatives, which contribute to an increased risk of obesity, cardiovascular diseases, and type 2 diabetes (Monteiro et al., 2019). Studies indicate that high consumption of ultra-processed foods is linked to micronutrient deficiencies, particularly in iron, calcium, and vitamin D, which are critical for women's health (Fardet, 2018). Moreover, the excessive sodium content in many processed foods has been associated with hypertension and metabolic disorders (Moubarac et al., 2014).

Another important distinction is the impact of food preparation techniques. Home-cooked meals typically involve fresh ingredients and healthier cooking methods such as steaming, grilling, and baking, which preserve nutrient integrity (Chen et al., 2021). In contrast, processed foods often undergo extensive refinement, leading to the loss of essential nutrients and the addition of synthetic compounds to enhance flavor and shelf-life (Martínez Steele et al., 2019).

Given these differences, prioritizing home-cooked meals over processed foods can significantly enhance dietary quality and overall health outcomes. Public health initiatives should emphasize the benefits of home cooking while promoting educational programs on meal planning and time-efficient cooking strategies to encourage healthier eating habits.

2.4.2 **Cultural and traditional significance of home-cooked meals in indian households**

Home-cooked meals have long been an integral part of Indian culture, serving as a reflection of the country's diverse culinary heritage and deeply ingrained familial traditions. Indian households prioritize home cooking not only for its nutritional value but also for its role in fostering social bonds and preserving regional food practices (Kumar et al., 2021). The preparation of meals at home allows families to maintain traditional recipes passed down through generations, incorporating locally sourced ingredients and seasonal produce that enhance both flavor and health benefits (Sengupta, 2019).

Culturally, food preparation in Indian households is often linked to Ayurvedic principles, which emphasize the balance of different food groups to promote holistic well-being (Sharma & Zepeda, 2020). Traditional Indian diets include a variety of lentils, whole grains, fresh vegetables, and dairy products, providing a balanced intake of essential nutrients while minimizing the consumption of processed ingredients. Home cooking also allows for greater control over portion sizes and the use of natural spices, which have been associated with various health benefits, including anti-inflammatory and digestive properties (Gupta & Prakash, 2020).

Furthermore, communal dining and food-sharing practices within Indian families reinforce the emotional and psychological importance of home-cooked meals. Studies suggest that individuals who frequently consume home-prepared meals experience greater dietary

diversity and improved overall health outcomes compared to those who rely on convenience foods (Mishra et al., 2022). Given the rising prevalence of diet-related diseases in urban India, there is a growing need to re-emphasize the importance of traditional cooking practices as a means to enhance nutritional adequacy and promote sustainable dietary habits.

2.5 FACTORS AFFECTING MEAL PATTERNS AND NUTRITIONAL ADEQUACY

2.5.1 Socio-economic factors: income, education, and access to resources

Socio-economic factors play a critical role in determining dietary habits and overall nutritional status among women. Income levels influence food purchasing power, impacting the quality and variety of foods consumed. Higher income is generally associated with increased access to diverse, nutrient-rich foods, while lower income often leads to greater reliance on inexpensive, energy-dense, but nutrient-poor foods (Darmon & Drewnowski, 2015). Education further shapes dietary choices, as higher educational attainment is linked to better nutrition knowledge and healthier eating patterns (Giskes et al., 2019). Additionally, access to resources such as grocery stores, fresh produce markets, and healthcare services significantly affects women's ability to maintain a balanced diet and meet their nutritional needs.

2.5.2 Time availability, cooking skills, and food preferences

Time constraints are a major determinant of meal preparation habits, particularly among working women who struggle to balance professional responsibilities with household duties. Limited time often leads to increased reliance on convenience foods, which are typically high in processed ingredients and lower in essential nutrients (Devine et al., 2009). Conversely, non-working women often have more time to prepare home-cooked meals, allowing for better meal planning and higher dietary quality. Cooking skills also play a crucial role in dietary habits, as individuals with greater culinary proficiency are more likely to prepare healthy, balanced meals (Wolfson et al., 2016). Furthermore, personal food preferences, cultural influences, and dietary habits developed over time shape individual food choices and consumption patterns.

2.5.3 Role of family dynamics and support

Family structure and support systems significantly impact dietary behaviors, meal preparation, and overall nutritional health. Women in households with strong family support are more likely to prepare and consume home-cooked meals, fostering healthier dietary habits (Fulkerson et al., 2019). In contrast, limited family involvement in meal preparation may result in increased dependence on fast food and ready-to-eat meals. Cultural expectations also influence women's dietary roles, with traditional norms in many societies emphasizing their responsibility for meal preparation (Tiwari et al., 2020). Family mealtime practices, shared meal experiences, and the presence of supportive household environments contribute to improved dietary quality and nutritional outcomes.

2.6 DIETARY DIVERSITY AND FOOD CHOICES

2.6.1 Importance of dietary diversity in achieving nutrient adequacy

Dietary diversity plays a fundamental role in ensuring nutrient adequacy, particularly for women, who have specific nutritional needs throughout different life stages. Consuming a wide variety of foods helps meet essential macronutrient and micronutrient requirements, reducing the risk of deficiencies and associated health complications (Ruel, 2021). A diverse diet improves overall dietary quality by incorporating different food groups, thereby enhancing nutrient absorption and bioavailability (Herforth et al., 2019). Studies suggest that women with higher dietary diversity scores are less likely to experience micronutrient deficiencies such as iron, vitamin A, and folate, which are critical for reproductive health and metabolic functioning (Arimond & Ruel, 2020).

The concept of dietary diversity aligns with global dietary recommendations that emphasize balanced consumption of fruits, vegetables, whole grains, dairy, and protein sources (FAO, 2020). Inadequate dietary diversity has been associated with increased risks of anemia, osteoporosis, and metabolic disorders among women, highlighting the importance of incorporating nutrient-dense foods into daily meal patterns (Steyn et al., 2021).

2.6.2 Common food groups consumed by indian women

Indian dietary habits are deeply rooted in cultural traditions and regional food availability. The staple diet for most Indian women comprises cereals such as rice and wheat, which provide the bulk of daily energy intake (Tiwari & Joshi, 2021). Pulses and legumes, including lentils, chickpeas, and beans, serve as primary protein sources, particularly among vegetarian populations. Dairy products such as milk, curd, and paneer are widely consumed, contributing to calcium and vitamin D intake, essential for bone health (Sharma et al., 2020).

Vegetables and fruits form a critical part of the Indian diet, offering a range of vitamins, minerals, and dietary fiber. Green leafy vegetables such as spinach and fenugreek are rich in iron and folate, essential for preventing anemia, particularly among reproductive-age women (Kaur et al., 2019). Fruits such as bananas, guavas, and citrus varieties provide vitamin C and antioxidants, which support immune function and skin health (Patel & Singh, 2021).

Despite the availability of diverse food groups, consumption patterns vary based on socio-economic factors, regional preferences, and lifestyle habits. Urbanization and increased exposure to processed foods have led to a shift in dietary patterns, with a growing reliance on convenience foods that are often energy-dense but nutrient-poor (Singh et al., 2021). Encouraging the consumption of traditional, home-cooked meals and improving access to diverse, nutrient-rich foods can significantly enhance dietary quality and overall health outcomes for Indian women.

2.7 EXISTING STUDIES ON NUTRITIONAL ADEQUACY IN INDIAN WOMEN

2.7.1 Key findings from studies on working and non-working women's nutrition

Several studies have examined the nutritional status of working and non-working women, highlighting differences in dietary intake, meal patterns, and nutrient adequacy. Research indicates that working women often experience irregular meal patterns due to time constraints and work-related stress, leading to a higher reliance on convenience foods and lower intake of home-cooked meals (Devine et al., 2009). Studies have shown that working women tend to have lower intakes of essential micronutrients such as iron, calcium, and folate, increasing their risk of anemia and osteoporosis (Goon et al., 2021). In contrast, non-

working women generally have greater time availability for meal preparation, allowing them to consume more balanced and home-cooked meals, resulting in better overall nutrient adequacy (Laska et al., 2015).

Physical activity levels also differ significantly between working and non-working women, with sedentary lifestyles being more common among working women, contributing to metabolic disorders and weight gain (Jain & Mathur, 2020). Additionally, research highlights that meal-skipping behavior is more prevalent among working women, negatively impacting their overall dietary diversity and energy balance (Smith et al., 2018).

Despite these findings, there remains a need for more comprehensive studies comparing nutrient adequacy between these groups, particularly in the Indian context, where dietary habits are influenced by cultural, economic, and social factors.

2.7.2 Gaps in research (specific to home-cooked meals and frequency of consumption) in the Indian context

While global studies emphasize the benefits of home-cooked meals in improving dietary quality, research on the frequency of home-cooked meal consumption and its impact on nutrient adequacy among Indian women remain limited. Existing studies primarily focus on overall dietary patterns and macronutrient intake, with little emphasis on the specific role of home-cooked meals in meeting daily nutritional requirements (Satija et al., 2018).

The impact of urbanization and lifestyle changes on home cooking habits has not been extensively explored in the Indian setting. With increasing work pressures and changing family dynamics, the shift from traditional home-cooked meals to commercially prepared foods is becoming more prevalent, yet its long-term health consequences remain under-researched (Pingali, 2019). Additionally, there is a lack of data on how different socio-economic groups access and prioritize home cooking, particularly in urban areas where time constraints and affordability impact meal choices (Rao et al., 2020).

Future research should focus on examining how frequently Indian women consume home-cooked meals, the factors influencing their meal preparation choices, and the associated

impact on their nutrient adequacy and health outcomes. Understanding these patterns will help develop targeted public health strategies to encourage healthier eating habits and improve nutritional outcomes for women in both working and non-working populations.

METHODS AND MATERIALS

The increasing prevalence of non-communicable diseases (NCDs), particularly obesity, cardiovascular diseases, and metabolic disorders, highlights the critical role of dietary habits in maintaining overall health (Willett et al., 2019). Urbanization and evolving work environments have significantly influenced food consumption patterns, particularly among women, leading to a shift from traditional home-cooked meals to processed and convenience foods (Pingali, 2019). This dietary transition has raised concerns regarding nutritional adequacy, meal quality, and long-term health outcomes, necessitating an in-depth investigation into the frequency of home-cooked meals and their impact on nutrient intake among working and non-working women.

Women, irrespective of their employment status, are at a unique intersection of dietary responsibility and health vulnerability. Working women often face time constraints that limit their ability to prepare balanced meals, increasing their reliance on ready-to-eat and fast-food options, which are frequently high in refined carbohydrates, unhealthy fats, and sodium (Devine et al., 2009). Conversely, non-working women, while having greater flexibility in meal preparation, may still experience nutritional inadequacies due to socio-economic factors and dietary knowledge gaps (Darmon & Drewnowski, 2015). Understanding these variations in dietary habits is crucial for designing targeted nutritional interventions that promote healthier food choices.

Despite extensive research on dietary patterns in developed nations, limited studies have examined the link between home-cooked meal frequency and nutrient adequacy in Indian urban settings, particularly in Vadodara. The socio-economic diversity of this city makes it an ideal location to analyze how employment status affects food choices and overall nutrition. Furthermore, given India's rising burden of diet-related chronic illnesses, insights from this study can contribute to public health strategies aimed at improving dietary behaviors, advocating for workplace nutrition policies, and enhancing community-based nutrition education programs (Rao et al., 2020).

This study seeks to bridge the existing research gap by providing empirical evidence on the role of home-cooked meal frequency in achieving nutritional adequacy among urban women.

The findings will support the development of evidence-based interventions to encourage healthier eating habits, improve meal planning strategies, and ultimately contribute to better health outcomes in urban populations.

OBJECTIVES OF THE STUDY

5.1. **Broad Objective:** To assess the Consumption of Home Cooked Meals and Nutrient Adequacyamong Working & Non-Working Women of Vadodara City

5.2. **Specific Objective:**

• To assess the nutrition status of working &Non-working women with respect to Diet, Anthropometric parameters, Physical activity, etc.

• To study the correlation between frequency of consuming Home cooked meals with the Nutritional Adequacy of the working and non-working women.

SAMPLE SIZE ESTIMATION

Sampling Technique: Simple Random Sampling

Sample universe: 9,89,978 {Women residing in the urban region of Vadodara, Gujarat, Census 2011}

Sample size calculation: Slovin's formula is used to calculate the sample size needed for a given population and margin of error:

The Slovin's Formula is given as follows: n = N/(1+Ne2), Where n is the sample size, N is the population size ande is The margin of error, expressed as a decimal

- N/1+Ne^2

- 9,89,978/1+9,89,978* (0.05)^2 {e is taken as 5% i.e 0.05}

- 400

- Considering 10 percent attrition = 10 % * 400 = 40

- Total sample size = 400 + 40 = 440

Sample size: 440

A sample size will be calculated based on expected effect sizes from previous studies, aiming for 440 participants to ensure adequate power for statistical analyses.

SAMPLE SELECTION

There are four administrative zones in Vadodara Mahanagar Seva Sadan. From each of these zones, Purposive selection of 1-2 societies having more than 50 households will be carried out. Adjacent societies in a concentric manner will be selected to enroll the subjects. Based upon the inclusion and exclusion criteria and consent for participating in the study, Random selection of 110 households from each society will be carried out.

Data Collection: Data will be collected with respect to socio economic status, medical history, anthropometric, food preparation & consumption pattern and physical activity.

Inclusion Criteria:

- Males would be excluded from the study.
- Participants must be in the age group of 30- 60 years.
- Residing in Vadodara city.
- Employment Status: Participants will be categorized as either working or non-working women.

Exclusion Criteria

- Dietary Restrictions: Individuals with specific dietary restrictions or medical conditions that significantly limit their food choices (e.g., severe allergies, intolerances) will be excluded.
- Non-Residents: Women who do not reside in Vadodara city will be excluded.
- Age Limitations: Women under the age of 30 and over the age of 60 will not be eligible for participation.
- Pregnant & Lactating Women

Ethical Committee Approval

Consent of the Ethical committee was acquired prior to conducting the study (IECHR/FCSc/M.Sc./10/2024/41). A written consent was also acquired from the subjects.

Study Design: This study adopted a cross-sectional design to assess the dietary patterns and nutritional adequacy of working and non-working women in Vadodara. Data will be collected through structured questionnaires, dietary assessments, and anthropometric measurements to evaluate correlations between home-cooked meal frequency and overall health outcomes.

Background Information

Participants' socioeconomic profiles were assessed using a pre-tested structured questionnaire. The collected data included age, religion, marital status, family structure (nuclear, joint, or extended), number of family members, and monthly family income. The education and occupation of the family head were also reported. The Revised Kuppuswamy Classification (2023) was used to categorize socioeconomic level.

ANTHROPOMETRIC MEASUREMENTS

In this study, the following anthropometric measurements were collected using standard techniques:

Weight

Digital Bathroom Weighing Scale was used to measure body weight of the subject. Body weight of the subjects was taken with precautions like minimal clothing, without footwear, and with empty pockets. First the weighing scale was kept on an even surface and after checking the " zero" on the scale the subjects were asked to stand at the center of the scale with body weight evenly distributed on both the feet, without touching any other object. The weight was recorded in kilograms.

Height

The height of the participants was measured using a stadiometer. Participants were instructed to remove their footwear,and any head accessories before measurement. They were asked to stood upright with their back against the vertical surface of the stadiometer, feet together, and heels touching the base.The stadiometer's headpiece was gently lowered to rest on the crown of the head, and the height was recorded. Measurements were taken to the nearest 0.1 cm. In cases where repeated readings were necessary, the average of two consistent measurements was recorded.

Body Mass Index:

BMI was calculated using the following formula below:

BMI = Weight (kg)/Height * Height (m^2)

Classification of BMI was done according to Asia Pacific criteria, 2004

Presumptive Diagnosis	**BMI**
Underweight	< 18.5
Normal	18.5 - 22.9
Overweight	23 – 24.9
Obese	>_25

Waist Circumference:

The WHO protocol for measuring waist circumference instructs that the measurement be made at the approximate midpoint between the lower margin of the last palpable rib and the top of the iliac crest. The subject was asked to breathe normally and was asked to breathe out gently at the time of making measurements to prevent them from contracting their muscles or from holding their breath. A non-stretchable fiberglass tape was used to perform this measurement.

