

COMPARATIVE ANALYSIS OF WORKPLACE WELLNESS PROGRAMS IN MNCs: IMPACT OF ROTATIONAL, NIGHT, AND DAY SHIFTS

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Abstract : Workplace wellness is a key determinant of employee health in multinational corporations (MNCs). This cross-sectional study assessed nutritional knowledge, dietary habits, BMI, and sleep patterns among 202 MNC employees in Hyderabad across day, night, and rotational shifts using a structured Google Forms questionnaire. An independent t-test and Chi-square tests were used for analysis. Results showed a predominantly young, male-leaning, non-vegetarian workforce, with cafeterias dominated by fried snacks and fast food. Male employees showed significantly higher nutritional knowledge than females ($p < 0.001$). BMI ($p = 0.651$) and sleep cycle ($p = 0.272$) did not differ significantly across shifts, but BMI showed a highly significant association with junk food consumption ($p = 5.85 \times 10^{-138}$). The study concludes that workplace wellness is shaped more by nutrition knowledge gaps and food environment than by shift timing, and recommends gender-sensitive nutrition education and healthier cafeteria options.

IndexTerms - Workplace wellness, nutritional knowledge, gender disparity, BMI, sleep cycle, corporate health, Chi-square test, t-test.

I. INTRODUCTION

Multinational Corporations (MNCs) have contributed to economic growth and employment generation, but rapid globalization and corporate expansion have also introduced considerable challenges to employee health.[1] Long working hours, sedentary work, and irregular shift schedules increasingly disrupt lifestyle patterns among employees. Since the workplace occupies a major portion of employees' waking hours, it presents an ideal setting for promoting nutrition, physical activity, and stress management.[2]

Prolonged sitting, meal skipping, and high stress are common among corporate employees, particularly in IT-driven MNC environments, and are linked with cardiometabolic risks such as overweight, obesity, and low HDL-cholesterol. Poor dietary habits, high in fats, sugars, and processed foods but low in fruits, vegetables, and dairy, remain widespread in corporate populations. Workplace cafeterias play a decisive role in shaping food choices; behavioural nudges and structured nutrition interventions have been shown to improve dietary intake and related health markers.[3]

Shift work is often linked with irregular eating and disrupted sleep, though evidence on its independent effect on BMI remains mixed.[4] This study evaluates the impact of the MNC workplace environment on nutrition, BMI, and sleep, comparing day, night, and rotational shift employees, and examines gender differences in nutritional knowledge and the relationship between junk food intake and BMI.[5]

Globally, employer-sponsored wellness initiatives have gained momentum as organizations recognize that a healthy, well-nourished workforce is directly linked to reduced absenteeism, lower healthcare costs, and improved productivity. In the Indian context, where the information technology and business-process-outsourcing sectors employ a large share of the urban workforce, these concerns are compounded by long

commute times, extended sitting hours, and canteen environments that often prioritize convenience and cost over nutritional quality [6]. Despite growing awareness, structured evaluation of how such environments translate into measurable dietary, anthropometric, and sleep-related outcomes remains limited in the Indian corporate sector [7], [8].

Much of the existing literature on shift work and health originates from manufacturing, healthcare, and aviation settings in high-income countries [9], [10], leaving a gap in understanding how these dynamics play out among white-collar MNC employees in urban India, where rotational and night shifts are increasingly common to support round-the-clock global operations.[11] Furthermore, few studies have simultaneously examined gender-based disparities in nutritional knowledge alongside shift-related outcomes within the same cohort, despite both factors having independent implications for workplace health policy.[12] Addressing this gap, the present study was undertaken to generate context-specific evidence that can inform targeted, evidence-based wellness interventions for MNC employers in Hyderabad and comparable urban centers.

Aim and Objectives

Aim: To comprehensively evaluate the impact of the workplace environment on the nutritional habits, dietary status, and lifestyle behaviors of employees working in MNCs, comparing day-shift, night-shift, and rotational-shift workers.

