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Dietary Pattern and Nutritional Status of Nurses in Nepal and Its Implication: A Case Study

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Abstract

Introduction: This paper aims to assess the dietary pattern and nutritional status among nurses in Nepal. The primary responsibility of nurses is to provide patient care in the clinical sector. Nursing is a profession; their duty is as hard as they work. Therefore, they faced both physical and mental challenges in maintaining good health. Their dietary pattern affects their nutritional status, which is linked to their profession. Inadequate nutrition results in weakness, slower reaction times, and diminished work efficiency. **Methods:** The quantitative data were collected among 114 nurses as respondents in Nepal Cancer Hospital and Research Centre of Lalitpur, Nepal, through a structured questionnaire. The secondary literature was also analyzed. Both descriptive and inferential statistics were used to analyze the data. **Findings:** Nearly half of the respondents had a higher BMI value, as 24.6% are overweight, 10.5% obese, and 5.3% underweight. Among the 114 participants, 109 reported as 95.6% reported no physiological change. The respondents who were aged 35 years and above had a higher BMI, 58.7% there is a statistically significant difference ($p<0.001$) between dietary patterns and nutritional status.

Keywords: Nursing staff, duty hours, dietary pattern, nutritional status

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Introduction

Nursing is a profession that encompasses both autonomous and collaborative care of individuals across all ages, families, groups, and communities, whether sick or healthy, and in a variety of situations. It encompasses the promotion of health, prevention of illness, and compassionate care for those who are ill, disabled, or dying (WHO, 2025). In this scenario, nurses play a vital and multifaceted role in the healthcare system, often serving as the backbone of patient care and the unsung heroes in both healthcare facilities and emergency response situations.

Nursing is a hard-working profession, as nurses work weekends, holidays, and irregular shifts. Due to long working hours and job-related exhaustion, nurses often struggle to manage personal needs, such as preparing nutritious meals. Nurses in Nepal are confronted with persistent understaffing, gender-based discrimination, and interprofessional hierarchies that diminish their roles. The COVID-19 pandemic has further revealed these vulnerabilities, as nurses have had to endure perilous workloads and societal stigma (Prasa, 2025). Nurses frequently endure extended shifts, care for numerous patients, and navigate high-stress environments.

Nurses play a crucial role in enhancing global health systems; however, they encounter significant shortages, excessive workloads, and insufficient support. (WHO, 2020). Moreover, nurses face professional and personal stressors and challenges, which can hinder their ability to maintain a healthy life and eating habits. Both being underweight and being overweight are linked to decreased productivity. Therefore unable to engage in regular physical activity, along with their regular duties (Reed, 2014). Nurses covered various patient care segments of the healthcare workforce and were directly involved. They were highly trained and dedicated to supporting the health of others, but they often overlooked their own well-being. The study carried out by Katyal indicates that nurses working in public hospitals experience higher levels of physical and mental stress compared to their counterparts in private healthcare settings (Katyal, 2013).

The shift duty refers to work that occurs outside the traditional daytime hours, typically considered to be between 6:00 AM and 6:00 PM.

This practice is common worldwide. In the United States, around 15% of full-time employees work shifts across various industries, while in Europe, the percentage rises to 20%. In China, the number increases to 36%, and in Turkey, 8% of the workforce is engaged in shift work. The shift duty is linked to several health, social, and security challenges, which may be attributed to disruptions in biological rhythms and unfavorable working conditions (Wickwire et al., 2017). In the healthcare system, nurses serve as role models in patient care, providing compassionate, continuous, and comprehensive support. Therefore, it is essential to assess their dietary patterns and nutritional status, as these factors significantly influence their overall well-being and work performance. A nurse's good health is associated with the capacity to deliver effective and high-quality care (Davies, 2020). These problems negatively impact nurses' health and mental well-being, potentially resulting in a decline in the quality of patient care, as fatigued nurses may find it challenging to sustain optimal performance.

The performance is closely linked to the workload and the surrounding environment. Nurses are required to work in shifts, which may include both night and day duties. Night shift rotations are a common aspect of the nursing profession, which is predominantly composed of women and characterized by a demanding work environment often associated with high levels of stress and fatigue. The Shift healthcare professionals were significantly less likely to eat regular meals and consumed more convenience/empty-calorie foods (Wolska et al., 2022). The extended working hours/night shifts as predictors of exhaustion and it effects on well-being and appetite/sleep, but does not include precise nutritional intake information (Shah et al., 2024).