Classification of Waist Circumference was done according to International Diabetes Federation, 2005

Risk Category	**Waist Circumference Cut-off (cm)**
Low Risk	< 80 cm
Increased Risk (Central Obesity)	≥ 80 cm
High Risk (Severe Abdominal Obesity)	≥ 90 cm

Hip Circumference:

The hip circumference measurement was taken around the widest portion of the buttocks using a non-stretchable fiberglass tape.

Waist Hip Ratio (WHR)

WHR = Waist Circumference/ Hip Circumference

Classification of Waist-Hip Ratio was done according to World Health Organization Report,

Risk Category	**WHR Cut-off Value**
Low Risk (Healthy)	≤ 0.80
Moderate Risk	0.81 - 0.85
High Risk (Obese)	≥ 0.86

2005

Waist to Stature Ratio (WSR)

WSR = Waist Circumference (cm)/ Hip Circumference (cm)

Gender	**Category**	**WSR**
Male	**Obese**	>=0.51
Female	**Obese**	>=0.53

Category recommended by for Asian (liu et, 2011)

MEDICAL AND FAMILY HISTORY

Medical and family history of the subjects was collected in order to know the presence of any associated co-morbidities or complications like diabetes, hypertension, chronic heart disease, cancer or any other condition.

DIETARY PATTERN:

The assessment of Dietary Pattern of the subjects was performed using a structured questionnaire regarding the following aspects:

Food Habits: The information regarding eating habits, skipping meals, frequency of eating out was assessed.

Quantitative Food Frequency Questionnaire: The frequency of consumption of food items across different food groups was assessed using a pre-tested, structured Food Frequency Questionnaire (FFQ). This tool was chosen for its ability to capture habitual dietary intake over a specified period, providing comprehensive insights into the dietary patterns of the participants. The FFQ enables the evaluation of nutrient intake variations among working and non-working women, facilitating a better understanding of their overall nutritional adequacy.

One Day 24-hour Dietary Recall: The data regarding the consumption of food in the past 24 hours was collected using standard cups and spoons. The data was analyzed with the help of Dietcal Software.

ADDICTION PATTERN:

Information regarding the addiction pattern of alcohol, tobacco, smoking, tea and coffee etc (both past and the present) of the subjects were studied and this information was elicited through interview method using a pre tested questionnaire.

ACTIVITY PATTERN:

Information regarding the activity pattern of the subject was acquired using International Physical Activity Questionnaire (IPAQ). The IPAQ is a 27 item measure of physical activity

for use with individual adult aged 15 to 69 years old. It is designed to measure the duration and frequency of physical activity across various domains over the last 7 days. These domains include:

- Job-related physical activity
- Transporation-related physical activity
- Housework, house maintenance, and caring for family
- Recreation, sports, and leisure-time physical activity
- Time spent sitting

FIGURE 3.1 STUDY PLAN

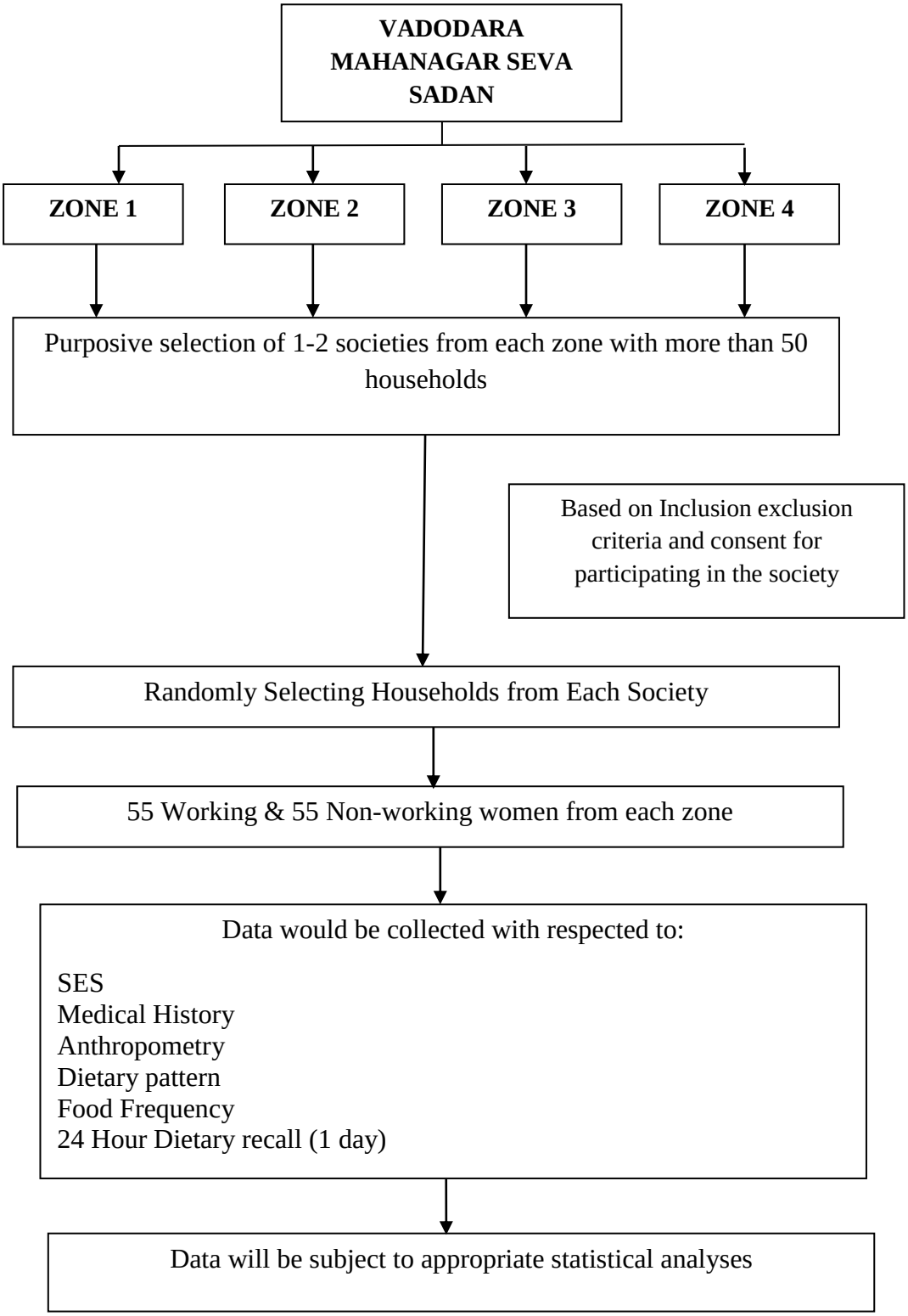


TABLE: 3.1 TOOLS & TECHNIQUES FOR DATA COLLECTION

Parameters	**Method / Tool**
General Information	Semi structured Questionnaire
Physical activity	International Physical Activity Questionnaire (IPAQ)
Anthropometric Indices	
Height weight, Waist Circumference, Hip Circumference	Standard Methods
Dietary habits	
Dietary pattern	Structured Questionnaire
Food Frequency	Quantitative Food Frequency Questionnaire
Dietary Recall	24-hour Dietary Recall

STATISTICAL ANALYSIS

The data was entered in excel and then analyzed using Microsoft Excel 2021 and SPSS (24 version)

- The nutritive value calculations for one day-24 hour dietary recall was performed using the Microsoft excel software. All nutritive values of the standard recipes and packaged food items were added into the software to assist the nutritive value calculation and further analyses.
- Frequency distribution and percentages were calculated for all parameters that were expressed in a rank order fashion.
- Means and standard errors were calculated for all the parameters that were exposed numerically.
- Correlation and regression were calculated for all the trends observed.

RESULTS AND DISCUSSIONS

Diet plays a pivotal role in women's health and well-being, influencing everything from reproductive health to chronic disease risk. With rapid globalization and urbanization, the demands placed on women, especially workers, have significantly increased. The engagement of females in the workforce has become a global phenomenon, driven by economic necessity and evolving societal norms. This trend is evident in India, where female labor force participation has seen both growth and fluctuations, and particularly in Gujarat, a state experiencing rapid industrialization and urbanization. However, the dietary needs of working women often differ from those of non-working women due to factors like time constraints, stress, and varying physical demands. Understanding these differences is crucial for promoting optimal health and productivity.

Globally, female workforce participation has been on the rise, though disparities persist (ILO, 2021). In India, while the overall trend indicates increased participation, significant regional variations exist. For example, Gujarat has witnessed a substantial increase in female involvement in industries like textiles and manufacturing (Desai & Patel, 2019). However, this increased participation often occurs alongside challenges such as limited access to nutritious food and increased stress levels, which can negatively impact dietary habits (Rao et al., 2020).

Working women often face time constraints that lead to reliance on processed or fast foods, which are typically high in calories, saturated fats, and sodium, and low in essential nutrients (Popkin, 2006). Stress, a common factor in working environments, can also influence dietary choices, leading to increased consumption of comfort foods or skipping meals altogether (Adam & Epel, 2007). In contrast, non-working women may have more control over their meal planning and preparation, potentially leading to healthier dietary patterns. However, they may also face challenges related to sedentary lifestyles and limited access to diverse food options. Therefore, it is essential to tailor dietary interventions and public health initiatives to address the specific needs of both working and non-working women, considering their unique socioeconomic and cultural contexts. The results of the study are discussed below.

A descriptive analysis of socio-demographic characteristics in table 4.1 reveals significant differences between working and non-working women primarily in age distribution, family structure, and household size, with non-workers tending to be younger, more likely

to live in joint families, and reside in households with a greater number of adults ($p < 0.001$ and $p = 0.004$ respectively), while religious affiliation and marital status show no significant distinction between the groups ($p = 0.05$ and $p = 0.44$ respectively), and similarly, food habits and the number of children in the family do not significantly differ ($p = 0.40$ and $p = 0.58$ respectively), suggesting that age and household composition are key differentiating factors between these two categories within this sample population.

The analysis of socio-economic variables in table 4.2 reveals significant disparities between workers and non-workers, with workers exhibiting higher educational qualifications, diverse occupations including self-employment and private sector jobs, and reported personal incomes, contrasting sharply with non-workers who are exclusively categorized as home makers with no reported personal income or working hours ($p < 0.001$ for education, occupation, working hours, and personal income); furthermore, while both groups have a substantial proportion of households in higher income brackets, the overall distribution of monthly household income also differs significantly ($p < 0.001$), indicating distinct socio-economic profiles for the two categories.

In table 4.3, the distribution of socioeconomic status within the studied sample of working &Non-working women reveals a pronounced concentration within the Upper Middle category for both groups, with markedly limited representation in the Upper and Lower Middle strata and an absence of individuals in the Upper Lower and Lower socioeconomic classifications.

Table 4.4, the dietary patterns of working and non-working women in exhibit notable differences primarily in meal skipping and breakfast consumption. While the overall frequency of meals and snacks consumed is similar between the two groups, working women are significantly more likely to skip breakfast and consume it less frequently or never, compared to non-workers who more consistently consume all main meals, particularly breakfast ($p < 0.001$ for both meal skipping and breakfast frequency).

Conversely, the frequency of consuming 3 or more meals per day and the frequency of snack consumption do not significantly differ between the two groups ($p = 0.98$ and $p = 0.06$, respectively), indicating that while breakfast habits diverge, the overall pattern of eating throughout the day is broadly comparable.

TABLE 4.1 - BACKGROUND INFORMATION OF THE PARTICIPANTSN(%)

Variables	Workers (N=234)	Non-Workers (N=216)	Total(N=450)	Chi Square (P value)
Age Group				
30-40	130(60.20)	194(82.90)	324(72.00)	29.691(0.000)***
41-50	51(23.60)	27(11.50)	78(17.30)	
51-60	27(12.50)	11(4.70)	38(8.40)	
More than 60	8(3.70)	2(0.90)	10(2.20)	
Religion				
Hindu	232(99.1)	207(95.8)	439(97.6)	7.716(0.052)
Christian	0(0)	2(0.9)	2(0.4)	
Jain	0(0)	5(2.3)	5(1.1)	
Muslim	2(0.9)	2(0.9)	4(0.9)	
Others	0(0)	0(0)	0(0)	
Marital Status				
Single	4(1.7)	6(2.8)	10(2.2)	0.590(0.442)
Married	230(98.3)	210(97.2)	440(97.8)	
Divorced	0(0)	0(0)	0(0)	
Widowed	0(0)	0(0)	0(0)	
Family Structure				
Nuclear	232(99.1)	200(92.6)	432(96.0)	12.559(0.000)***
Joint	2(0.9)	16(7.4)	18(4)	
Extended	0(0)	0(0)	0(0)	
Food Habit				
Non-Vegetarian	60(25.6)	51(23.6)	111(24.7)	1.819(0.403)
Vegetarian	166(70.9)	152(70.4)	318(70.7)	
Ovo-Vegetarian	8(3.4)	13(6)	21(4.7)	
No. of Adults in a family				
1-4	232(99.1)	204(94.4)	436(96.9)	8.234(0.004)**
More than 4	2(0.9)	12(5.6)	14(3.1)	
No. of Children in a family				
No Children	78(33.3)	60(27.8)	138(30.7)	1.965(0.580)
1	75(32.1)	80(37.0)	155(34.4)	
2	75(32.1)	70(32.4)	145(32.2)	
3	6(2.6)	6(2.8)	12(2.7)	

$p<0.05$*, $p<0.01$**, $p<0.001$***

TABLE 4.2 OCCUPATION/WORKING INFORMATION OF THE PARTICIPANTS N(%)

Variables	Workers (N=234)	Non-Workers (N=216)	Total (N=450)	Chi Square (P value)
Educational Qualification				
No formal Education	0(0)	8(3.7)	8(1.8)	67.930(0.000)***
Primary	0(0)	12(5.6)	12(2.7)	
Secondary	23(10.6)	23(10.6)	30(6.7)	
Higher Secondary	51(21.8)	80(37.0)	131(29.1)	
Graduate	135(57.7)	85(39.4)	220(48.9)	
Post Graduate	41(17.5)	8(3.7)	49(10.9)	
Occupation				
Home Maker	0(0)	216(100)	216(48)	450(0.000)***
Self Employed	88(37.6)	0(0)	88(19.6)	
Private Sector	122(52.1)	0(0)	122(27.1)	
Government Sector	24(10.3)	0(0)	24(5.3)	
Others	0(0)	0(0)	0(0)	
Working hours				
Inapplicable	216(100)	0(0)	216(48)	435.70(0.000)***
Less than 5	0(0)	17(7.3)	17(3.78)	
5-7 hours	0(0)	74(31.6)	74(16.44)	
8-10 hours	0(0)	143(61)	143(31.78)	
More than 10	0(0)	0(0)	0(0)	
Personal Income of the Participant (Monthly)				
Not Applicable (Homemakers)	0(0)	216(100)	216(48)	450(0.000)***
20,000-30,000	86(36.8)	0(0)	86(19.1)	
30,000-50,000	148(63.2)	0(0)	148(32.9)	
50,000-1,00,000	0(0)	0(0)	0(0)	
1,00,000-3,00,000	0(0)	0(0)	0(0)	
More than 3 lakhs	0(0)	0(0)	0(0)	
Household Income(Monthly)				
20,000-30,000	2(0.9)	4(1.7)	6(1.3)	57.825(0.000)***
30,000-50,000	66(30.6)	10(4.3)	76(16.9)	
50,000-1,00,000	122(56.5)	166(70.9)	288(64)	
1,00,000-3,00,000	26(12)	54(23.1)	80(17.8)	
More than 3 lakhs	0(0)	0(0)	0(0)	

$p<0.05$*, $p<0.01$**, $p<0.001$***

TABLE 4.3 SOCIO-ECONOMIC STATUS OF THE PARTICIPANTS N(%)*

Socioeconomic Class	Working Women (N=234)	Non-Working Women (N=216)	Total (N=450)	Chi square (P value)
Upper	0 (0.00%)	2 (0.92%)	2 (0.44%)	8.431 (0.077)
Upper Middle	232 (99.14%)	204 (94.44%)	436 (96.89%)	
Lower Middle	2 (0.86%)	10 (4.63%)	12 (2.67%)	
Upper Lower	0(0)	0(0)	0(0)	
Lower	0(0)	0(0)	0(0)	

*Kuppuswamy Socioeconomic Status Scale, updated for 2024

TABLE 4.4 DIETARY HABITS OF THE PARTICIPANTS N(%)

Variables	Workers (N=234)	Non-Workers (N=216)	Total (N=450)	Chi Square (P value)
Frequency of Meals Consumed				
1-2	0(0)	0(0)	0(0)	0.001(0.982)
2-3	127(54.3)	117(54.2)	244(54.2)	
More than 3	107(45.7)	99(45.8)	206(45.8)	
Frequency of Meals skipped				
Breakfast	114(48.7)	68(31.5)	182(40.4)	13.944(0.001)**
Lunch	4(1.7)	4(1.9)	8(1.8)	
Dinner	0(0)	0(0)	0(0)	
None	116(49.6)	144(66.7)	260(57.8)	
Frequency of Breakfast Consumption				
Daily	120(51.3)	141(65.3)	261(58)	36.439(0.000)***
3-5 times a week	38(16.2)	11(5.1)	49(10.9)	
Rarely	56(23.9)	64(29.6)	120(26.7)	
Never	20(8.5)	0(0)	20(4.4)	
Frequency of Snack Consumption				
Frequently	143(61.1)	110(50.9)	253(56.2)	5.516(0.063)
Occasionally	71(30.3)	88(40.7)	159(35.3)	
No	20(8.5)	18(8.3)	38(8.4)	

p<0.05*, p<0.01**, p<0.001***

Fig 4.1, the assessment of meal preparation frequency revealed that a significant proportion of participants (88%) prepared their own breakfast, lunch, and dinner on a daily basis. With regard to reliance on a cook for meal preparation, only 4 % of participants reported receiving assistance for all three meals on a daily basis, whereas the vast majority never relied on a cook.

