Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 32s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

A Review on the Health and Nutritional Status of Professional Women Aged 30–45 Years in India

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Cite this paper as: Manisha Dubey Trivedi, Dr. Dipali Saxena, Dr. Shweta Keswani, Dr. Uttam Sharma, (2025) A Review on the Health and Nutritional Status of Professional Women Aged 30–45 Years in India. *Journal of Neonatal Surgery*, 14 (32s), 1835-1844.

ABSTRACT

The transformation of India's socio-economic structure has resulted in a significant rise in women's involvement in professional fields including education, healthcare, information technology, banking, and administration. Women aged 30 to 45 frequently encounter a dual load of professional advancement and household obligations, significantly impacting their health and nutritional well-being. This review seeks to consolidate national-level statistics, peer-reviewed literature, and public health surveys to assess the health difficulties encountered by professional women in this pivotal age group throughout India. Data from the National Family Health Survey (NFHS-4 and NFHS-5) indicate that around 48% of women in India are anaemic, while the incidence of overweight and obesity has concurrently risen to over 23% in this demographic. The trends are exacerbated by increasing occurrences of non-communicable diseases (NCDs) such as hypertension, diabetes, and cardiovascular illnesses, which are frequently associated with sedentary lifestyles, inadequate dietary diversity, occupational stress, and insufficient physical activity. Research indicates that professional women frequently forgo meals, opt for processed and convenience foods, and generally prioritize domestic and professional obligations over their own nutritional requirements. The review emphasizes that professional stress, extended working hours, insufficient health awareness, and socio-cultural norms—such as the tradition of eating last or prioritizing family meals—negatively affect women's health disproportionately. Nutritional evaluations reveal considerable shortages in protein, iron, calcium, and vital vitamins among employed women, irrespective of income or educational attainment. Moreover, variations related to area, occupation, and socio-economic status expose a complex framework of health inequity. The findings highlight the pressing necessity for focused interventions such as nutritional education, workplace wellness initiatives, regular health assessments, and regulatory reforms that consider gender and occupation. Enhancing the health and nutritional welfare of professional women is vital for their personal advancement and imperative for the ongoing socio-economic progress of the nation.

Keywords: *Nutrition, Health, Women, Anaemia, Obesity, Age, Occupation)*

1. INTRODUCTION

The socio-economic progress in India has markedly transformed the lifestyle and employment patterns of women, especially those aged 30 to 45. This phase signifies a pivotal moment in a woman's life, characterized by professional obligations, reproductive health issues, and caring responsibilities within families. With the increasing participation of women in the organized workforce, particularly in metropolitan areas, their eating practices, levels of physical activity, and general health profiles are seeing significant transformations [1]. The simultaneous demands of professional responsibilities and household tasks frequently result in time limitations, stress, and suboptimal nutrition selections among working women. The intake of processed foods, erratic meal schedules, and insufficient physical exercise have been linked to increasing rates of obesity,

hypertension, diabetes, and other non-communicable diseases (NCDs) in this population [2][3]. As per NFHS-5 (2019–21), around 48.1% of Indian women aged 15–49 are anaemic, whereas the prevalence of overweight or obese women has risen to 24%, especially among urban populations [4].

Research demonstrates that these obstacles are not merely a result of income or education but are significantly shaped by job demands, cultural norms, and gendered expectations [5][6]. Numerous employed women often prioritize their family' nutritional requirements above their own, frequently skip meals, or consume food last—behaviors that intensify nutrient deficits and metabolic problems [7]. Furthermore, insufficient awareness of balanced diets, micronutrient requirements, and preventive healthcare contributes to the risk factors [8].

Numerous regional and occupation-specific studies indicate that professional women in India, despite elevated literacy and income levels, frequently experience dietary imbalances. For instance, female employees in the IT and banking industries exhibited elevated occurrences of irregular eating habits, anemia, and stress-related weight gain in comparison to their peers in less sedentary occupations [9][10]. These findings indicate an immediate necessity for occupational health evaluations and gender-sensitive interventions.