This study fills the gap by assessing nurses' nutritional status and its implications on their duty or performance. The major objective of this study is to assess the dietary patterns and the nutritional status of nurses working in NCHRC Lalitpur, Nepal. The related material was extracted from journals, books, unpublished dissertations, and reports.

Methods

The quantitative study used a structured questionnaire. A cross-sectional study was held from March 25 to April 25, 2023, among 114 nurses in Nepal Cancer Hospital and Research Center, Lalitpur, Nepal. SPSS (version) was used to code and analyze data. Nurses working for less than 6 months, who are on leave during data collection and refused to respond, are excluded from the study. Dietary pattern is an independent variable, and nutritional status is a dependent variable. Both descriptive and inferential statistics were adopted to data analysis. Correlation analysis is used to see the relationship between nutritional status and dietary patterns.

Literature Review: Nursing Duty Shift and Its Impact on Health

The nurses' shift allocations typically account for 30% - 50% of their 24-hour workday. This raises the possibility that nurses will disregard their health, which could affect their physical and mental well-being as well as their productivity at work (Flaubert, 2021). Workplace culture can significantly contribute to nurses' healthy eating habits by involving managers and all employees to promote change and boost enthusiasm, making sure that nutritious food is available in the health facility. Fast food at a reasonable price, increasing budget and resources through partners for gyms or wellness facilities, and businesses to provide benefits to staff; involving dietitians and experienced success models as initiatives; ensuring ongoing support from coworkers; reducing staff stress and workload; and providing standard time for breaks (Sajwani et al., 2024).

The practice of working on shift duty was developed to offer continuous service at any time within 24 hours. People who work shifts are compelled to carry out essential tasks like eating and working during the dark hours of the day, which they would normally do during the day, according to their biological cycles. In other words, working the night shift causes the healthcare worker to sleep during the day, which throws off their biological rhythm. It alters their sleeping and dietary patterns. Cancer, obesity, and metabolic syndrome were just a few of the non-communicable

diseases that arise when the circadian rhythm is disturbed (Varli & Bilici, 2016).

Food preferences have been demonstrated to be impacted by mood disorders, including burnout, stress, anxiety, and depression. It is believed that shift duty workers' dietary preferences shift as a result of mood disorders and sleep deprivation. Changes in nutritional intake may also result from inadequate and restricted food choices, as well as brief rest periods during shift duty work (Kanak et al., 2024). The capacity, effectiveness, and well-being of medical personnel have a direct impact on the safety and quality of healthcare services (Souza et al., 2019).

Nursing staff who work rotating shifts may have an impact on their overall health, including nutrition. Among them, altered eating patterns were commonly observed starting the shift duty. These alterations include an impact on the prevalence of obesity, unhealthy eating patterns, and insufficient exercise. Additionally, nurses who work shifts have increased their consumption of fast, fatty foods, sweets, and other unhealthy foods. Nurses who work night shifts typically suffer from fatigue, lack of sleep, and difficulty recuperating between shifts (Gifkins et al., 2018; Shrivastava et al., 2024)

Even one night of insufficient sleep can lead to metabolic imbalance and weight gain because it makes you need to eat more to make up for lost energy and sleep. A 27.5% of night shift nurses had a BMI of greater than 30 kg/m2, according to Huth et al Marqueze et al. also noted that working nights was linked to more weight gain than working days (Costa, 2010).

Malnutrition significantly affects a person's productivity, health, and education, which affects the development of the nation, too. The problem of malnutrition has drawn a lot of critical attention in India because research indicates that over 50% of adolescent girls are underweight in our nation, 23% of adult females are undernourished, and 22% are obese. Other studies that demonstrate that the prevalence of under-nutrition in people aged 10 to 24 range from 56.4 to 68.5% further corroborate this finding. The issue of chronic diseases in young adults has been made worse by poor lifestyle choices and inadequate nutrition (Kalikotay et al, 2024; Hadaye et al., 2019; Stanulewicz et al., 2019).

Results and Findings

Table 1 presents the socio-demographic characteristics of the nurses who participated in the study. All respondents were female. The age of the participants ranged between 21 and 46 years, with a mean age of 29.2 years. The majority (39.5%) of the respondents belonged to the 25–35 years age group, followed by 22.8% who were younger than 25 years. The remaining respondents were over 35 years of age.