Similarly, the utilization of household help for meal preparation was reported by 8% of participants on a daily basis.

Figure 4.1- Meal Preparation Method Among Participants

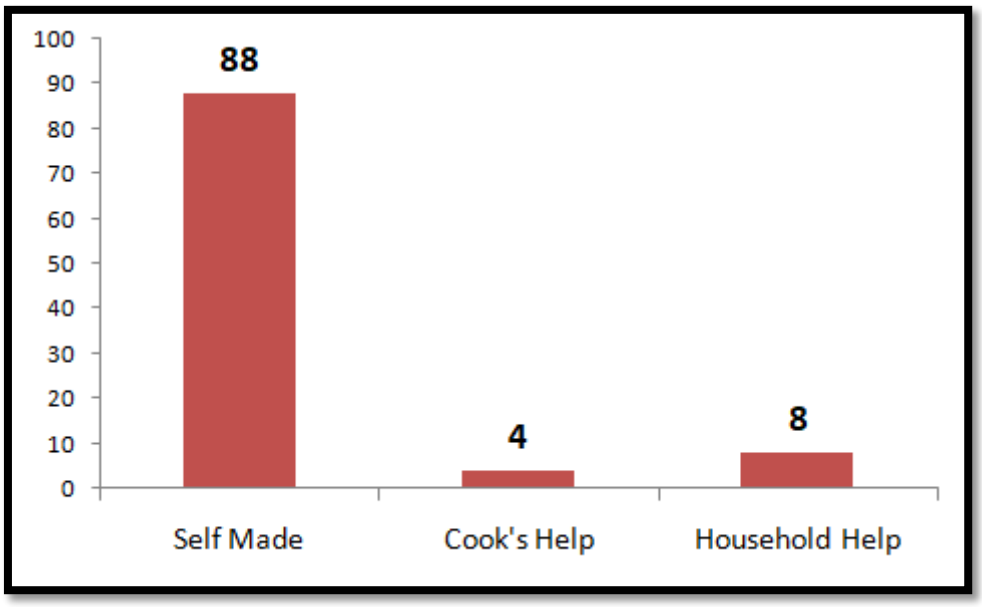


Table 4.5, The analysis of sleeping hours reveals a statistically significant difference ($p < 0.001$) between working and non-working women with the majority in both groups reporting 6-8 hours of sleep; however, workers exhibit a small proportion with shorter sleep durations (4-6 hours) not seen in non-workers, while a notable segment of non-workers reports longer sleep (more than 8 hours), a duration absent among on-workers.

TABLE 4.5 – DURATION OF SLEEP AMONG THE PARTICIPANTSN(%)

Variables	Workers (N=234)	Non-Workers (N=216)	Total (N=450)	Chi Square (P value)
Sleeping Hours				
4-6 Hours	3(1.3)	0(0)	3(0.7)	13.732 (0.001)**
6-8 Hours	231(98.7)	206(95.4)	437(97.1)	
More than 8 Hours	0(0)	10(4.6)	10(2.2)	

p<0.05*, p<0.01**, p<0.001***

In Table 4.6, the comparative analysis of anthropometric measurements between working and non-working women using independent samples t-test, demonstrated a statistically non-significant difference in mean height between the two groups. Conversely, non-

working women presented with significantly elevated means in weight ($p < 0.01$), Body Mass Index ($p < 0.001$), Waist-Hip Ratio ($p < 0.001$), waist circumference ($p < 0.001$), and Waist-to-Stature Ratio ($p < 0.001$) when compared to their working counterparts.

TABLE 4.6 – ANTHROPOMETRIC PARAMETERS OF PARTICIPANTS

Variable	Working Women (n=234)	Non-Working Women (n=216)	t-statistic	Estimated p-value
Height (cm)	154.74 ± 6.30	153.81 ± 5.55	1.666	> 0.05
Weight (kg)	59.71 ± 10.11	62.86 ± 10.29	-3.271	< 0.01**
BMI (kg/m²)	25.01 ± 4.37	26.66 ± 4.74	-3.826	< 0.001***
WHR	0.83 ± 0.08	0.86 ± 0.09	-3.721	< 0.001***
WC (cm)	81.95 ± 8.53	86.85 ± 10.02	-5.562	< 0.001***
WSR (cm)	0.53 ± 0.06	0.56 ± 0.08	-4.472	< 0.001***

p<0.05*, p<0.01**, p<0.001***

In table 4.7, A chi-square test revealed a statistically significant association ($p < 0.001$) between working status and BMI category among women, with working women exhibiting a higher proportion of normal weight and a lower prevalence of obesity compared to non-working women, who conversely show a higher prevalence of overweight and a markedly greater proportion classified as obese, while underweight was observed only in the working group.

TABLE 4.7– BMI DISTRIBUTION AMONG PARTICIPANTSN(%)*

BMI Category	Workers (N=234)	Non workers (N=216)	Chi square (P value)
Underweight	6(2.6)	0(0)	27.923 (0.000)***
Normal Weight	84(35.9)	53(24.5)	
Overweight	50(21.4)	26(12)	
Obese	94(40.2)	137(63)	

Asia Pacific BMI classification,p<0.05, p<0.01**, p<0.001***

Table 4.7, reveals a statistically significant association ($\chi^2 = 27.923$, $p < 0.001$) between employment status and BMI category. Specifically, a higher proportion of workers exhibit a normal weight (35.9%) compared to non-workers at 24.5%. Conversely, non-workers

demonstrate a significantly greater prevalence of obesity (63%) than workers (40.2%). While overweight individuals are also more common among workers (21.4%) than non-workers (12%), the absence of underweight individuals in the non-worker group, contrasted with their presence in the worker group (2.6%), further contributes to the statistically significant difference in BMI distribution. The highly significant p-value ($p < 0.001$) strongly suggests that the observed differences in BMI categories between workers and non-workers are unlikely to be due to chance, implying a meaningful relationship between these two variables.

TABLE 4.8– ABDOMINAL OBESITY AMONG PARTICIPANTSN(%)*

BMI Category	Cut-Off (Kg/m^2)	Working Women (N=234)	Non-Working Women (N=216)	Total (N=450)	Chi square	P-value
Low Risk	< 80 cm	67 (28.63%)	36 (16.67%)	103 (22.89%)	17.24	0.00018***
Increased Risk (Central Obesity)	≥ 80 cm	119 (50.85%)	102 (47.22%)	221 (49.11%)		
High Risk (Severe Abdominal Obesity)	≥ 90 cm	48 (20.51%)	78 (36.11%)	126 (28%)		

* Asia-Pacific Waist Circumference Classification, World Health Organization (WHO) (2000)

p<0.05*, p<0.01**, p<0.001***

The analysis of Waist-to-Hip Ratio (WHR) in table 4.9, shows a significant difference between working and non-working women ($\chi^2 = 12.71$, $p = 0.0017$). A higher proportion of working women (42.74%) fall into the low-risk category (WHR ≤ 0.80) compared to non-working women (27.31%). In contrast, non-working women have a greater prevalence of high-risk WHR (43.52%) than working women (37.61%), indicating higher central obesity. The moderate-risk category is also more common among non-working women (29.17%) than working women (19.66%).

TABLE 4.9WAISTS TO HIP RATIO CLASSIFICATION AMONG PARTICIPANTSN(%)*

WHR Classification	Cut Off Value	Working Women (N=234)	Non-Working Women (N=216)	Total N (%)	Chi-Square Value	P-value
Low Risk	≤ 0.80	100 (42.74)	59 (27.31)	159 (33.97)	12.71	0.0017**
Moderate Risk	0.81 - 0.85	46 (19.66)	63 (29.17)	109 (23.29)		
High Risk	≥ 0.86	88 (37.61)	94 (43.52)	182 (38.89)		

*Waist-to-Hip Ratio (WHR) classification, World Health Organization (WHO) (2008)
p<0.05*, p<0.01**, p<0.001***

In table 4.10, Stratified by age group, the distribution of BMI categories within both worker and non-worker populations reveals a statistically significant association between age and BMI, as indicated by Chi-square tests (workers: $\chi^2 = 62.460$, $p < 0.001$; non-workers: $\chi^2 = 20.751$, $p = 0.002$). Among workers, normal weight and obesity are prevalent across younger age groups, with a notable proportion of overweight individuals in the 41-50 cohort, while underweight individuals are limited to the 30-40 age brackets. Conversely, non-workers exhibit a higher prevalence of obesity in the younger age ranges (30-40 and 41-50) compared to their working counterparts, with a correspondingly lower proportion in the normal weight category within the 30-40 age groups.

TABLE 4.10 –BMI PROFILE ACROSS AGE GROUPS OF THE PARTICIPANTSN(%)*

Occupation	Workers (N=234)				Non workers (N=216)			
Age Group	30-40 (N=194)	41-50 (N=27)	51-61 (N=11)	>60	30-40 (N=130	41-50 (N=51)	51-61(N=27)	>60 (N=8)
Underweight	6(3)	0(0)	0(0)	0	0(0)	0(0)	0(0)	0(0)
Normal weight	80(41.2)	4(14.8)	0(0)	0	34(26.1)	17(33.3)	0(0)	2(25)
Overweight	31(16)	19(70.4)	0(0)	0	20(15.4)	6(11.8)	0(0)	0(0)
Obese	77(39.7)	4(14.8)	11 (100)	2(100)	76(58.5)	28(54.9)	27(100)	6(75)
	62.460 (0.000)***				20.751(0.002)**			

p<0.05*, p<0.01**, p<0.001***

Table 4.11 shows the distribution of physical activity levels, categorized by MET-minutes per week, and reveals a notable divergence between working and non-working women. A higher proportion of non-working women (31.02%) were classified as having low physical activity compared to working women (12.82%). Conversely, working women exhibited a greater prevalence in the moderate physical activity category, with 59.40% falling into this range compared to 43.06% of non-working women. The high physical activity category showed a similar representation between the groups, with 27.78% of working women and 25.92% of non-working women classified as very active.

The distribution of sitting time in table 4.12, reveals a striking divergence between working and non-working women. All non-working women (100%) were classified as having low sedentary hours (<4 hours/day). In contrast, working women demonstrated a more varied distribution: 16.67% reported low sedentary hours, 35.90% reported moderate sedentary hours (4-7 hours/day), and 47.44% reported high sedentary hours (>7 hours/day). A substantial difference in sedentary behaviour between the two groups is reflected in the statistically significant chi-square test results ($p < 0.0001$).

TABLE 4.11– PHYSICAL ACTIVITY LEVELS AMONG PARTICIPANTSN(%)*

Activity Type	MET Value	Working Women (N=234) N (%)	Non-Working Women (N=216) N (%)	Total (N=450) N (%)	Chi-Square Value	P-value
Inactive	<600 MET-min/week	30 (12.82%)	67 (31.02%)	97 (21.55%)	29.45	<0.0001***
Minimally Active	600 - 2999 MET-min/week	139 (59.40%)	93 (43.06%)	232 (51.55%)		
HEPA Active	≥3000 MET-min/week	65 (27.78%)	56 (25.92%)	121 (26.89%)		

*****International Physical Activity Questionnaire (IPAQ) Research Committee, (2005)

p<0.05*, p<0.01**, p<0.001***

TABLE 4.12 – SITTING DURATION ASSESSMENT AMONG PARTICIPANTSN(%)*

Sitting Time Category	Sitting Hours	Working Women (N=234) N (%)	Non-Working Women (N=216) N (%)	Total (N=450) N (%)	Chi-Square Value	P-value
Low Sedentary Behavior	<4 hours/day	39 (16.67%)	216 (100.00%)	255 (56.67%)	344.8	<0.0001***
Moderate Sedentary Behavior	4 - 7 hours/day	84 (35.90%)	0 (0.00%)	84 (18.67%)		<0.0002***
High Sedentary Behavior	>7 hours/day	111 (47.44%)	0 (0.00%)	111 (24.67%)		<0.0003***

*****International Physical Activity Questionnaire (IPAQ) Research Committee, (2005), p<0.05*, p<0.01**, p<0.001***

Table 4.13, Analysis of occupational activity levels across age groups for workers and non-workers reveals statistically significant associations between age and activity level in both populations (workers: $\chi^2 = 41.038$, $p < 0.001$; non-workers: $\chi^2 = 30.856$, $p < 0.001$), yet with distinct patterns; younger workers (30-40) predominantly report moderate to heavy activity, contrasting with a higher prevalence of inactivity among their non-working peers in the same age range, while activity patterns in older age groups also differ between the two cohorts.

TABLE 4.13 – PHYSICAL ACTIVITY PROFILEACROSS AGE GROUP OF PARTICIPANTSN(%)*

Occupation	Workers (N=234)				Non Workers (N=216)			
Age Group	30-40 (N=194)	41-50 (N=27)	51-60 (N=11)	>60 (N=2)	30-40 (N=130)	41-50 (N=51)	51-60 (N=27)	>60 (8)
Inactive	30(15.5)	0(0)	0(0)	0(0)	41(31.5)	18(35.3)	4(14.8)	4(50)
Moderately active	126 (64.9)	10(37)	3(27.3)	0(0)	58(44.6)	10(19.6)	21(77.8)	4(50)
Hepa Active	38(19.6)	17(63)	8(72.7)	2(100)	31(23.8)	23(45.1)	2(7.4)	0(0)
	41.038 (0.000)* **				**30.856(0.000)*** **			

IPAQ, p<0.05*, p<0.01**, p<0.001***

Table 4.14, Chi-square tests examining the association between working status and family history of specific diseases revealed a statistically significant association only for thyroid disorders ($p = 0.050$), with workers reporting a slightly higher prevalence; no significant associations were found for family history of diabetes ($p = 0.753$), Coronary Heart

Disease (p = 0.606), or hypertension (p = 0.349), suggesting that for these latter conditions, the reported familial prevalence is similar between on-workers and non-workers.

No cases of tobacco, alcohol, or substance addiction were reported among the participants.