This review aims to evaluate the health and nutritional status of professional women aged 30–45 years in India by integrating data from national health surveys, epidemiological studies, and contemporary literature. It also underscores vocational inequities, regional variations, and socio-cultural obstacles that influence women's nutritional results. The study seeks to identify gaps and challenges to offer recommendations for specific health programs and policy efforts

2. METHODOLOGICAL APPROACH OF REVIEWED STUDIES

The assessment of health and nutritional status among professional women in India has predominantly been carried out through cross-sectional research, extensive surveys, and occupation-specific nutritional evaluations. These studies concentrate on measuring the physical, nutritional, and clinical health markers of women within a certain occupational and age cohort, providing a snapshot of their health at a given moment.

Anthropometric measurements—specifically Body Mass Index (BMI), height, and weight—are the predominant criteria utilized in this research to evaluate body composition and nutritional status [13]. These metrics are essential in government-sponsored datasets like the National Family Health Survey (NFHS), which offers state- and district-level health indicators for women aged 15–49 years, including the 30–45 age range pertinent to this research [14].

Alongside physical measures, dietary assessment approaches are extensively employed to evaluate nutritional sufficiency. The 24-hour dietary recall approach is the most common, requiring subjects to recount all food and beverages ingested in the preceding day. Certain studies augment this with Food Frequency Questionnaires (FFQ) to evaluate the frequency of consumption across diverse food groups [15][16].

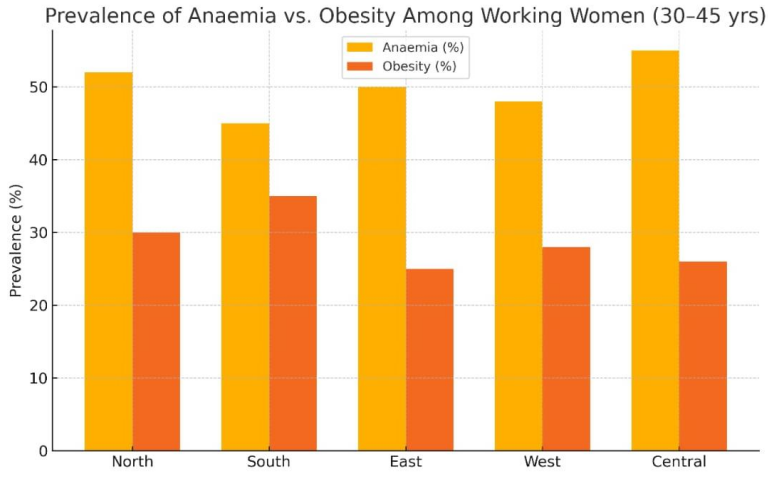

Figure 1: Prevalence of Anaemia and Obesity Among Working Women (Aged 30–45 Years) Across Indian Regions

Nutrient consumption is often assessed in relation to the Recommended Dietary Allowances (RDA) established by the Indian Council of Medical Research (ICMR) [17]. These evaluations frequently indicate insufficient consumption of vital micronutrients, including iron, calcium, and vitamin A, among employed women, despite appropriate calorie intake [18]. Clinical evaluations serve as an additional method, generally encompassing visual assessments of physical manifestations—such as pallor, hair loss, nail brittleness, and gum bleeding—that signify underlying nutritional inadequacies [19]. While

comprehensive clinical assessments utilizing blood biomarkers (e.g., hemoglobin, serum ferritin, lipid profile) provide more accurate evaluations, such methodologies are constrained by logistical challenges in extensive field research [20].

Socioeconomic and occupational factors are evaluated using standardized questionnaires that gather work-related information, including job type, hours of duty, salary, physical workload, and workplace stress, alongside lifestyle habits such as smoking, alcohol consumption, and physical exercise [21]. These characteristics are essential for linking occupational conditions with health outcomes, particularly for women in sedentary or high-stress occupations [22].

Data from these researches are examined with statistical tools like SPSS or STATA, utilizing chi-square tests, t-tests, ANOVA, and regression models to examine connections between occupational status, food habits, and health outcomes [23]. Statistical significance is often assessed at p-values below 0.05 to ascertain if the observed differences are meaningful.

The empirical approaches employed in literature to evaluate the health of professional women in India are thorough, incorporating anthropometric, dietary, clinical, and socio-occupational data to deliver a comprehensive knowledge of their nutritional problems and health concerns.