Objectives: (i) to assess the association between employees' BMI and their work shift; (ii) to relate employees' BMI with junk food consumption rate; (iii) to identify challenges in eating healthy at work; (iv) to evaluate gender differences in awareness of nutritional guidelines; (v) to compare sleep cycles across day, night, and cyclic shifts; and (vi) to identify obstacles to utilizing workplace physical activity areas.

II. METHODOLOGY

An analytical cross-sectional survey was conducted among 202 employees (aged 20-60 years) working onsite in MNCs in Hyderabad, selected through convenience sampling. Onsite employees who consented to participate were included; those working from home or engaged as interns/temporary staff were excluded.

Data were collected using a structured questionnaire prepared in Google Forms, covering demographic profile, type of food available in the cafeteria, work type and lifestyle, and awareness of nutritional guidelines.

III. STATISTICAL ANALYSIS

Data collected from 202 employees were coded, tabulated, and analyzed using frequency distribution, graphical representation, the Chi-square test, and the independent samples t-test.

Chi-square test: Applied to categorical variables such as shift type, sleep cycle, and BMI category, using the formula

$$\chi^2 = \sum (O - E)^2 / E, \text{ where } O \text{ is the observed frequency and } E \text{ is the expected frequency.}$$

T-test: Used to compare mean nutritional knowledge scores between male and female participants, and to examine the association between BMI and junk food consumption, using $t = (\bar{x}_1 - \bar{x}_2) / \sqrt{(s_1^2/n_1 + s_2^2/n_2)}$.

Mean and standard deviation: Calculated using $\bar{X} = \sum X / N$ and $SD = \sqrt{[\sum (X - \bar{X})^2 / (N - 1)]}$ to describe BMI and healthy-meal consumption patterns.

IV. RESULTS AND DISCUSSION

4.1 Demographic, BMI and Cafeteria Profile

The sample was predominantly young (66% aged 20-30) and male (64.4%), with 70.3% reporting non-vegetarian food preference. BMI distribution showed 41% overweight and 12% obese employees. Sleep data showed 48% slept 6-8 hours, while 38% slept less than 6 hours. Cafeterias were available to 85.6% of respondents, dominated by South Indian meals and fried snacks, and the leading barriers to healthy eating were unhealthy food availability (28%), busy schedules (22%), and stress eating (18%). A gym/game zone was available to 62.9% of respondents, but 46.5% never used it, mainly due to insufficient equipment and disinterest — consistent with O'Brien (2015), who found low utilization despite wide availability of workplace fitness facilities [12]. Taken together, these findings indicate that infrastructural provision alone does not translate into healthier behavior: the co-existence of a high combined overweight/obesity prevalence (53%) with widely available but underused fitness facilities points to motivational and environmental barriers, such as time pressure, fatigue, and low perceived relevance, that outweigh the effect of mere physical access. This underscores the need for wellness strategies that go beyond facility provision to actively engage employees through scheduled activity breaks, peer-led fitness groups, or incentive-linked participation programs.

4.2 Nutritional Knowledge by Gender

An independent samples t-test on nine nutritional-guideline statements showed male employees scored significantly higher than females ($p = 0.00000000249$), indicating a strong gender gap in nutrition knowledge, consistent with Spronk et al. (2014) [13]. The gap was consistent across all nine guideline areas, with the widest disparities observed for awareness of regular exercise and limiting processed food intake, indicating that nutrition education in MNC settings cannot assume knowledge parity across genders and instead needs to be deliberately targeted toward female employees. Since nutritional knowledge is a recognized precursor to dietary behavior change, this disparity carries direct implications for how workplace health communication and training programs are designed and delivered.