Fig 4.2, The bar graph compares the prevalence (%) of selected chronic diseases—diabetes, thyroid disorders, hypertension, and coronary heart disease (CHD)—among working (N=234) and non-working women (N=216). The data reveal that the prevalence of hypertension is notably higher among non-working women (13.9%) compared to working women (11.1%). Similarly, the rates of diabetes and thyroid disorders are slightly higher among working women (8.5% and 1.3%, respectively) than their non-working counterparts (8.3% and 0.9%). Notably, no cases of CHD were reported in either group. Overall, hypertension appears to be the most prevalent condition, particularly among non-working women.

FIG 4.2 PREVALANCE OF DISEASES AMONG THE SUBJECTS (SELF REPORTED)

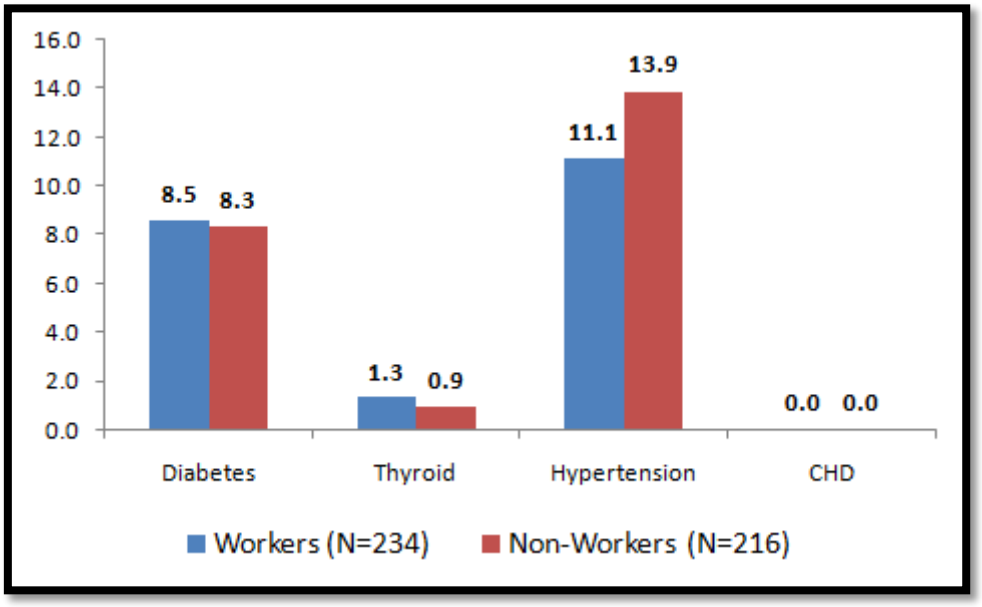


Table 4.15 shows, workers primarily consume staple grains like rice and wheat daily (91.59%). Pulses such as mung chilka, masoor dal, and chana dal are predominantly consumed weekly. Leafy greens (bathua, cabbage, cauliflower) and many vegetables (beans, bottleguard, etc.) are also weekly staples. Onion and potato are consumed daily.

Fruits like tomato, apple, banana, and orange are consumed daily by a significant portion. Dairy (milk, curd, buttermilk) is also a daily staple. Non-vegetarian items (fish, red meat) and processed foods (frozen snacks, bakery goods) are largely avoided.

Table 4.14FAMILY HISTORY OF DISEASE N(%)*

Variables	Workers (N=234)	Non-Workers (N=216)	Total (N=450)	Chi Square (P value)
Diabetes History				
Mother	2(0.9)	13(6)	15(3.3)	0.099 (0.753)
Father	24(10.2)	14(6.5)	34(8.4)	
Sibling	0(0)	2(0.9)	2(0.4)	
Grand Parents	0(0)	0(0)	0(0)	
Self	20(8.5)	18(8.3)	38(8.4)	
None	188(80.3)	169(78.2)	357(79.3)	
CHD History				
Mother	0(0)	2(0.9)	2(0.4)	0.265 (0.606)
Father	6(2.6)	6(2.8)	12(2.7)	
Sibling	0(0)	0(0)	0(0)	
Grand Parents	0(0)	0(0)	0(0)	
Self	0(0)	0(0)	0(0)	
None	228(97.4)	208(96.3)	436(96.9)	
Thyroid History				
Mother	12(5.1)	4(1.9)	16(3.6)	3.847 (0.05)*
Father	0(0)	0(0)	0(0)	
Sibling	0(0)	4(1.9)	4(0.9)	
Grand Parents	0(0)	0(0)	0(0)	
Self	4(1.7)	3(1.4)	7(1.6)	
None	218(93.2)	205(94.9)	423(94)	
Hypertension History				
Mother	6(2.6)	8(3.7)	14(3.1)	0.876 (0.349)
Father	47(20.1)	36(16.7)	83(18.4)	
Sibling	0(0)	0(0)	0(0)	
Grand Parents	0(0)	0(0)	0(0)	
Self	26(11.1)	30(13.9)	56(12.4)	
None	155(66.2)	142(65.7)	297(66)	

$p<0.05$*, $p<0.01$**, $p<0.001$***

According to table 4.16, Non-working women primarily consume rice and wheat daily. Pulses like mung chilka, masoor dal, and chana dal are weekly staples. Leafy greens and most vegetables are also consumed weekly. Onion, potato, tomato, apple, banana, and orange are consumed daily by many. Dairy (milk, curd, buttermilk) is also a daily staple. Non-vegetarian items and processed foods are largely avoided.

TABLE 4.15 FOOD FREQUENCY QUESTIONNAIRE (WORKERS) (N=234) N(%)*

	Food Items	Daily N(%)	2-3 times a week N(%)	Weekly N(%)	Twice a month N(%)	Monthly N(%)	Rarely N(%)	Never N(%)
Cereals	Rice	126 (53.9)	45 (19.2)	57 (24.4)	3 (1.3)	0 (0.)	3 (1.3)	0 (0.)
	Wheat	219 (93.6)	9 (3.9)	0 (0.)	0 (0.)	2 (0.9)	4 (1.7)	0 (0.)
	All Purpose Flour	6 (2.6)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	228 (97.4)	0 (0.)
	Semolina	0 (0.)	2 (0.9)	20 (8.6)	0 (0.)	4 (1.7)	208 (88.9)	0 (0.)
	Corn	12 (5.1)	155 (66.2)	16 (6.8)	8 (3.4)	4 (1.7)	39 (16.7)	0 (0.)
	Pearl Millet	22 (9.4)	176 (75.2)	2 (0.9)	12 (5.1)	4 (1.7)	18 (7.7)	0 (0.)
	Finger Millet	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	29 (12.4)	205 (87.6)
Pulses & Legumes	Mung chilka	0 (0.)	234 (100.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Mung dhuli	8 (3.4)	226 (96.6)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Masoor dal	0 (0.)	234 (100.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Arhar Dal	12 (5.1)	222 (94.9)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Urad dal	2 (0.9)	232 (99.2)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Chana dal	0 (0.)	234 (100.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Rajma	0 (0.)	4 (1.7)	32 (13.7)	14 (6.)	123 (52.6)	58 (24.8)	3 (1.3)
	Cholley	0 (0.)	4 (1.7)	110 (47.)	62 (26.5)	43 (18.4)	15 (6.4)	0 (0.)
	kala chana	0 (0.)	4 (1.7)	24 (10.3)	30 (12.8)	155 (66.2)	21 (9.)	0 (0.)
	Cowpea	0 (0.)	4 (1.7)	26 (11.1)	28 (12.)	148 (63.3)	28 (12.)	0 (0.)
	Soyabean	0 (0.)	4 (1.7)	18 (7.7)	12 (5.1)	49 (20.9)	114 (48.7)	37 (15.8)
Green Leafy Vegetables	Bathua	0 (0.)	4 (1.7)	10 (4.3)	68 (29.1)	150 (64.1)	2 (0.9)	0 (0.)
	Cabbage	0 (0.)	222 (94.9)	12 (5.1)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Cauliflower	0 (0.)	226 (96.6)	4 (1.7)	0 (0.)	4 (1.7)	0 (0.)	0 (0.)

	Methi	0 (0.)	2 (0.9)	10 (4.3)	66 (28.2)	156 (66.7)	0 (0.)	0 (0.)
	Sarso	0 (0.)	6 (2.6)	6 (2.6)	64 (27.4)	158 (67.5)	0 (0.)	0 (0.)
	Spinach	0 (0.)	8 (3.4)	6 (2.6)	59 (25.2)	161 (68.8)	0 (0.)	0 (0.)
Roots &Tubers	Beetroot	6 (2.6)	6 (2.6)	0 (0.)	0 (0.)	0 (0.)	218 (93.2)	4 (1.7)
	Onion	234 (100.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
	Radish	16 (6.8)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	214 (91.5)	4 (1.7)
	Potato	230 (98.3)	0 (0.)	4 (1.7)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Sweet potato	0 (0.)	0 (0.)	4 (1.7)	0 (0.)	0 (0.)	228 (97.4)	2 (0.9)
Other Vegetables	Beans	2 (0.9)	228 (97.4)	4 (1.7)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Bottleguard	0 (0.)	234 (100.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Brinjal	0 (0.)	226 (96.6)	2 (0.9)	0 (0.)	4 (1.7)	0 (0.)	2 (0.9)
	Cucumber	0 (0.)	228 (97.4)	2 (0.9)	4 (1.7)	0 (0.)	0 (0.)	0 (0.)
	Capsicum	0 (0.)	224 (95.7)	6 (2.6)	0 (0.)	0 (0.)	4 (1.7)	0 (0.)
	Lady finger	0 (0.)	228 (97.4)	2 (0.9)	4 (1.7)	0 (0.)	0 (0.)	0 (0.)
	Papaya	0 (0.)	224 (95.7)	6 (2.6)	0 (0.)	0 (0.)	4 (1.7)	0 (0.)
	Parwar	0 (0.)	218 (93.2)	4 (1.7)	0 (0.)	0 (0.)	12 (5.1)	0 (0.)
	Ridge guard	0 (0.)	226 (96.6)	4 (1.7)	0 (0.)	0 (0.)	4 (1.7)	0 (0.)
	Tinda	0 (0.)	226 (96.6)	4 (1.7)	0 (0.)	0 (0.)	4 (1.7)	0 (0.)
Fruits	Tomato	226 (96.6)	8 (3.4)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Apple	169 (72.2)	6 (2.6)	24 (10.3)	0 (0.)	0 (0.)	35 (15.)	0 (0.)
	Banana	171 (73.1)	17 (7.3)	18 (7.7)	0 (0.)	0 (0.)	26 (11.1)	2 (0.9)
	Grapes	4 (1.7)	54 (23.1)	20 (8.6)	0 (0.)	0 (0.)	154 (65.8)	2 (0.9)
	Guava	20 (8.6)	38 (16.2)	20 (8.6)	0 (0.)	0 (0.)	156 (66.7)	0 (0.)
	Lemon	21 (9.)	28 (12.)	2 (0.9)	0 (0.)	0 (0.)	181 (77.4)	2 (0.9)
	Litchi	2 (0.9)	28 (12.)	14 (6.)	4 (1.7)	0 (0.)	184 (78.6)	2 (0.9)
	Mango	39 (16.7)	145 (62.)	18 (7.7)	0 (0.)	0 (0.)	32 (13.7)	0 (0.)
	Water Melon	0 (0.)	54 (23.1)	18 (7.7)	4 (1.7)	0 (0.)	154 (65.8)	4 (1.7)
	Musk melon	0 (0.)	20 (8.6)	10 (4.3)	0 (0.)	0 (0.)	202	2 (0.9)

							(86.3)	
	Orange	32 (13.7)	38 (16.2)	18 (7.7)	0 (0.)	0 (0.)	144 (61.5)	2 (0.9)
	Peaches	2 (0.9)	12 (5.1)	14 (6.)	0 (0.)	0 (0.)	204 (87.2)	2 (0.9)
	Pear	10 (4.3)	34 (14.5)	18 (7.7)	0 (0.)	0 (0.)	172 (73.5)	0 (0.)
	Pomegaranate	4 (1.7)	53 (22.7)	26 (11.1)	4 (1.7)	0 (0.)	145 (62.)	2 (0.9)
	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
Milk & Milk Products	Milk	83 (35.5)	0 (0.)	4 (1.7)	0 (0.)	0 (0.)	147 (62.8)	0 (0.)
	Curd	143 (61.1)	11 (4.7)	0 (0.)	0 (0.)	0 (0.)	80 (34.2)	0 (0.)
	Buttermilk	203 (86.8)	7 (3.)	2 (0.9)	0 (0.)	0 (0.)	20 (8.6)	2 (0.9)
	Paneer	0 (0.)	10 (4.3)	161 (68.8)	40 (17.1)	21 (9.)	2 (0.9)	0 (0.)
	Ghee	228 (97.4)	4 (1.7)	0 (0.)	0 (0.)	0 (0.)	2 (0.9)	0 (0.)
	Butter	4 (1.7)	2 (0.9)	0 (0.)	0 (0.)	2 (0.9)	226 (96.6)	0 (0.)
Meat, Fish & Poultry	Egg	2 (0.9)	24 (10.3)	29 (12.4)	0 (0.)	6 (2.6)	0 (0.)	173 (73.9)
	Fish	0 (0.)	6 (2.6)	2 (0.9)	2 (0.9)	0 (0.)	0 (0.)	224 (95.7)
	Chicken	0 (0.)	2 (0.9)	4 (1.7)	0 (0.)	45 (19.2)	6 (2.6)	177 (75.6)
	Red meat	0 (0.)	0 (0.)	0 (0.)	0 (0.)	41 (17.5)	10 (4.3)	183 (78.2)
Nuts and Oil Seeds	Almonds	110 (47.)	6 (2.6)	4 (1.7)	0 (0.)	0 (0.)	114 (48.7)	0 (0.)
	Walnut	23 (9.8)	6 (2.6)	4 (1.7)	0 (0.)	0 (0.)	199 (85.)	2 (0.9)
	Cashew	10 (4.3)	2 (0.9)	4 (1.7)	0 (0.)	0 (0.)	212 (90.6)	6 (2.6)
	Peanuts	14 (6.)	14 (6.)	4 (1.7)	0 (0.)	0 (0.)	202 (86.3)	0 (0.)
Beverages	Tea	234 (100.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)
	Coffee	14 (6.)	2 (0.9)	0 (0.)	0 (0.)	0 (0.)	212 (90.6)	6 (2.6)
	Juices	0 (0.)	8 (3.4)	4 (1.7)	2 (0.9)	0 (0.)	218 (93.2)	2 (0.9)
	Carbonated beverages	0 (0.)	0 (0.)	0 (0.)	2 (0.9)	4 (1.7)	220 (94.)	8 (3.4)
Processed Food	Frozen Snacks	0 (0.)	0 (0.)	0 (0.)	2 (0.9)	0 (0.)	2 (0.9)	230 (98.3)
	Frozen food Bread	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	2 (0.9)	232 (99.2)
	Frozen food	0 (0.)	0 (0.)	2 (0.9)	0 (0.)	0 (0.)	4 (1.7)	228 (97.4)
	Frozen meat	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	0 (0.)	234 (100.)
	Confectionary	125	89 (38.)	0 (0.)	0 (0.)	0 (0.)	20	0 (0.)