3. HEALTH STATUS INDICATORS AMONG PROFESSIONAL WOMEN

The health condition of professional women aged 30–45 years in India is increasingly acknowledged as a public health issue due to escalating rates of both undernutrition and overnutrition. Principal metrics employed to assess their health encompass Body Mass Index (BMI), incidence of anaemia, blood pressure readings, and clinical manifestations of nutritional deficiencies. These measures not only signify individual well-being but also act as proxies for the burden of non-communicable diseases (NCDs) within the female workforce [25][26].

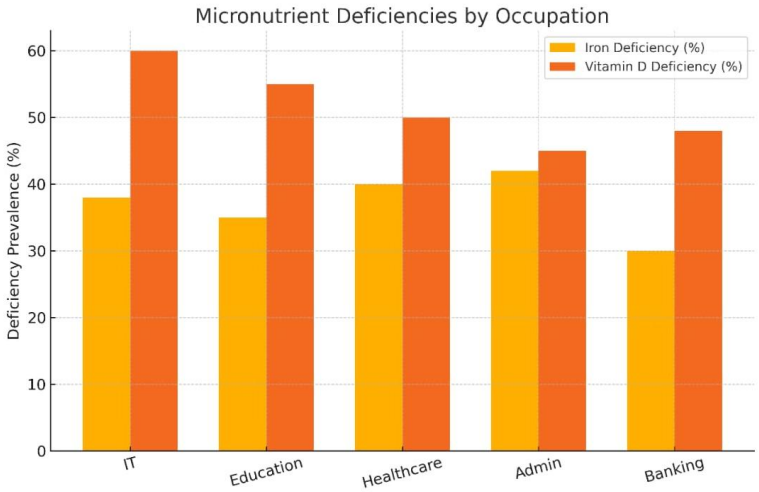

Figure 2: Micronutrient Deficiencies (Iron and Vitamin D) Among Working Women by Occupational Sector.

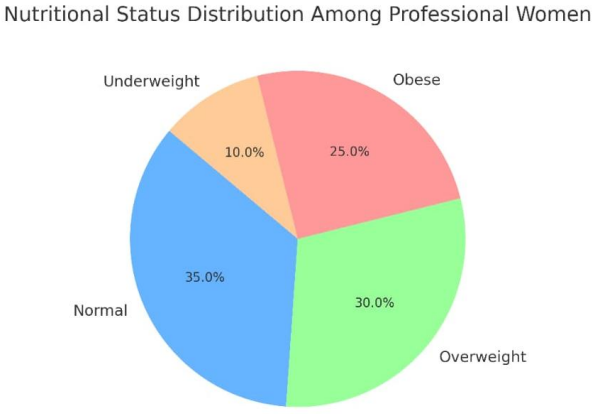

Figure 3: Distribution of Nutritional Status Among Working Women (30–45 Years) in India.

As per NFHS-5 (2019–21), the percentage of women of reproductive age classified as overweight or obese (BMI >25) has risen to 24%, an increase from 20.6% in NFHS-4 (2015–16) [27]. Concurrently, undernutrition remains prevalent, with 15.5% of women exhibiting a BMI below the normal threshold (<18.5), indicating a dual burden of malnutrition [28]. BMI trends differ among occupational categories: women in sedentary professions like teaching, banking, and IT are more susceptible to overweight and obesity, whereas those in field-based or lower-income positions may face undernutrition due to inconsistent meals and energy deficits [29].

Anaemia is a significant health indicator among Indian women. According to NFHS-5, anemia impacts 57% of non-pregnant women aged 15–49, with marginally lower yet nonetheless concerning rates in the urban, working-age demographic [30]. Iron insufficiency is a primary cause, frequently stemming from inadequate dietary intake of heme iron sources, meal omission, and postprandial tea consumption, which impedes iron absorption [31]. Research involving professional women has identified elevated occurrences of weariness, pallor, and diminished productivity directly associated with subclinical or clinical anaemia [32].