Table 1: Profile of the Respondents

Socio-demographic characteristics	Frequency (%)
Gender	
Female	114 (100)
Age	
Less than 25 years	26 (22.8)
25-35 years	45 (39.5)
36- 46 years	43 (37.7)
Marital Status	
Married	44 (38.6)
Unmarried	58 (50.9)
Divorced	12 (10.5)
Level of Education	
PCL	43 (37.7)
Bachelor	66 (57.9)
Masters	5 (4.4)
Part-timeJob	
Yes	7 (6.1)
No	107 (93.9)
Living Settings	
Nuclear	35 (30.7)
Extended	16 (14.0)
Alone	7 (6.1)
Hostel	10 (8.8)

Room Sharing	46 (40.4)
Salary Scale	
>15000- 30000	66 (57.9)
>31000- 44000	44 (38.6)
>45000	4 (3.5)
Total	114 (100)

Source: Field Survey, 2024

Out of the 114 respondents, 44 (38.6%) were married, 58 (50.9%) were unmarried, and 12 (10.5%) were divorced. In terms of religion, the majority of the respondents, 88 (77.2%), belonged to Hinduism, followed by 15 (13.2%) Buddhists, and 11 (9.6%) Christians. In terms of educational background, more than half of the respondents (57.9%) had completed a Bachelor's degree. Additionally, 43 (37.7%) had completed the Proficiency Certificate Level (PCL), and only 5 (4.4%) had attained a Master's degree. In addition, 7 of the respondents (6.1%) were engaged in a part-time job, while the majority, 107 (93.9%), were in a single hospital. Regarding living arrangements, 35 (30.7%) of the respondents lived in a nuclear family, and 16 (14.0%) lived in an extended family; the highest proportion, 46 (40.4%), stayed in a shared room. Additionally, 10 (8.8%) lived in hostels, and a small number, 7 (6.1%), lived alone.

Table 2: Dietary Pattern and Food Frequency

Food pattern	**Frequency (%)**
Vegetarian	17 (14.9)
Non- vegetarian	97 (85.1)
Food frequency per day	
Up to 3 times a day	84 (73.7)
Up to 4 times a day	25 (21.9)
Up to 5 times a day	5 (4.4)
Do you skip any of the meals?	
Yes	65 (57.0)
No	49 (43.0)

Source: Field survey, 2024

Table 2 demonstrates the dietary patterns of the respondents. Among them, 97 (85.1%) of the respondents were non-vegetarian, while 17 (14.9%) followed a vegetarian diet. The majority of nurses, 84 (73.7%), reported having three meals a day. Additionally, 25 (21.9%) consumed four meals per day, and 5 (4.4%) had five meals a day. During the duty hour 65 (57.0%) of the respondents skipped meals during the day, whereas 49 (43.0%) did not skip any meals.

The analysis of the food frequency of the nurses. From the table, we can see that 54 (47.4%) of the nurses consume cereals 2-3 times per day, while 2.6% of them consume them 4-5 times per day. Only 1 nurse consumes cereals 2- 4 per week. Similarly, 6 (5.3%) of them consume it 5-6 times per week. 1 nurse (0.9%) consumes cereals never or less than once/month. Likewise, we can also see that 38 (33.3%) of them consume animal protein 2-3 times per day, while 7 (6.1%) of them consume it 4-5 times per day