		(53.4)					(8.6)	
	Bakery goods	89 (38.)	108 (46.2)	2 (0.9)	0 (0.)	0 (0.)	33 (14.1)	2 (0.9)
	Bakery items	0 (0.)	0 (0.)	4 (1.7)	0 (0.)	2 (0.9)	218 (93.2)	10 (4.3)
	Cooked Snacks	0 (0.)	0 (0.)	30 (12.8)	23 (9.8)	153 (65.4)	28 (12.)	0 (0.)
	Food Delivery	0 (0.)	0 (0.)	6 (2.6)	8 (3.4)	2 (0.9)	210 (89.7)	8 (3.4)

TABLE 4.16 FOOD FREQUENCY QUESTIONNAIRE (NON-WORKERS) (N=216)N(%)*

	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
Cereals	Rice	154 (71.3%)	47 (21.8%)	14 (6.5%)	0 (0.%)	0 (0.%)	1 (0.5%)	0 (0.%)
	Wheat	205 (94.9%)	5 (2.3%)	0 (0.%)	0 (0.%)	0 (0.%)	6 (2.8%)	0 (0.%)
	All Purpose Flour	12 (5.6%)	4 (1.9%)	0 (0.%)	0 (0.%)	0 (0.%)	200 (92.6%)	0 (0.%)
	Semolina	0 (0.%)	8 (3.7%)	27 (12.5%)	0 (0.%)	15 (6.9%)	166 (76.9%)	0 (0.%)
	Corn	14 (6.5%)	120 (55.6%)	20 (9.3%)	0 (0.%)	12 (5.6%)	50 (23.2%)	0 (0.%)
	Pearl Millet	20 (9.3%)	133 (61.6%)	28 (13.%)	0 (0.%)	4 (1.9%)	31 (14.4%)	0 (0.%)
	Finger Millet	0 (0.%)	2 (0.9%)	0 (0.%)	0 (0.%)	0 (0.%)	25 (11.6%)	189 (87.5%)
Pulses & Legumes	Mung chilka	2 (0.9%)	202 (93.5%)	12 (5.6%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Mung dhuli	2 (0.9%)	202 (93.5%)	12 (5.6%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Masoor dal	2 (0.9%)	198 (91.7%)	12 (5.6%)	0 (0.%)	4 (1.9%)	0 (0.%)	0 (0.%)
	Arhar Dal	16 (7.4%)	179 (82.9%)	17 (7.9%)	0 (0.%)	4 (1.9%)	0 (0.%)	0 (0.%)
	Urad dal	0 (0.%)	191 (88.4%)	25 (11.6%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Chana dal	0 (0.%)	193 (89.4%)	23 (10.7%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Rajma	0 (0.%)	0 (0.%)	47 (21.8%)	0 (0.%)	78 (36.1%)	69 (31.9%)	22 (10.2%)
	Cholley	0 (0.%)	0 (0.%)	0 (0.%)	126 (58.3%)	68 (31.5%)	18 (8.3%)	4 (1.9%)
	kala chana	0 (0.%)	0 (0.%)	47	0 (0.%)	100	61	8

				(21.8%)		(46.3%)	(28.2%)	(3.7%)
	Cowpea	0 (0.%)	0 (0.%)	39 (18.1%)	0 (0.%)	106 (49.1%)	63 (29.2%)	8 (3.7%)
	Soyabean	0 (0.%)	0 (0.%)	28 (13.%)	4 (1.9%)	43 (19.9%)	58 (26.9%)	83 (38.4%)
Green Leafy Vegetables	Bathua	0 (0.%)	0 (0.%)	8 (3.7%)	6 (2.8%)	4 (1.9%)	190 (88.%)	8 (3.7%)
	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
	Cabbage	0 (0.%)	126 (58.3%)	74 (34.3%)	0 (0.%)	4 (1.9%)	4 (1.9%)	8 (3.7%)
	Cauliflower	0 (0.%)	203 (94.%)	9 (4.2%)	0 (0.%)	4 (1.9%)	0 (0.%)	0 (0.%)
	Methi	0 (0.%)	0 (0.%)	20 (9.3%)	4 (1.9%)	8 (3.7%)	180 (83.3%)	4 (1.9%)
	Sarso	0 (0.%)	0 (0.%)	77 (35.7%)	12 (5.6%)	125 (57.9%)	2 (0.9%)	0 (0.%)
	Spinach	0 (0.%)	1 (0.5%)	66 (30.6%)	0 (0.%)	133 (61.6%)	12 (5.6%)	4 (1.9%)
Roots & Tubers	Beetroot	0 (0.%)	8 (3.7%)	69 (31.9%)	0 (0.%)	131 (60.7%)	8 (3.7%)	0 (0.%)
	Onion	182 (84.3%)	4 (1.9%)	12 (5.6%)	0 (0.%)	0 (0.%)	4 (1.9%)	14 (6.5%)
	Radish	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	212 (98.2%)	4 (1.9%)
	Potato	182 (84.3%)	32 (14.8%)	2 (0.9%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Sweet potato	0 (0.%)	8 (3.7%)	4 (1.9%)	0 (0.%)	0 (0.%)	204 (94.4%)	0 (0.%)
Other Vegetables	Beans	0 (0.%)	0 (0.%)	2 (0.9%)	192 (88.9%)	8 (3.7%)	0 (0.%)	14 (6.5%)
	Bottleguard	0 (0.%)	200 (92.6%)	16 (7.4%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Brinjal	0 (0.%)	192 (88.9%)	12 (5.6%)	0 (0.%)	4 (1.9%)	4 (1.9%)	4 (1.9%)
	Cucumber	0 (0.%)	188 (87.%)	16 (7.4%)	0 (0.%)	4 (1.9%)	4 (1.9%)	4 (1.9%)
	Capsicum	0 (0.%)	188 (87.%)	4 (1.9%)	20 (9.3%)	0 (0.%)	4 (1.9%)	0 (0.%)
	Lady finger	0 (0.%)	196 (90.7%)	12 (5.6%)	4 (1.9%)	0 (0.%)	0 (0.%)	4 (1.9%)
	Papaya	0 (0.%)	188	8 (3.7%)	4	0 (0.%)	12	4

			(87.%)		(1.9%)		(5.6%)	(1.9%)
	Parwar	0 (0.%)	196 (90.7%)	20 (9.3%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Ridge guard	0 (0.%)	188 (87.%)	14 (6.5%)	0 (0.%)	10 (4.6%)	0 (0.%)	4 (1.9%)
	Tinda	0 (0.%)	184 (85.2%)	18 (8.3%)	0 (0.%)	6 (2.8%)	4 (1.9%)	4 (1.9%)
	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
Fruits	Tomato	188 (87.%)	16 (7.4%)	12 (5.6%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)
	Apple	0 (0.%)	0 (0.%)	8 (3.7%)	188 (87.%)	4 (1.9%)	4 (1.9%)	12 (5.6%)
	Banana	0 (0.%)	8 (3.7%)	8 (3.7%)	200 (92.6%)	0 (0.%)	0 (0.%)	0 (0.%)
	Grapes	0 (0.%)	20 (9.3%)	15 (6.9%)	102 (47.2%)	8 (3.7%)	69 (31.9%)	2 (0.9%)
	Guava	0 (0.%)	24 (11.1%)	25 (11.6%)	113 (52.3%)	4 (1.9%)	46 (21.3%)	4 (1.9%)
	Lemon	6 (2.8%)	58 (26.9%)	16 (7.4%)	0 (0.%)	0 (0.%)	132 (61.1%)	4 (1.9%)
	Litchi	0 (0.%)	46 (21.3%)	19 (8.8%)	25 (11.6%)	0 (0.%)	124 (57.4%)	2 (0.9%)
	Mango	26 (12.%)	42 (19.4%)	12 (5.6%)	0 (0.%)	4 (1.9%)	130 (60.2%)	2 (0.9%)
	Water Melon	0 (0.%)	45 (20.8%)	10 (4.6%)	0 (0.%)	4 (1.9%)	149 (69.%)	8 (3.7%)
	Musk melon	0 (0.%)	113 (52.3%)	10 (4.6%)	18 (8.3%)	0 (0.%)	71 (32.9%)	4 (1.9%)
	Orange	2 (0.9%)	71 (32.9%)	14 (6.5%)	0 (0.%)	4 (1.9%)	121 (56.%)	4 (1.9%)
	Peaches	2 (0.9%)	34 (15.7%)	14 (6.5%)	0 (0.%)	0 (0.%)	154 (71.3%)	12 (5.6%)
	Pear	0 (0.%)	0 (0.%)	20 (9.3%)	43 (19.9%)	21 (9.7%)	128 (59.3%)	4 (1.9%)
	Pomegaranate	2 (0.9%)	23 (10.7%)	8 (3.7%)	0 (0.%)	4 (1.9%)	167 (77.3%)	12 (5.6%)
Milk & Milk Products	Milk	143 (66.2%)	41 (19.%)	10 (4.6%)	16 (7.4%)	0 (0.%)	0 (0.%)	6 (2.8%)
	Curd	8 (3.7%)	56 (25.9%)	2 (0.9%)	0 (0.%)	8 (3.7%)	134 (62.%)	8 (3.7%)
	Buttermilk	68	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	140	8

		(31.5%)					(64.8%)	(3.7%)
	Paneer	96 (44.4%)	22 (10.2%)	21 (9.7%)	0 (0.%)	0 (0.%)	77 (35.7%)	0 (0.%)
	Ghee	116 (53.7%)	48 (22.2%)	10 (4.6%)	0 (0.%)	0 (0.%)	42 (19.4%)	0 (0.%)
	Butter	4 (1.9%)	5 (2.3%)	146 (67.6%)	0 (0.%)	21 (9.7%)	34 (15.7%)	6 (2.8%)
	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
Meat, Fish & Poultry	Egg	0 (0.%)	4 (1.9%)	4 (1.9%)	0 (0.%)	0 (0.%)	36 (16.7%)	172 (79.6%)
	Fish	0 (0.%)	0 (0.%)	20 (9.3%)	0 (0.%)	6 (2.8%)	180 (83.3%)	10 (4.6%)
	Chicken	0 (0.%)	23 (10.7%)	21 (9.7%)	0 (0.%)	0 (0.%)	2 (0.9%)	170 (78.7%)
	Red meat	0 (0.%)	8 (3.7%)	2 (0.9%)	0 (0.%)	0 (0.%)	8 (3.7%)	198 (91.7%)
Nuts and Oil Seeds	Almonds	0 (0.%)	9 (4.2%)	4 (1.9%)	0 (0.%)	22 (10.2%)	4 (1.9%)	177 (81.9%)
	Walnut	0 (0.%)	3 (1.4%)	2 (0.9%)	0 (0.%)	18 (8.3%)	10 (4.6%)	183 (84.7%)
	Cashew	0 (0.%)	6 (2.8%)	4 (1.9%)	0 (0.%)	71 (32.9%)	131 (60.7%)	4 (1.9%)
	Peanuts	18 (8.3%)	0 (0.%)	4 (1.9%)	0 (0.%)	0 (0.%)	190 (88.%)	4 (1.9%)
Beverages	Tea	212 (98.1%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	4 (1.9%)
	Coffee	8 (3.7%)	12 (5.6%)	4 (1.9%)	0 (0.%)	4 (1.9%)	184 (85.2%)	4 (1.9%)
	Juices	0 (0.%)	0 (0.%)	5 (2.3%)	0 (0.%)	10 (4.6%)	4 (1.9%)	197 (91.2%)
	Carbonated beverages	0 (0.%)	0 (0.%)	4 (1.9%)	13 (6.%)	0 (0.%)	175 (81.%)	24 (11.1%)
Processed Food	Frozen Snacks	0 (0.%)	0 (0.%)	8 (3.7%)	0 (0.%)	0 (0.%)	196 (90.7%)	12 (5.6%)
	Frozen food Bread	0 (0.%)	0 (0.%)	14 (6.5%)	0 (0.%)	4 (1.9%)	178 (82.4%)	20 (9.3%)
	Frozen food	0 (0.%)	0 (0.%)	4 (1.9%)	0 (0.%)	2 (0.9%)	0 (0.%)	210 (97.2%)
	Frozen meat	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	2 (0.9%)	0 (0.%)	214 (99.1%)
	Confectionary	0 (0.%)	0 (0.%)	2 (0.9%)	0 (0.%)	0 (0.%)	10	204

							(4.6%)	(94.4%)
	Bakery goods	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	0 (0.%)	216 (100.%)	0 (0.%)
	Bakery items	83 (38.4%)	94 (43.5%)	14 (6.5%)	0 (0.%)	0 (0.%)	12 (5.6%)	13 (6.%)
	Food Items	**Daily N(%)**	**2-3 times a week N(%)**	**Weekly N(%)**	**Twice a month N(%)**	**Monthly N(%)**	**Rarely N(%)**	**Never N(%)**
	Cooked Snacks	49 (22.7%)	85 (39.4%)	14 (6.5%)	0 (0.%)	0 (0.%)	58 (26.9%)	10 (4.6%)
	Food Delivery	0 (0.%)	0 (0.%)	8 (3.7%)	0 (0.%)	4 (1.9%)	189 (87.5%)	15 (6.9%)

In Table 4.17, Independent samples t-tests comparing nutrient intake between working and non-working women revealed statistically significant differences in several key variables. Non-working women exhibited significantly higher mean intakes of carbohydrates (CHO), sodium, potassium, iron, calcium, and Vitamin C compared to working women ($p \approx 0.02$, $p \approx 0.018$, $p < 0.01$, $p \approx 0.03$, $p < 0.001$, and $p \approx 0.005$, respectively). Conversely, no statistically significant differences were observed in the mean intakes of energy, protein, fat, fiber, and Vitamin A between the two groups ($p > 0.1$, $p > 0.4$, $p > 0.8$, $p > 0.2$, and $p > 0.9$, respectively).

TABLE 4.17 DIETARY INTAKE COMPARISON BETWEEN WORKING AND NON-WORKING WOMEN

Variable	**Working Women (N=200)**	**Non-Working Women (N=200)**	**t-statistic**	**p-value**
Energy (kcal)	1983.33 ± 332.51	2119.66 ± 365.93	-1.54	> 0.1
CHO (gm)	310.99 ± 50.92	343.68 ± 61.06	-2.36	≈ 0.02*
Protein (gm)	61.57 ± 13.39	64.95 ± 19.66	-0.79	> 0.4
Fat (gm)	50.86 ± 15.01	49.88 ± 18.17	0.22	> 0.8
Fiber (gm)	22.95 ± 6.97	24.95 ± 8.14	-1.08	> 0.2
Sodium (mg)	407.6 ± 69.3	450.3 ± 58.7	-2.46	≈ 0.018*
Potassium (mg)	2459.26 ± 675.29	2850 ± 261.35	-3.06	< 0.01**
Iron (mg)	23.81 ± 8.07	28.2 ± 5.91	-2.23	≈ 0.03

Calcium (mg)	361.34 ± 116.63	561 ± 73.45	-7.43	< 0.001***
Vitamin A (µg)	567.92 ± 183.99	573.83 ± 284.67	-0.09	> 0.9
Vitamin C (mg)	41.89 ± 15.11	51.3 ± 10.5	-2.93	≈ 0.005**

p<0.05*, p<0.01**, p<0.001***

The analysis of dietary intake relative to Estimated Average Requirements (EAR) in table 4.18, revealed that both working and non-working women, on average, exceeded the EAR for energy, carbohydrates, and protein, suggesting adequate consumption of these macronutrients; however, both groups consumed fats and fiber below the EAR, indicating potential dietary inadequacies.

The analysis of macronutrient energy ratios in table 4.19 revealed that both working and non-working women derive a substantial portion of their energy from carbohydrates, with slightly higher ratios in non-working women, while protein contributions are similar between groups, and fat contributions are marginally higher in working women.