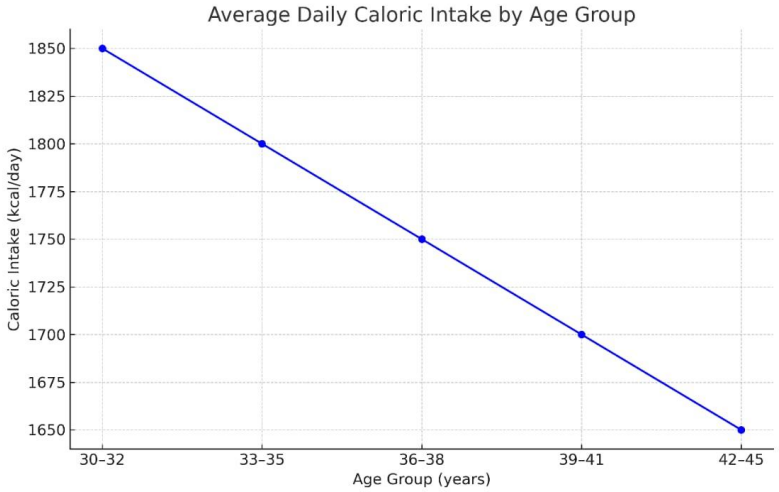

Figure 4: Average Daily Caloric Intake by Age Group Among Professional Women.

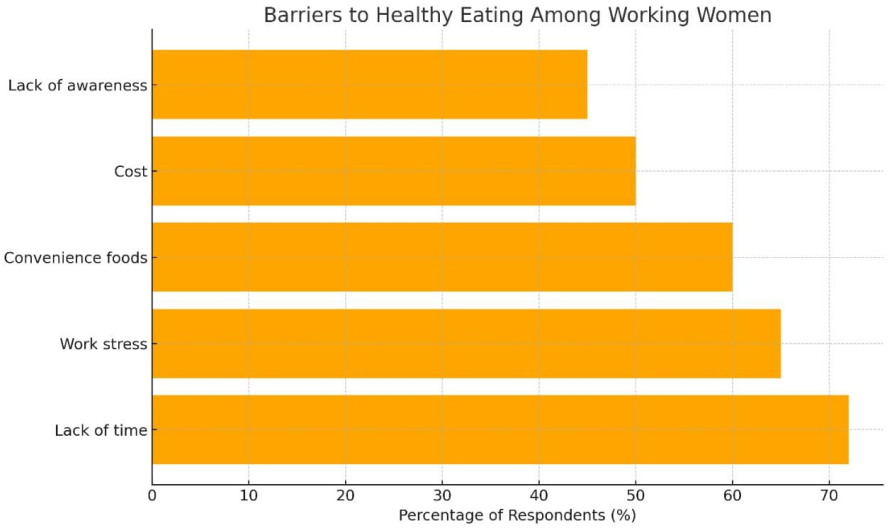

Figure 5: Barriers to Healthy Eating Identified Among Working Women.

Blood pressure and glucose levels are progressively utilized as indications of early-onset non-communicable diseases in this demographic. Numerous studies indicate that professional women, particularly those over 35 years old, face heightened risks of pre-hypertension and type 2 diabetes as a result of extended working hours, psychological stress, and insufficient physical

activity [33][34]. A nationwide assessment indicated that approximately 18–22% of metropolitan working women had hypertensive blood pressure readings, whereas 6–8% demonstrated high blood glucose levels [35].

Clinical manifestations—such as alopecia, xerosis, onychorrhexis, and oral ulcers—act as preliminary indicators of micronutrient deficiencies, notably concerning vitamin B12, iron, and calcium [36]. These deficiencies are frequently noted in professional women who have insufficient intake of dairy, green vegetables, or meat due to time limitations or dietary choices [37].

Collectively, these health status indicators demonstrate that although professional women in India are achieving financial and social autonomy, they continue to be susceptible to considerable health hazards. Their nutritional neglect, frequently camouflaged by economic security, need immediate intervention via preventive screenings, dietary modifications, and workplace health initiatives [38].