Table 1: nutritional knowledge by gender ($p = 0.00000000249$, significant)

Nutritional Guideline	Male (n)	Female (n)
Balanced diet / variety of food	112	61
Vegetables & fruits intake	109	69
Moderate oil/animal food use	116	65
Avoid overeating	111	68
Regular exercise	108	56
Restrict salt intake	95	56
Healthy cooking methods	111	68
Adequate water intake	114	71
Limit processed food	120	69

4.3 BMI and Sleep Cycle Across Shifts

A Chi-square test found no significant association between shift type and BMI category ($p = 0.651$) or sleep cycle ($p = 0.272$), suggesting shift timing alone does not drive weight or sleep outcomes — consistent

with SubbaRao (2023) and Raghavendra Rao (2025) [14], [15]. This finding is noteworthy because it challenges the common assumption that night and rotational shifts are inherently more obesogenic or sleep-disruptive; instead, it suggests that dietary quality and individual lifestyle choices, rather than shift timing per se, may be the more decisive determinants of weight and sleep outcomes in this population. This reinforces the need for wellness strategies that address dietary behavior across all shift categories rather than disproportionately targeting shift workers alone.

Table 2: BMI categorization across shifts ($p = 0.651$, not significant)

BMI Category	Day	Night	Cyclic	Total
Underweight	14	5	12	31
Normal	48	9	28	85
Overweight	32	7	22	61
Obese	12	6	7	25

4.4 Junk Food Consumption and BMI

BMI showed a highly significant association with junk food consumption (mean BMI = 22.91, SD = 4.15; mean junk food score = 3.51, SD = 1.16; $p = 5.8496 \times 10^{-138}$), consistent with Ferraris et al. (2024) [16]. The extremely low p-value reflects an exceptionally robust association within this sample, reinforcing junk food consumption as one of the most consistent and modifiable correlates of elevated BMI identified in this study. This positions cafeteria-level dietary interventions, such as healthier menu redesign and reduced availability of fried and processed snacks, as a potentially higher-yield lever for weight management among MNC employees than adjustments to shift scheduling alone.

V. CONCLUSION

Workplace wellness in MNCs is shaped more by nutrition knowledge gaps and food environment than by shift schedule, given the non-significant association of BMI and sleep with shift type. The pronounced gender gap in nutrition knowledge and the strong BMI-junk food link highlight the need for gender-sensitive nutrition education, healthier cafeteria menus, and better-utilized physical activity facilities to improve employee wellbeing.

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REFERENCES

- [1] Naicker, A., et al. 2021. Workplace cafeteria and other multicomponent interventions to promote healthy eating among adults. *Preventive Medicine Reports*, 22, 101333.
- [2] Melian-Fleitas, L., et al. 2021. Influence of nutrition, food and diet-related interventions in the workplace. *Nutrients*, 13(11), 3945.
- [3] Godevithana, J., et al. 2024. Prevalence and determinants of healthy diet among office workers. *BMC Public Health*, 24(1), 3453.

- [4] Banerjee, P., et al. 2023. Diets, lifestyles and metabolic risk factors among corporate IT employees in South India. *Nutrients*, 15(15), 3404.
- [5] Glympi, A., Chasioti, A., and Balter, K. 2020. Dietary interventions to promote healthy eating among office workers. *Nutrients*, 12(12), 3754.
- [6] Thorndike, A. N., et al. 2019. Workplace cafeteria purchasing and diet quality.
- [7] Subramanian, C. 2013. Google study gets employees to stop eating so many M&Ms. *TIME Newsfeed*.
- [8] Mercury News. 2016. Google workplace food-placement study.
- [9] Shirai, Y., et al. 2024. Cardiometabolic measures of Japanese workers and cafeteria meals. *Public Health Nutrition*, 27(1), e155.
- [10] Ojima, et al. 2018. Dietary intake and dinner timing among shift workers in Japan.
- [11] Mul Fedeles, M., et al. 2024. Circadian rhythms and shift schedules among oil company workers, Argentina.
- [12] O'Brien, W. H. 2015. Utilization of workplace physical activity areas.
- [13] Spronk, I., et al. 2014. Relationship between nutrition knowledge and dietary intake. *British Journal of Nutrition*, 111(10), 1713-1726.
- [14] SubbaRao, M. 2023. Diets, lifestyles and metabolic risk factors among corporate IT employees in South India. *Nutrients*, 15(15), 3404.
- [15] Rao, R. 2025. Working hours, dietary habits and lifestyle among MNC professionals.
- [16] Ferraris, C., et al. 2024. Dietary habits and nutritional status among working adults in corporate environments.

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