TABLE 4.18 PERCENTAGE EAR MET OF THE PARTICIPANTS (%)*

Nutrient	**EAR (ICMR-NIN, 2024)**	**Working Women (N=200)**	**Working Women (% EAR Met)**	**Non-Working Women (N=200)**	**Non-Working Women (% EAR Met)**
Energy (kcal)	1660	1983.33 ± 332.51	119.48	2119.66 ± 365.93	127.69
Carbohydrates (gm)	250	310.99 ± 50.92	124.40	343.68 ± 61.06	137.47
Protein (gm)	46	61.57 ± 13.39	133.85	64.95 ± 19.66	141.19
Fats (gm)	55	50.86 ± 15.01	92.47	49.88 ± 18.17	90.69
Fiber (gm)	25	22.95 ± 6.97	91.80	24.95 ± 8.14	99.80

*EAR/RDA, ICMR NIN, 2024

Table 4.19 shows comparative analysis of nutrient intake between working and non-working women which reveals that both groups generally meet or exceed the recommended dietary allowances (RDA) and estimated average requirements (EAR) for key macronutrients, as per DGI 2024. Non-working women consistently reported slightly higher intakes across all nutrients compared to working women. Energy, carbohydrate, and protein intakes were above the EAR/RDA in both groups, indicating sufficient

consumption, with nutrient adequacy ratios (NARs) exceeding 100%. Fat intake, while slightly below the EAR of 55 g/day, remained within moderation guidelines, with NARs around 90% in both groups. Fiber intake approached adequacy, with non-working women nearly meeting the 25 g/day requirement (99.8% NAR) and working women slightly below (91.8%)

TABLE 4.19 NAR AMONG PARTICIPANTS (%)*

Nutrient	RDA/EAR	Worker (Mean ± SD)	Worker NAR (%)	Non-Worker (Mean ± SD)	Non-Worker NAR (%)
Energy (kcal)	1660 (EAR)	1983.33 ± 332.51	119.48	2119.66 ± 365.93	127.69
Carbohydrate (g)	250 (EAR)	310.99 ± 50.92	124.39	343.68 ± 61.08	137.47
Protein (g)	45.7 (RDA)	61.57 ± 13.39	134.73	64.95 ± 19.66	142.12
Fat (g)	(Moderation advised) / 55 (EAR)	50.86 ± 15.01	92.47	49.88 ± 18.17	90.69
Fiber (g)	25 (EAR)	22.95 ± 6.97	91.8	24.95 ± 8.14	99.8

*EAR, ICMR NIN, 2024

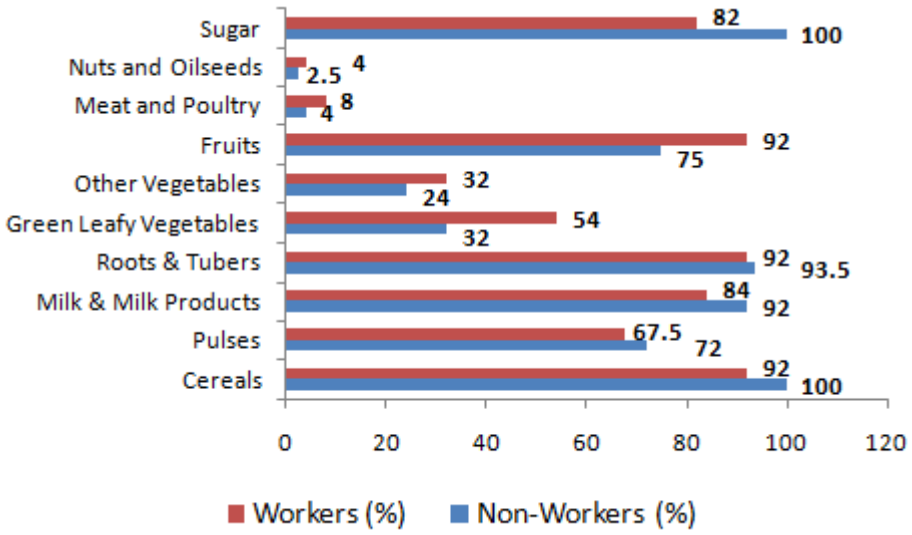
The analysis of macronutrient energy ratios in table 4.18 revealed that both working and non-working women derive a substantial portion of their energy from carbohydrates, with slightly higher ratios in non-working women, while protein contributions are similar between groups, and fat contributions are marginally higher in working women.

TABLE 4.20 CER, PER, FER OF SUBJECTS*

Macronutrient	Energy Ratio (Mean ± SD%) Workers(N=200)	Energy Ratio (Mean ± SD%) Non Workers(N=200)
Carbohydrate Energy Ratio	62.72 ± 10.27	64.86% ± 11.52%
Protein Energy Ratio	12.42 ± 2.70	12.26% ± 3.71%
Fat Energy Ratio	23.08 ± 6.81	21.18% ± 7.71%

*EAR, ICMR NIN, 2024

FIGURE 4.3 CONSUMPTION PATTERNS OF DIFFERENT FOOD GROUPS ACROSS PARTICIPANTS (%)



The bar graph illustrates the percentage consumption of various food groups among working and non-working women. Cereals, milk and milk products, and roots and tubers are widely consumed by both groups, with non-working women showing a slightly higher intake, particularly in cereals (100%) and milk products (93.5%) compared to working women (92% and 92%, respectively). Sugar consumption is notably higher among non-working women (100%) than working women (82%). Conversely, the intake of green leafy vegetables is higher among working women (54%) compared to non-working women (32%). Consumption of nuts and oilseeds and meat and poultry remains low in both groups. Overall, non-working women demonstrate higher intake across most food groups, except for green leafy vegetables and other vegetables, where working women show relatively higher consumption. Oil consumption was universal in both groups.

DISCUSSION

Diet is crucial for women's health, affecting everything from reproductive health to the prevention of chronic diseases. Globalization and urbanization have increased demands on women, especially working women. Globally, female workforce participation is rising, including in India and Gujarat, which has seen growth in industries like textiles. However, working women face unique dietary challenges due to time constraints, stress, and varying physical demands, often leading to reliance on unhealthy processed foods. Non-working women might have better meal planning but could face issues with sedentary lifestyles and limited food access.

The present study offers an in-depth comparative analysis of the socio-demographic and dietary characteristics of working and non-working women, providing valuable insights into how occupational status intersects with key determinants such as age, education, family structure, and income. The findings reveal statistically significant differences across several domains, underlining the complex socio-economic landscape that shapes women's workforce participation and dietary behavior.

Table 4.1 shows, the age distribution between the two groups was significantly different ($p < 0.001$), with working women more concentrated in the 30–40 year age group, while non-working women were predominantly in the older age bracket of 41–60 years. This age stratification may reflect life-cycle patterns of labor force participation, wherein women in younger age groups are more likely to seek or sustain employment due to career building and financial responsibilities. Similar age-related employment patterns have been documented in the Indian context, where younger women, particularly those with fewer domestic responsibilities, demonstrate higher participation in the workforce (Verick, 2014).

In contrast, marital status did not significantly differ between groups ($p = 0.44$), with the majority in both categories being married. This aligns with studies suggesting that in the Indian socio-cultural milieu, marriage is nearly universal for women across all social strata, though its implications for labor force participation may vary depending on household dynamics and support systems (Klasen&Pieters, 2015).

A statistically significant difference in family structure ($p < 0.001$) was observed, with working women predominantly living in nuclear families and non-working women more likely to reside in joint families. Nuclear family settings may offer women greater autonomy and flexibility, which in turn can facilitate participation in formal employment. This finding echoes studies highlighting the supportive role of nuclear family arrangements in enabling work-life balance, particularly for women in urban contexts (Sen, 2005, Bharati&Bharati, 2020).

Interestingly, food habits did not differ significantly ($p = 0.40$), with vegetarianism being the dominant dietary pattern in both groups. This could be attributed to regional and cultural dietary practices prevalent across the sample population, reinforcing the idea that occupational status may have less impact on food choices in settings where cultural norms strongly influence diet (Gopalan et al., 2012).

A deeper analysis of economic variables highlights the disparities between the two groups. Educational qualification showed a highly significant association with workforce participation, with working women having substantially higher educational attainment. This supports the extensive body of literature indicating that education is a key enabler of female employment, not only enhancing access to job opportunities but also increasing women's aspirations and self-efficacy (Kingdon&Unni, 2001; Das & Desai, 2003).

As expected, occupation and working hours were also significantly different between the groups. All non-working women were categorized as homemakers, while working women were mainly engaged in private sector jobs and self-employment. This occupational distribution aligns with national labor trends, where a significant proportion of urban women are employed in the informal sector or private enterprises, often due to greater flexibility and fewer entry barriers (ILO, 2018). Moreover, the reporting of limited working hours by some non-working women may indicate participation in informal, part-time, or home-based work, which often goes unrecognized in formal labor statistics.

In terms of personal income, all non-working women reported no earnings, while working women predominantly fell in the ₹20,000–₹50,000 bracket. This reflects the growing but still modest economic contributions of employed urban women, shaped by both job availability

and gender wage disparities (Chatterjee et al., 2018). The findings on household income further illustrate the nuanced interplay between employment and economic well-being. While working women contribute directly to household income, a notable proportion of non-working women belonged to households in the highest income bracket, indicating the presence of alternate income sources such as spousal earnings, business income, or family wealth. This observation underscores the point that women's workforce participation is not solely driven by economic necessity but also by personal choice, socio-cultural factors, and household financial strategies (Duflo, 2012).

No statistically significant difference between the two groups, the distribution showed that the majority of both working (99.14%) and non-working (94.44%) women belonged to the Upper Middle socio-economic stratum, with minimal representation in other SES categories. This homogeneity may reflect the urban or semi-urban background of the participants, where access to education and financial stability is relatively high. As previous research indicates, socio-economic factors alone may not sufficiently predict women's workforce participation; personal aspirations and intra-household dynamics also play critical roles (Klasen&Pieters, 2015).

In terms of dietary behavior, the frequency of meals consumed and snack consumption did not significantly differ between the two groups, suggesting that employment status alone may not influence total meal frequency. However, significant differences were observed in meal-skipping patterns and breakfast consumption. A larger proportion of working women reported skipping meals, particularly breakfast, compared to non-working women. Nearly half (48.7%) of the working women skipped breakfast regularly, and 8.5% never consumed it, whereas 65.3% of non-working women consumed breakfast daily. These findings are consistent with previous studies that associate employment-related time constraints with irregular meal patterns, particularly breakfast skipping (Deshmukh-Taskar et al., 2010; Kant &Graubard, 2004). Breakfast omission has been linked to adverse metabolic and cognitive outcomes and is more common among women with longer work hours (Ruxton& Kirk, 1997).

Regarding sleep duration, a statistically significant difference were observed. While most participants from both groups reported sleeping 6–8 hours per night, a higher proportion of

working women reported sleeping fewer hours (4–6), whereas more non-working women slept for over 8 hours. These findings align with evidence suggesting that employment and occupational stress are associated with shorter sleep durations among women (Stamatakis et al., 2007; Basu&Basu, 2019).

This study also aimed to examine the anthropometric characteristics of working and non-working women and assess the association between occupational status and indicators of body composition, obesity, and related health risks. The findings revealed a significant difference between the two groups across multiple parameters, providing valuable insights into the influence of lifestyle and occupational engagement on women's health.

The results show that working women exhibited significantly lower mean values for weight, BMI, waist circumference (WC), waist-hip ratio (WHR), and waist-to-stature ratio (WSR) compared to non-working women, while no statistically significant difference was observed in height. These findings suggest that working status is associated with a healthier anthropometric profile. Lower BMI and central obesity indicators among working women may be attributed to increased physical activity, greater mobility, structured routine, or better dietary practices due to greater health awareness or social exposure through employment (Chauhan et al., 2015; Bhurosy&Jeewon, 2014).

The categorical analysis of BMI further reinforces this observation, revealing a significantly higher proportion of obesity among non-working women (63%) compared to working women. Conversely, working women had a higher prevalence of normal weight and overweight, with a small percentage being underweight. These differences suggest that employment may serve as a protective factor against obesity, possibly due to increased physical activity and reduced sedentary behavior, which aligns with studies conducted in similar settings (Ng et al., 2014).

In terms of waist circumference, table 4.8, a larger proportion of non-working women fell into the high-risk category (≥90 cm), while a significantly higher percentage of working women were in the low-risk group (<80 cm) ($p < 0.001$). These findings indicate a higher burden of central adiposity among non-working women, which is associated with an elevated

risk of metabolic disorders, including type 2 diabetes and cardiovascular disease (World Health Organization, 2011).

SimilarlyWHR classifications showed statistically significant differences between the groups. A larger proportion of working women fell within the low-risk category (≤0.80), while more non-working women were classified under moderate and high risk. This further substantiates the pattern of increased central fat distribution among non-working women, which is a strong predictor of adverse health outcomes, independent of BMI (Han et al., 2006).

The waist-to-stature ratio (WSR) classification showed disparities. A considerably higher proportion of non-working women (25.9%) were categorized under the high-risk group (≥0.60) compared to working women (8.9%). This suggests a significantly greater risk of central obesity and cardiometabolic disease among non-working women. WSR has emerged as a better predictor of health risk than WC or BMI alone, particularly in South Asian populations where abdominal obesity is more prevalent (Ashwell et al., 2012).

The age-wise distribution of BMI provided further insights into the interaction between age and occupational status. Among both groups, older women (especially in the 51–60 years group) had a higher prevalence of obesity, with 100% of women in this age group being obese. However, younger working women (30–40 years) showed a more balanced distribution across BMI categories compared to their non-working counterparts, indicating the early onset of obesity among non-working women. These trends underscore the cumulative effect of age, sedentary lifestyle, and lack of occupational engagement on obesity prevalence.

The findings in this study with regard to physical activity and health histories suggest significant lifestyle disparities influenced by employment status, consistent with earlier research in this domain.

A highly statistically significant difference in physical activity levels was observedbetween working and non-working women. Non-working women showed a higher prevalence of physical inactivity (31.02%) compared to working women (12.82%), aligning with findings by (Ng and Popkin, 2012), who reported that non-working individuals, especially women, are

more prone to sedentary lifestyles. The higher proportion of minimally active women in the working group suggests that occupational demands or commuting may contribute to increased light-to-moderate activity, a trend supported by (Chau et al. 2012), who found that workplace structure plays a critical role in influencing daily activity levels. Interestingly, the proportion of HEPA-active women was similar between both groups, implying that while employment status may influence moderate activity, vigorous activity might be influenced more by personal motivation and lifestyle choices (Bauman et al., 2011).

Despite higher physical activity, working women also reported significantly greater sedentary behavior, shown with nearly half (47.44%) sitting for more than 7 hours per day. This is in line with Church et al. (2011), who found that modern occupational roles increasingly involve prolonged sitting, contributing to greater sedentary time even among otherwise active individuals. Non-working women predominantly reported low sedentary time (<4 hours/day), possibly due to engagement in household tasks that involve light movement spread across the day. These findings highlight the paradox of co-existing physical activity and sedentary behavior in modern occupational settings (Owen et al., 2010).

The relationship between age and physical activity levels varied notably between the two groups. Among working women, older age groups (41–60 years) showed higher levels of HEPA activity, a trend contrary to the general belief that physical activity declines with age. Previous studies (Sun et al., 2013) suggest that older employed women may develop more structured routines and health awareness, thereby maintaining or increasing activity levels. Among non-working women, the activity distribution was more erratic, with high inactivity observed in the youngest (30–40 years) and oldest (<60 years) categories. These patterns are partially corroborated by (Hallal et al. 2012), who noted that non-working women are often less physically active, particularly in the absence of structured schedules or health awareness.

No significant differences between working and non-working women in terms of family or personal history of diabetes, CHD, or hypertension, aligning with prior findings by Joshi et al. (2014), who observed minimal occupational variance in genetic predisposition to chronic diseases. However, a marginally significant difference was noted for thyroid disorders with working women reporting slightly higher prevalence in their mothers. This may reflect increased medical awareness or access to health services among working women, as

suggested by findings from Bener et al. (2004), which link employment to improved healthcare-seeking behavior.

The prevalence of self-reported chronic diseases such as diabetes, hypertension, thyroid disorders, and CHD was generally low in both groups. Non-working women reported higher hypertension prevalence, while working women showed slightly higher rates of diabetes and thyroid conditions. These results support previous work by (Aroki et al. 2015), indicating a growing burden of non-communicable diseases in Indian women regardless of employment status, but with nuanced differences based on lifestyle and access to care. Interestingly, a slightly higher proportion of non-working women perceived themselves as disease-free. However, underreporting or lack of diagnosis among non-working women cannot be ruled out due to lower health literacy or healthcare engagement (Goryakin et al., 2014).

The present study examined and compared the dietary patterns and nutrient adequacy of working and non-working women, shedding light on the nuanced differences in food group consumption, macronutrient intake, and adherence to dietary recommendations.