4. NUTRITIONAL PATTERNS AND DIETARY CHALLENGES

The eating practices of professional women in India are influenced by time limitations, job requirements, urban food landscapes, and socio-cultural norms. Women, especially those aged 30 to 45, may encounter difficulties in sustaining balanced diets due to extended working hours, inadequate meal planning, and reliance on convenience or processed foods. While financial access to a variety of food groups may not pose a constraint for several professionals, the actual quality and regularity of nutrient consumption are nonetheless worrisome.

Numerous studies reveal a trend of insufficient consumption of protein, iron, calcium, and vital vitamins among working women, despite their caloric intake meeting or surpassing daily requirements [41]. Common patterns across professions such as teaching, banking, and IT include frequent breakfast omission, delayed or missing meals, and substantial dinners. Moreover, dependence on caffeine, sugary snacks, and fast meals during work hours disrupts nutritional equilibrium [43].

Micronutrient deficits are notably prevalent. Inadequate consumption of iron-rich foods such as green leafy vegetables, legumes, and meat, along with dietary practices that impede iron absorption (e.g., drinking tea or coffee during meals), results in chronic iron deficiency anemia among professional women [44]. Likewise, insufficient calcium intake, whether from limited dairy consumption or poor absorption, heightens the risk of bone demineralization and associated musculoskeletal problems, particularly as women near perimenopause.

Vitamin deficiencies, particularly of vitamin D and B12, are increasingly reported among professional women. Urban lifestyles characterized by minimal sunshine exposure, especially among individuals in sedentary desk occupations, lead to prevalent vitamin D deficiency [46]. Vegetarian dietary patterns, prevalent among Indian professionals, worsen vitamin B12 insufficiency, resulting in fatigue, neurological complaints, and diminished cognitive performance [47].

Multiple studies indicate that dietary diversity scores reveal inadequate consumption of fruits, vegetables, and whole grains in the daily diets of working women. Refined carbs, saturated fats, and added sugars constitute a substantial component of daily consumption [48]. Research from large metropolitan areas such as Delhi, Mumbai, and Bengaluru indicate that over 60% of employed women consume fast food more than twice weekly, frequently replacing it with lunch or evening snacks [49].

Furthermore, behavioral and cultural norms, such as the tradition of women consuming their meals last in the household or prioritizing family meals over their own, significantly influence the quantity and quality of food ingested by working women [50]. Emotional eating and appetite fluctuations due to stress are prevalent, especially among women in high-stress occupations [51].

The nutritional issues encountered by professional women in India stem not from availability but from awareness, time management, and behavioral habits. If unaddressed, these nutritional abnormalities can substantially lead to long-term health issues and diminished quality of life. Promoting workplace nutrition education, encouraging mindful eating habits, and facilitating improved access to healthy food options during work hours is vital.

5. OCCUPATIONAL INFLUENCE ON WOMEN'S HEALTH

Employment significantly influences the health outcomes of women, especially those aged 30 to 45. As women participate in various professional roles—spanning education, healthcare, information technology, and financial services—the characteristics of their work environment, physical requirements, and stress levels significantly influence their nutritional and overall health condition [53][54].

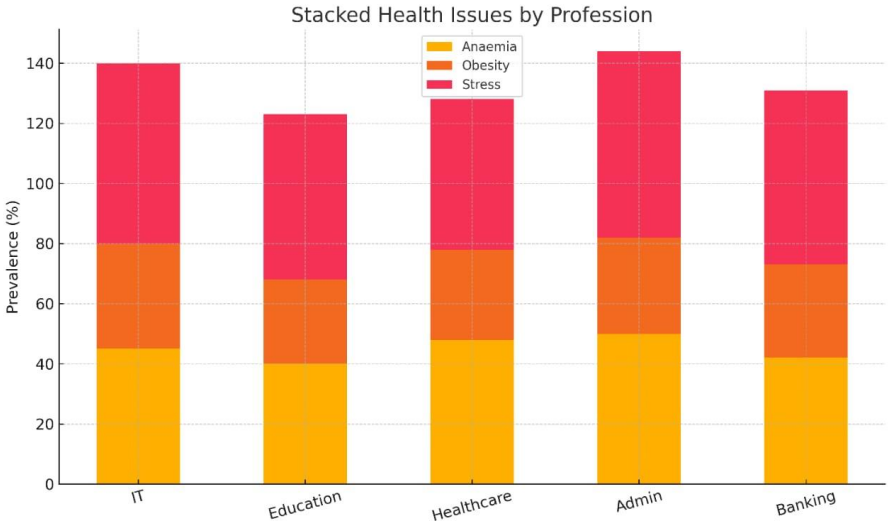

Figure 6: Stacked Bar Chart of Common Health Issues by Professional Sector.