The dietary frequency datarevealed that both working and non-working women regularly consume staple foods such as cereals (rice and wheat), dairy products, and commonly used vegetables like onion and potato. However, non-working women demonstrated a higher daily intake of nutrient-rich foods such as fruits, green leafy vegetables, and milk and milk products. This observation is consistent with previous studies indicating that non-working women, due to relatively more time availability and household-centered roles, often engage more in food preparation and planning, potentially leading to higher intake of fresh produce (Puri& Kapoor, 2006; Sharma & Mishra, 2013).

While both groups consume pulses weekly, green leafy vegetables and many seasonal vegetables were also reported as weekly staples. This pattern may reflect seasonal availability and affordability, a trend observed in prior literature on urban Indian dietary habits (Mishra et al., 2011). The low daily consumption of nuts, oilseeds, and meat products is consistent with findings from the Indian Dietetic Association, which noted low intake of high-cost or less culturally frequent food items among middle-income urban populations (IDA, 2018).

Macronutrient analysis showed no significant difference in total energy intake between the groups. However, significant differences were observed in the intake of carbohydrates, sodium, potassium, iron, calcium, and vitamin C, with working women reporting higher values for each. These findings suggest that although non-working women might consume more diverse food groups daily, working women may consume higher portion sizes or more calorie-dense meals, potentially due to longer fasting intervals or reliance on energy-dense foods outside the home (Kaur et al., 2017).

Interestingly, protein and fat intake did not significantly differ between the groups, which aligns with the work of Dandekar and Dongre (2019), who reported that total protein intake among Indian women was often maintained across employment statuses due to shared cultural meal patterns. The mean intake of dietary fiber was slightly higher among non-working women, although this difference was not statistically significant. The overall fiber intake in both groups remained below the RDA, echoing previous studies that reported low fiber consumption in Indian diets despite high intake of plant-based foods (Gopalan et al., 2007).

When nutrient adequacywas compared with CMRO-NIN recommendations, both groups exceeded the RDA for energy, carbohydrates, and protein, while falling short for fat and fiber intake. This imbalance may suggest a predisposition toward carbohydrate-heavy diets among Indian women, potentially increasing long-term risk for metabolic disorders. Similar trends were noted by the ICMR-NIN (2020) and in studies by Waghmare and Deshmukh (2014), who highlighted the over-reliance on cereals in Indian households.

Furthermore, the nutrient adequacy ratios (NAR) revealed that both working and non-working women consumed significantly more energy and protein than required. Notably, fat intake was below the EAR in both groups, despite oil being universally consumed daily. This may suggest that women still prefer cooking methods such as boiling and steaming, or possibly underreport visible fats during recall—a known limitation in dietary surveys (Ritu&Madhu, 2012).

Macronutrient energy distribution analysis confirmed that carbohydrates contributed the majority of total energy (62.72%), followed by fat (23.08%) and protein (12.42%). This

pattern, though aligned with traditional Indian dietary norms, suggests a skew towards high carbohydrate intake, exceeding the optimal balance recommended by WHO (WHO/FAO, 2003), and may pose long-term risks for insulin resistance and obesity.

Non-working women had a consistently higher daily intake of nutrient-dense foods like fruits, green leafy vegetables, and dairy. This may be attributed to their greater involvement in meal planning and household food distribution, a factor that has been repeatedly emphasized in gender and nutrition studies (Bharati et al., 2008; Rastogi et al., 2020).

Overall, the findings indicate that employment status may influence not only the frequency and type of foods consumed but also the quantitative intake of essential nutrients.

The present study has been carried out to assess the Consumption of Home Cooked Meals and Nutrient Adequacy among Working & Non-Working Women in the age group of 30-60 years of Vadodara City, The summary of which is shown below

SOCIO-DEMOGRAPHIC CHARACTERISTICS

- 39.1% of working women were aged 30–40, whereas 38.0% of non-working women were in the 41–50 age group.Indicates working women tend to be younger compared to non-working counterparts.
- Hindus constituted the majority in both groups (WW: 87.0%, NWW: 80.4%).Slightly higher religious diversity was seen among non-working women.
- High proportion of married individuals in both groups (WW: 82.6%, NWW: 89.1%).Employment status appears independent of marital status.
- 69.6% of working women lived in nuclear families, in contrast to 56.5% of non-working women. Suggests joint family systems may influence women's work participation.
- Vegetarianism was predominant (WW: 63.0%, NWW: 69.6%).Dietary preference was not significantly affected by employment status.
- 47.8% of working women lived with 2 adults, whereas 47.8% of non-working women lived with 4 adults. Working women tended to live in smaller households.
- The majority in both groups had two children (WW: 41.3%, NWW: 45.7%).The number of children was comparable between groups.

ECONOMIC STATUS

- Graduation was most common among working women (43.5%) and non-working women (34.8%).Working women showed higher educational attainment overall.
- Among working women, 37.0% were self-employed, while 32.6% worked in the private sector. All non-working women were identified as homemakers.
- 39.1% of working women reported 4–8 working hours per day, and 34.8% reported 8–12 hours. Reflects full- or part-time employment patterns.
- 47.8% of working women earned between ₹20,000–50,000/month. Non-working women reported zero personal income.

- Upper-middle class was most represented in both groups (WW: 39.1%, NWW: 41.3%).Suggests similar family socio-economic status despite differences in employment.

DIETARY PATTERNS& SLEEPING BEHAVIOUR

- 76.1% of working women and 67.4% of non-working women consumed 3 main meals daily. Regular meal frequency was common across groups.
- Most participants in both groups (WW: 63.0%, NWW: 69.6%) consumed 1–2 snacks daily. Snacking habits were fairly similar.
- More working women (41.3%) reported skipping meals compared to non-working women (28.3%).Breakfast was the most frequently skipped meal.
- 78.3% of non-working women consumed breakfast regularly, compared to 60.9% of working women.
- 43.5% of working women slept less than 6 hours/day, whereas 45.7% of non-working women slept 6–8 hours. Working women reported reduced sleep, possibly due to dual workload.

ANTHROPOMETRIC CHARACTERISTICS

- Mean BMI was higher in non-working women (27.51 ± 5.66) than in working women (25.88 ± 5.29).Statistically significant difference ($p < 0.05$).
- Obesity prevalence was 63.0% in non-working women vs. 40.2% in working women.
- 58.7% of non-working women had WC > 88 cm, compared to 37.0% of working women.Reflects greater central obesity in non-working women.
- Risky WHR (>0.85) was found in 73.9% of non-working and 56.5% of working women.Indicates higher abdominal adiposity among non-working women.
- 93.5% of non-working women had WSR ≥ 0.5, vs. 76.1% of working women.

PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR

- 47.8% of non-working women were inactive vs. only 17.4% of working women.Working women showed significantly higher physical activity ($p < 0.05$).
- Working women had longer sedentary hours (58.7% ≥ 5 hours/day) due to desk-based jobs.Non-working women were more active in household work but less structured.

- 58.8% of working women aged 31–40 were active; 56.5% of non-working women aged 51–60 were inactive.Highlights inverse relationship between age and physical activity in non-working women.

HEALTH HISTORY

- Hypertension was more common among non-working women (13.9%) than working women (11.1%).Thyroid disorders were more frequent in working women (1.3%).
- Similar across both groups (~28–30% reported family history of hypertension and diabetes).No significant group-wise difference observed.

NUTRIENT INTAKE AND DIETARY DIVERSITY

- Daily intake of cereals was high in both groups (WW: 78.3%, NWW: 84.8%).Daily intake of green leafy vegetables was higher among working women (54%) compared to non-working women (32%).
- Mean calorie intake among working women was 1983.33 ± 332.51 kcal; and among non-working women was 2119.66 ± 365.93 kcal. Protein intake was above RDA in both groups.
- Non-working women had higher mean intake of iron (28.2 ± 5.91 mg), calcium (561 ± 73.45 mg), and vitamin C (51.3 ± 10.5 mg) than working women.
- Nutrient adequacy was generally better in working women.

CONCLUSION

The present study aimed to assess the consumption of home-cooked meals and nutrient adequacy among working and non-working women aged 30–60 years in Vadodara city. The findings reveal notable socio-demographic, lifestyle, and nutritional differences between the two groups.

Working women tended to be younger, more educated, and more likely to live in nuclear families compared to their non-working counterparts. They also demonstrated greater physical activity levels but faced challenges such as shorter sleep duration and higher

incidence of meal skipping, particularly breakfast. These patterns may reflect the dual burden of work and domestic responsibilities.

Non-working women, despite lower physical activity levels, reported better regularity in meal consumption, though they exhibited higher prevalence of overweight and obesity, central adiposity, and non-communicable diseases like hypertension. Sedentary behavior was more pronounced in working women due to occupational sitting, but household activity in non-working women did not compensate for structured physical exercise.

Dietary analysis showed both groups had mean caloric intakes above the RDA, with high carbohydrate consumption. However, working women had better nutrient adequacy, with significantly higher intake of iron, calcium, and vitamin C. Food frequency patterns also indicated that non-working women consumed green leafy vegetables more frequently.

In conclusion, while working women benefit from better nutrient intake and higher physical activity, they face time constraints impacting sleep and meal regularity. Non-working women, on the other hand, maintain better meal patterns but are at higher risk of obesity and inactivity-related health issues. These findings highlight the need for targeted nutritional education and lifestyle interventions tailored to women's employment status to promote health and well-being across both groups.

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ANNXURES

QUESTIONNAIRES

1. Socio-Demographic Information

Name:

Age:

Community:

- Hindu
- Muslim
- Christian
- Sikh
- Jain
- Others

Food Habit:

- Vegetarian
- Ovo vegetarian
- Non Vegetarian

Food Allergy (if Any):

Marital Status:

- Single
- Married
- Widowed
- Divorced

Occupation:

- Worker
- Non worker

Profession area

- Government Sector
- Private Sector
- Self Employed
- Freelancer
- Other_____

Working hours per day:

- 5-6 Hours a day
- 7-8 Hours a day
- 9-10 Hours a day

Whether you work in shift

- Yes
- No

If you work in shift, then which shift

- Morning shift
- Evening shift
- Night shift

Personal Income (Monthly):

- ₹20,000 – ₹30,000
- ₹30,000 – ₹50,000
- ₹50,000-₹100,000
- Above ₹100,000

Household Income (Monthly):

- ₹20,000 – ₹30,000
- ₹30,000 – ₹50,000
- ₹50,000-₹100,000
- Above ₹100,000

Education Level:

- No formal education
- Primary
- Secondary
- Higher Secondary
- Graduate
- Post-Graduate

Family Structure:

- Nuclear
- Joint
- Extended

Number of Dependents in Household:

- 1-2
- 2-3
- 3-4

SECTION 2: Dietary Habits

How many meals do you consume daily?

- 1 meal
- 2 meals
- 3 meals
- More than 3 meals

How often do you eat breakfast?

- Daily
- 3-5 times a week
- Rarely
- Never

Do you snack between meals?

- Yes, frequently
- Yes, occasionally
- No

How often do you drink Caffeinated Beverages?

- Daily
- 3-5 times a week
- Rarely
- Never

Where do you usually eat your meals?

- At home
- At work
- At a restaurant/cafe
- Street food vendor

How often do you consume home-cooked meals?

- Daily
- 3-5 times a week
- Less than 3 times a week

- Rarely

How often do you consume processed or packaged foods?

- Never
- Rarely
- Once or twice a week
- Daily

Do you prefer grocery shopping yourself?

- Yes
- No

Do you prefer self preparation and consumption of meals at home?

- Yes
- No

How often do you Cook and consume meal at home

Meal Source	Meal	once in a week	Twice a week	Thrice a week	4 times a week	5 times a week	6 times a week	7 times a week
Self Preparation	Breakfast/ Snack							
	Lunch							
	Dinner							
Household help	Breakfast/ Snack							
	Lunch							
	Dinner							
Cook's help	Breakfast/ Snack							
	Lunch							
	Dinner							

SECTION 3: Meal Pattern

Do you regularly skip any of the following meals?

- Breakfast
- Lunch
- Dinner
- Snacks

How much time do you spend sleeping per day?

- 4-6 hours
- 6-8 hours
- More than 8 hours

SECTION 4 : Health and Nutritional Status

Have you ever been diagnosed with any of the following health conditions?

- Hypertension
- Diabetes
- Anemia
- High cholesterol
- Vitamin/mineral deficiencies
- None

Do you experience fatigue or weakness frequently?

- Yes
- No

SECTION: 5 Physical Activity and Lifestyle

INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person.

Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the vigorous and moderate activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Moderate activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal.

PART 1: JOB-RELATED PHYSICAL ACTIVITY

The first section is about your work. This includes paid jobs, farming, volunteer work, course work, and any other unpaid work that you did outside your home. Do not include unpaid work you might do around your home, like housework, yard work, general maintenance, and caring for your family. These are asked in Part 3.

1. Do you currently have a job or do any unpaid work outside your home?

- Yes
- No

Skip to PART 2: TRANSPORTATION

The next questions are about all the physical activity you did in the last 7 days as part of your paid or unpaid work. This does not include traveling to and from work.

2. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, heavy construction, or climbing up stairs as part of your work? Think about only those physical activities that you did for at least 10 minutes at a time.

_____ days per week

No vigorous job-related physical activity Skip to question 4

3. How much time did you usually spend on one of those days doing vigorous physical activities as part of your work?

_____ hours per day

_____ minutes per day

4. Again, think about only those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads as part of your work? Please do not include walking.

_____ days per week

No moderate job-related physical activity Skip to question 6

5. How much time did you usually spend on one of those days doing moderate physical

activities as part of your work?

_____ hours per day

_____ minutes per day

6. During the last 7 days, on how many days did you walk for at least 10 minutes at a time as part of your work? Please do not count any walking you did to travel to or from work.

_____ days per week

No job-related walking Skip to

PART 2: TRANSPORTATION

7. How much time did you usually spend on one of those days walking as part of your work?

_____ hours per day

_____ minutes per day

PART 2: TRANSPORTATION PHYSICAL ACTIVITY

These questions are about how you traveled from place to place, including to places like work,

stores, movies, and so on.

8. During the last 7 days, on how many days did you travel in a motor vehicle like a train, bus, car, or tram?

_____ days per week

No traveling in a motor vehicle Skip to question 10

9. How much time did you usually spend on one of those days traveling in a train, bus, car, tram, or other kind of motor vehicle?

_____ hours per day

_____ minutes per day

Now think only about the bicycling and walking you might have done to travel to and from work, to do errands, or to go from place to place.

10. During the last 7 days, on how many days did you bicycle for at least 10 minutes at a

time to go from place to place?

_____ days per week

No bicycling from place to place Skip to question 12

LONG LAST 7 DAYS SELF-ADMINISTERED version of the IPAQ. Revised October 2002.

11. How much time did you usually spend on one of those days to bicycle from place to place?

_____ hours per day

_____ minutes per day

12. During the last 7 days, on how many days did you walk for at least 10 minutes at a time to go from place to place?

_____ days per week

No walking from place to place Skip to

PART 3: HOUSEWORK,HOUSE MAINTENANCE, AND CARING FOR FAMILY

13. How much time did you usually spend on one of those days walking from place to place?

_____ hours per day

_____ minutes per day

PART 3: HOUSEWORK, HOUSE MAINTENANCE, AND CARING FOR FAMILY

This section is about some of the physical activities you might have done in the last 7 days in and around your home, like housework, gardening, yard work, general maintenance work, and

caring for your family.

14. Think about only those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, chopping wood, shoveling snow, or digging in the garden or yard?

_____ days per week

No vigorous activity in garden or yard Skip to question 16

15. How much time did you usually spend on one of those days doing vigorous physical activities in the garden or yard?

_____ hours per day

_____ minutes per day

16. Again, think about only those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do moderate activities like carrying light loads, sweeping, washing windows, and raking in the garden or yard?

_____ days per week

No moderate activity in garden or yard Skip to question 18

LONG LAST 7 DAYS SELF-ADMINISTERED version of the IPAQ. Revised October 2002.

17. How much time did you usually spend on one of those days doing moderate physical activities in the garden or yard?

_____ hours per day

_____ minutes per day

18. Once again, think about only those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do moderate activities like carrying light loads, washing windows, scrubbing floors and sweeping inside your home?

_____ days per week

No moderate activity inside home Skip to

PART 4: RECREATION,SPORT AND LEISURE-TIME PHYSICAL ACTIVITY

19. How much time did you usually spend on one of those days doing moderate physical activities inside your home?

_____ hours per day

_____ minutes per day

PART 4: RECREATION, SPORT, AND LEISURE-TIME PHYSICAL ACTIVITY

This section is about all the physical activities that you did in the last 7 days solely for recreation, sport, exercise or leisure. Please do not include any activities you have already mentioned.

20. Not counting any walking you have already mentioned, during the last 7 days, on how many days did you walk for at least 10 minutes at a time in your leisure time?

_____ days per week

No walking in leisure time Skip to question 22

21. How much time did you usually spend on one of those days walking in your leisure time?

_____ hours per day

_____ minutes per day

22. Think about only those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do vigorous physical activities like aerobics, running, fast bicycling, or fast swimming in your leisure time?

_____ days per week

No vigorous activity in leisure time Skip to question 24

LONG LAST 7 DAYS SELF-ADMINISTERED version of the IPAQ. Revised October 2002.

23. How much time did you usually spend on one of those days doing vigorous physical activities in your leisure time?

_____ hours per day

_____ minutes per day

24. Again, think about only those physical activities that you did for at least 10 minutes at a time. During the last 7 days, on how many days did you do moderate physical activities like bicycling at a regular pace, swimming at a regular pace, and doubles tennis in your leisure time?

_____ days per week

No moderate activity in leisure time Skip to

PART 5: TIME SPENT SITTING

25. How much time did you usually spend on one of those days doing moderate physical activities in your leisure time?

_____ hours per day

_____ minutes per day

PART 5: TIME SPENT SITTING

The last questions are about the time you spend sitting while at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading or sitting or lying down to watch television. Do not include any time spent sitting

in a motor vehicle that you have already told me about.

26. During the last 7 days, how much time did you usually spend sitting on a weekday?

_____ hours per day

_____ minutes per day

27. During the last 7 days, how much time did you usually spend sitting on a weekend day?

_____ hours per day

_____ minutes per day

SECTION 6: Medical and Family History:

1. **Medical History :**

Type	Self	Mother	Father	Sibling	Grand Parents
Diabetes					
Hypertension					
CHD					
Hyperlipidemia					
Stroke					
Hypo/Hyperthyroidism					
Asthma					
Cancer					
Any other(Specify)					

2. **Addiction Pattern**

	Currently	Past History	Duration	Frequency
Smoking				
Alcohol				
Tobacco chewing				

SECTION 7: Anthropometry & Biophysical Measurements:

Weight (kg)	
Height (cm)	
BMI	
Waist Circumference (cm)	
Hip Circumference (cm)	
Waist Hip Ratio	
Waist Stature Ratio	

SECTION 8: Food Frequency Questionnaire:

	Food Items	Daily N(%)	2-3 times a week N(%)	Weekly N(%)	Twice a month N(%)	Monthly N(%)	Rarely N(%)	Never N(%)
Cereals	Rice							
	Wheat							
	All Purpose Flour							
	Semolina							
	Corn							
	Pearl Millet							
	Finger Millet							
Pulses & Legumes	Mung chilka							
	Mung dhuli							
	Masoor dal							
	Arhar Dal							
	Urad dal							
	Chana dal							
	Rajma							
	Cholley							
	kala chana							
	Cowpea							
	Soyabean							
Green Leafy Vegetables	Bathua							
	Cabbage							
	Cauliflower							
	Methi							
	Sarso							
	Spinach							

	Daily N(%)	2-3 times a week N(%)	Weekly N(%)	Twice a month N(%)	Monthly N(%)	Rarely N(%)	Never N(%)	Daily N(%)
Roots & Tubers	Beetroot							
	Onion							
	Radish							
	Potato							
	Sweet potato							
Other Vegetables	Beans							
	Bottleguard							
	Brinjal							
	Cucumber							
	Capsicum							
	Lady finger							
	Papaya							
	Parwar							
	Ridge guard							
	Tinda							
Fruits	Tomato							
	Apple							
	Banana							
	Grapes							
	Guava							
	Lemon							
	Litchi							
	Mango							
	Water Melon							
	Musk melon							
	Orange							
	Peaches							
	Pear							

		Daily N(%)	2-3 times a week N(%)	Weekly N(%)	Twice a month N(%)	Monthly N(%)	Rarely N(%)	Never N(%)	Daily N(%)
	Pomegaranate								
Milk & Milk Products	Milk								
	Curd								
	Buttermilk								
	Paneer								
	Ghee								
	Butter								
Meat, Fish &	Egg								
	Fish								
	Chicken								
	Red meat								
Nuts and Oil	Almonds								
	Walnut								
	Cashew								
	Peanuts								
Beverages	Tea								
	Coffee								
	Juices								
	Carbonated beverages								
Processed Food	Frozen Snacks								
	Frozen food Bread								
	Frozen food								
	Frozen meat								
	Confectionary								
	Bakery goods								

		Daily N(%)	2-3 times a week N(%)	Weekly N(%)	Twice a month N(%)	Monthly N(%)	Rarely N(%)	Never N(%)	Daily N(%)
	Bakery items								
	Cooked Snacks								
	Food Delivery								

SECTION 11: 24 hour Dietary Recall Questionnaire:

Time	Meal	Raw amt. used for Family (gm) [A]	Cooked Vol. for Family (ml) [B]	Vol. consumed by subject (ml) [C]	Raw amt. consumed by subject [D] D= A*C/B

सत्यं शिवं सुन्दरम्
Estd. 1949

Institutional Ethics
Committee for Human
Research
(IECHR)

FACULTY OF FAMILY AND COMMUNITY SCIENCES
THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

Ethical Compliance Certificate 2024-2025

This is to certify Mr. Abhishek Jain study titled; "Consumption of Home cooked Meals and Nutrient Adequacy among Working and Non- Working Women of Vadodara city: A Crosssectional Study." from Department of Foods and Nutrition has been approved by the Institutional Ethics Committee for Human Research (IECHR), Faculty of Family and Community Sciences, The Maharaja Sayajirao University of Baroda. The study has been allotted the ethical approval number IECHR/FCSc/M.Sc./10/2024/41.

Komal

Prof. Komal Chauhan
Member Secretary
IECHR

Prof. Mini Sheth
Chairperson
IECHR

Chair Person
IECHR
Faculty of Family & Community Sciences
The Maharaja Sayajirao University of Baroda

CONSENT FORM

STUDY TITLE: Consumption of Home Cooked Meals and Nutrient Adequacy among Working & Non Working Women of Vadodara City: A Cross-Sectional Study

Research Guide
Dr. Swati Dhruv
Assistant Professor
Food & Nutrition Department
Faculty of Family and Community Science
The Maharaja Sayajirao University of Baroda

Investigator
Abhishek Jain
Bsc. Community Science
Food & Nutrition Department
Faculty of Family and Community Science
The Maharaja Sayajirao University of Baroda

Part 1: Information Sheet

Purpose of the study: The "Frequency of Cooking and Eating Home Cooked Meals and Nutrient Adequacy Among Working and Non-Working Women in Vadodara City: A Cross-Sectional Study" seeks to investigate the relationship between the amount of nutrients that women in Vadodara, India who are working and those who are not, have access to. The objectives of the research are to determine how cooking habits affect the quality of food, evaluate how sociodemographic characteristics affect the frequency of cooking, and investigate possible obstacles to home cooking. The goal of the research is to better understand these dynamics in order to offer insights that can guide public health efforts that aim to encourage healthier eating habits by encouraging more people to cook at home.

Cost: There is no payment associated with your participation in this study; all that is needed is your time and cooperation.

Confidentiality: Your identify will remain private throughout the Study. The study's findings might be released for academic reasons, but they won't include any references to you by name or in any recognisable way.

Right to withdraw: Joining the research is entirely voluntary, and you are free to leave at any time, for any reason, and without prior warning. Since we need all the data to make accurate conclusions, we sincerely hope you will participate for the duration of the study.

Voluntary participation: Your cooperation is critical to this study's success. This study cannot proceed unless numerous individuals, just like you, consent to participate.

Part 2: certificate of consent

Investigator's Statement

I have given the participant a thorough explanation of the research program, the goal of the study, and any potential risks or advantages. The participant had the chance to ask any conventional enquiries and to talk about these processes in addition to discussing them.

_____

Signature of the investigator with date

Participant's Statement

I attest that I have read the study's description, or that I have had it read to me, and that I understand it. I certify that I have read and comprehended the material above by signing this form. I agree to supply the information requested by the researchers in order to be a subject in the research being conducted at Maharaja Sayajirao University of Baroda by postgraduate student Mr. Abhishek Jain, who is guided by Dr. Swati Dhruv.

I am aware that the study needs data on dietary habits, socioeconomic status, medical history, anthropometric measures, and physical activity from the participant.

I've received an opportunity to ask enquiries concerning the research. I am aware that I am free to ask further questions at any moment. I've received a satisfactory explanation of the study's objectives, and I know that I can withdraw from it at any moment.

_____

Signature of the participant with date

GUJRATI LETTER

સહમતિફોર્મ

અધ્યયનશીર્ષક:

વડોદરાશહેરનીકાર્યરતઅનેઅકાર્યરતમહિલાઓમાંઘરનુંબનાવેલખોરાકઅનેપોષકતત્વોનીપૂરતાપ્રમાણમાંહાજરી: એકક્રોસ-સેક્શનલઅભ્યાસ

શોધમાર્ગદર્શક:

ડૉ. સ્વાતિધ્રુવ

ભાગ 1: માહિતીપત્રક

અભ્યાસનોહેતુ:

"વડોદરાશહેરનીકાર્યરતઅનેઅકાર્યરતમહિલાઓમાંઘરનુંબનાવેલખોરાકનીબનાવટઅનેતેનીજથ્થાનીગણતરીઅનેપોષકતત્વોનીપૂરતાપ્રમાણમાંહાજરી: એકક્રોસ-સેક્શનલઅભ્યાસ"વડોદરા, ભારતનીકામકરતીઅનેનકરતીમહિલાઓમાંપોષકતત્વોનીઉપલબ્ધિવચ્ચેનાસંબંધનીતપાસકરવાનો છે. આઅભ્યાસનાલક્ષ્યોમાંરસોઈનાવ્યવહારખોરાકનીગુણવત્તાનેકેવીરીતેઅસરકરેછેતેનક્કીકરવું, રસોઈનાઅવરોધઅનેસામાજિક-
આર્થિકલક્ષણોરસોઈનીઆવૃત્તિપરકેવીરીતેઅસરકરેછેતેનીતપાસકરવીશામેલછે.
આઅભ્યાસનાહેતુઓઆગતિશીલતાઓનેસમજવાનોછેજેથીઆરોગ્યપ્રદખાવાનીઆદતોનેપ્રોત્સાહનઆપવાનાઆરોગ્યપરિપ્રેક્ષ્યપ્રયત્નોનેમાર્ગદર્શનઆપવામાંમદદમળીશકે.

ખર્ચ:

આઅભ્યાસમાંતમારીભાગીદારીમાટેકોઈભુક્તાનથવાનુંનથી.
અમનેફક્તતમારોસમયઅનેસહકારજરૂરીછે.

ગોપનીયતા:

તમારીઓળખઆઅભ્યાસદરમિયાનખાનગીરહેશે.
અભ્યાસનાપરિણામોશૈક્ષણિકકારણોસરપ્રકાશિતથઈશકેછે,
પરંતુતેમાંતમારુંનામકેકોઈઓળખાણપાત્રરીતેઉલ્લેખનહીંકરવામાંઆવે.

મોકૂફથવાનોઅધિકાર:

અભ્યાસમાંજોડાવુંસંપૂર્ણપણેમરજીયાતછે, અનેતમેકોઈપણસમયે, કોઈપણકારણસર,
પૂર્વચેતવણીઆપ્યાવિનાઅભ્યાસમાંથીબહારઆવીશકોછો.
અમેઆશારાખીએછીએકેતમેઆઅભ્યાસનાઅંતસુધીમાંભાગલેશોકારણકેયોક્કસપરિણામોમેળવવા
માટેતમામડેટાનીજરૂરછે.

સ્વૈચ્છિકભાગીદારી:

આઅભ્યાસનીસફળતામાટેતમારોસહકારમહત્વપૂર્ણછે.
આઅભ્યાસમાંઅનેકવ્યક્તિઓનીસંમતિવિનાઆગળવધવીશક્યનથી.

ભાગ 2: સંમતિનુંપ્રમાણપત્ર

શોધકર્તાનુંનિવેદન:

મેભાગીદારનેસંશોધનકાર્યક્રમ,
અભ્યાસનાહેતુઅનેકોઈપણસંભવિતજોખમોઅથવાલાભોનીવિગતવારસમજઆપીછે.
ભાગીદારનેકોઈપણસામાન્યપ્રશ્નોપૂછવાનીતકમળીછેઅનેઆપ્રક્રિયાઓઅંગેચર્ચાકરવાનીતકઆપવા
માંઆવીછે.

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તપાસકનુંહસ્તાક્ષરઅનેતારીખ

ભાગીદારનુંનિવેદન:

હું ખાતરી આપું છું કે મેં અભ્યાસના વર્ણનને વાંચ્યું છે અને હું તેને સમજું છું.
હું આ ફોર્મ પર હસ્તાક્ષર કરીને પ્રમાણિત કરું છું કે મેં ઉપર આપેલી માહિતી વાંચી છે અને સમજું છું.
હું સંશોધકોને જરૂરી માહિતી પૂરી પાડવાની સંમતિ આપું છું જેથી મહારાજા સયાજીરાવ યુનિવર્સિટી ઓફ બરોડા માં અનુસ્નાતક વિદ્યાર્થી મિસ્ટર અભિષેક જૈન દ્વારા ડૉ.
સ્વાતિ ધ્રુવના માર્ગદર્શન હેઠળ હાથ ધરવામાં આવેલા સંશોધન માં ભાગ લઈશ કું.

હું જાણું છું કે અભ્યાસમાં ભાગીદાર ની આહાર ની આદતો, સામાજિક-આર્થિક સ્થિતિ, તબીબી ઇતિહાસ, શારીરિક માપ અને શારીરિક પ્રવૃત્તિ સંબંધિત ડેટા ની જરૂર છે.

મને સંશોધન વિશે પ્રશ્નો પૂછવા ની તક મળી છે. મને ખબર છે કે હું કોઇપણ સમયે વધુ પ્રશ્નો પૂછવા માટે તૈયાર છુ. મને અભ્યાસના હેતુઓ ની સંતોષકારક રીતે સમજ આપવામાં આવી છે,
અને મને ખબર છે કે હું તેને કોઇપણ સમયે છોડી શકું છું.

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ભાગીદાર નું હસ્તાક્ષર અને તારીખ

TABLE: THE SCORING SYSTEM FOR EDUCATION

EDUCATION	**SCORE**
Profession or Honors	7
Graduate	6
Intermediate or diploma	5
High schools certificate	4
Middle schools certificate	3
Primary schools certificate	2
Illiterate	1

(Source: Radhakrishnan & Nagaraj, 2023)

TABLE: TOTAL MONTHLY INCOME OF THE FAMILY AND SCORE

MONTHLY FAMILY INCOME	SCORE
>146,104	12
109,580 - 146,103	11
73,054 – 109,579	10
68,455 – 73,053	9
63,854 – 68,454	8
59,252 – 63,853	7
54,651 – 59,251	6
45,589 – 54,650	5
36,527 – 45,588	4
21,914 – 36,526	3
7,316 – 21,913	2
<7,315	1

(Source: Radhakrishnan & Nagaraj, 2023)

TABLE: KUPPUSWAMI SOCIO-ECONOMIC CLASS

Sr. No.	Score	Socio-Economic Class
1	26-29	Upper class (I)
2	16-25	Upper middle class (II)
3	11-15	Lower middle class (III)
4	5-10	Upper lower class (IV)
5	<5	Lower (V)

(Source: Radhakrishnan & Nagaraj, 2023)