Sedentary occupations, including software engineering, secretarial positions, and academia, are linked to restricted physical activity, extended screen time, and irregular food patterns. Research indicates that women in these positions experience elevated rates of overweight and obesity, with BMI values considerably exceeding suggested standards [55]. These positions frequently include extended working hours, inconsistent schedules, and significant cognitive stress, resulting in hormone imbalances, inadequate sleep, and metabolic dysfunctions [56].

In contrast, women in physically demanding occupations—such as nursing, fieldwork, and retail—often have distinct problems. Despite increased energy expenditure, numerous individuals in these professions experience undernutrition resulting from insufficient caloric and protein consumption, inconsistent meal patterns, and a lack of workplace support for balanced nutrition. Moreover, women engaged in shift work or night shifts face an elevated risk of circadian rhythm disruptions, gastrointestinal disorders, and compromised glucose metabolism [58].

Occupational stress is a significant determinant affecting health. Chronic stress raises cortisol levels, which correlates with heightened belly obesity, insulin resistance, and hypertension in employed women [59]. Occupational burnout is particularly common in fields such as education and healthcare, where emotional labor is substantial and recovery periods are limited. These stress-induced situations adversely impact mental health, diminish appetite management, and impair food absorption [60].

Furthermore, job insecurity, insufficient maternity assistance, absence of flexible hours, and inadequate workplace wellness initiatives worsen health inequities among female workers. Research demonstrates that women with diminished vocational autonomy or employed in male-dominated sectors are more susceptible to psychological distress, depression, and neglect of eating habits [61].

A comparison among several professions demonstrates considerable differences in health metrics. For instance, educators and banking personnel typically exhibit elevated levels of obesity and hypertension, whereas nurses and social workers frequently display indications of musculoskeletal strain and nutritional deficiencies [62][63]. This occupational stratification underscores the necessity for targeted initiatives in health promotion and nutritional assistance within certain sectors.

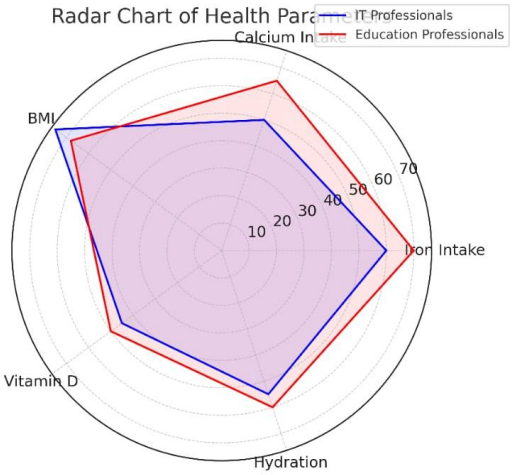

Figure 7: Radar Chart Showing Health Parameter Comparisons Between IT and Education Professionals.

The COVID-19 pandemic accentuated vulnerabilities in occupational health. Women telecommuting indicated heightened eating, weight accumulation, and less physical activity, whereas frontline workers experienced nutritional deprivation due to irregular work schedules and mental exhaustion [64]. These experiences highlight the intricate interplay between workplace environments and women's health outcomes.

A woman's occupation influences her work schedule and energy requirements, while significantly affecting her health behaviors, nutritional access, and susceptibility to chronic diseases. Mitigating these occupational consequences via customized health programs, employee assistance initiatives, and nutrition-oriented workplace rules is crucial for enhancing the well-being of professional women throughout India [65].

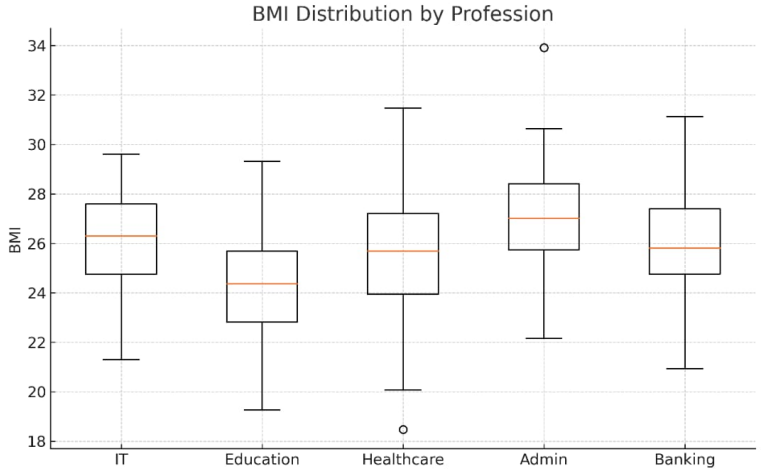

Figure 8: Boxplot of BMI Distribution by Occupational Sector

6. REGIONAL DISPARITIES AND SOCIOECONOMIC FACTORS

In a heterogeneous nation such as India, geographical and socioeconomic variations profoundly influence the health and nutritional condition of professional women aged 30 to 45 years. Elements include the urban-rural divide, cultural dietary behaviors, healthcare accessibility, and state-specific policy execution contribute to the variability of health outcomes within this population group [66].

Urban professional women typically possess superior access to healthcare facilities, awareness initiatives, and a diverse food supply; nonetheless, they experience elevated incidences of lifestyle-related ailments, including obesity, type 2 diabetes, and hypertension, attributable to sedentary occupations and high-stress urban environments. Conversely, women in smaller towns and tier-2 cities may exhibit lower obesity rates but encounter significant issues related to micronutrient deficiencies, anaemia, and inadequate dietary diversity owing to restricted access to diverse food options and health services [68].

Data from NFHS-5 reveal that anaemia among urban women is significantly elevated in states such as Madhya Pradesh (50.8%), Gujarat (53.2%), and Odisha (56.5%), highlighting pervasive dietary deficiencies that extend beyond rural areas [69]. The discrepancies are further intensified by differing levels of education and health literacy among states. Kerala consistently exhibits superior health indicators for women, attributed to elevated female literacy rates and robust public health infrastructure, while states such as Bihar and Uttar Pradesh persist in facing challenges related to both communicable and non-communicable health issues among women.

Socioeconomic status is a significant factor influencing nutritional outcomes. Women from affluent socioeconomic backgrounds may possess the financial resources to acquire nutritious food; yet, they frequently face time constraints or lack knowledge regarding effective dietary planning, resulting in imbalanced eating habits [72]. Conversely, lower-middle-income professional women, especially those in service or support positions, may be deficient in resources and education, leading to insufficient calorie and micronutrient consumption [73].

7. CONCLUSION

The statistics indicate regional and occupational inequalities, with women in sedentary positions at greater risk for obesity and metabolic syndrome, whereas those in physically demanding or irregular roles suffer from undernutrition and exhaustion. Notwithstanding numerous governmental initiatives like Poshan Abhiyaan and Ayushman Bharat, there persists a deficiency of direct, occupation-specific programs targeting mid-life working women.

Furthermore, deficiencies in research remain, especially regarding longitudinal data, biochemical diagnoses, and relationships with mental health. The absence of occupation-specific data in national surveys hinders the formulation of effective, evidence-based policies for this demographic. Workplace wellness programs are predominantly voluntary, and their implementation varies significantly among industries and locations, thereby barring a substantial number of women from preventive and promotive health treatments.

A paradigm shift is required in the perceptions of the health system, employers, and society about the well-being of professional women. Gender-sensitive, occupation-specific treatments must be incorporated into national health policy and corporate responsibility frameworks. Enhancing health infrastructure, augmenting data openness, raising awareness, and encouraging behavioral change are essential measures to guarantee that women need not compromise their health for professional achievement.

Meeting the health and nutritional requirements of professional women is not solely a healthcare concern; it is a developmental necessity. An empowered female workforce immediately enhances national production, intergenerational welfare, and the achievement of equitable growth. It is imperative to acknowledge this group as a priority within India's public health agenda

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