Table 3: Consumption of Convenience Food

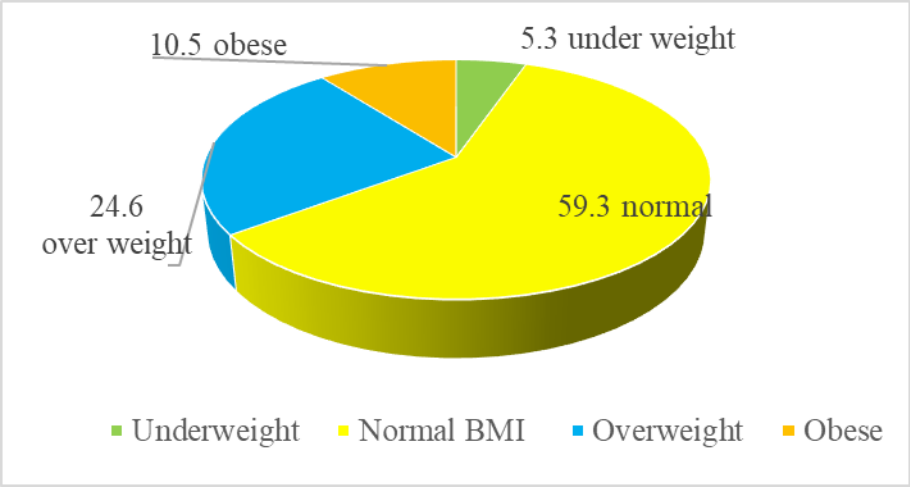
Convenience food	Amount	Frequency (%)
Potato chips and noodles	1 packet regular	22 (23.91)
Instant noodles and soft	1 bowl and one	17 (18.48)
Pasta/Chowmein	1 plate usually	4 (18.18)
Momo/burger	1 plate	6 (27.27)
Burgers	1	4(18.18)
Pizza	Half pizza	4 (18.18)
Momo	1 plate	4(18.18)

Source: Field survey, 2024

Table 3 shows that the majority of respondents (57.6%) preferred fruits and vegetables as healthy food choices. This was followed by a preference for convenience foods such as potato chips, instant noodles, and soft drinks. Additionally, the table illustrates patterns of fast-food consumption, which align with findings from previous research, indicating that respondents commonly preferred items such as chowmein, pasta,

burgers, and pizza. Similarly, the study carried out by Migdanis et al (2024) showed that the consumption of sweets and processed lunch meats was more frequent during shift hours than during the day, indicating a relationship between timing and food choice alterations.

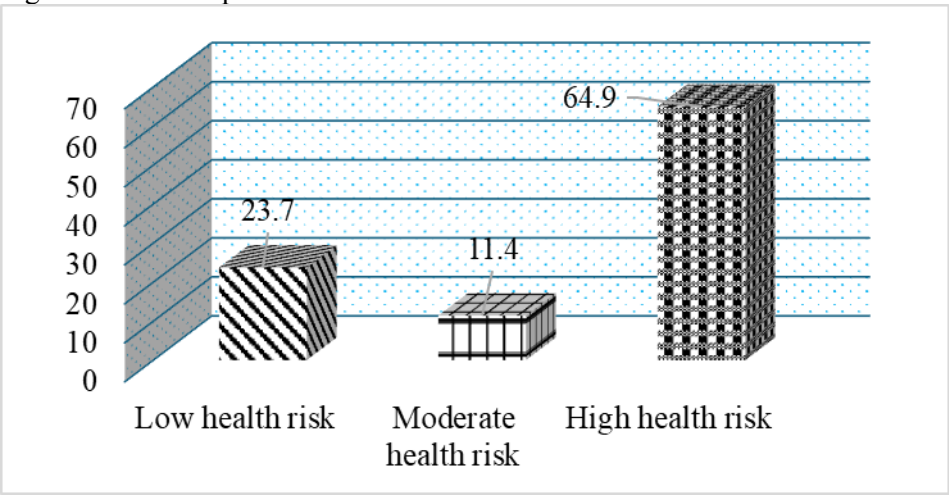
Figure 1: Nutritional Status of the Respondents



Source: Field survey, 2024

Figure 1 shows the anthropometric measurements with BMI and waist-to-hip ratio. The majority, 59.3%, have a Normal BMI, but in some respondents the waist-to-hip ratio is different: 64.9% are at high risk, 11.4% are at moderate risk, and 23.7% are at lower risk.

Figure 2: Waist-Hip Ratio and Risk Factor



Source: Field survey, 2024

A little less than half of the respondents, which is 24.6% were overweight, 10.5% were obese, and 5.3% were underweight. Overweight and obese respondents have a higher BMI compared to the reference value.

Table 4: Relation between Dietary Pattern and Nutritional Status

Type of food pattern	Nutritional Status		p-value
	Normal	Over and Under	
Vegetarian	15 (22.1)	2 (4.3)	**0.05***
Non-vegetarian	53 (77.9)	44 (95.7)	

(p=0.05)

Table 4 presents an analysis of the association between dietary behaviors and BMI status, where dietary factors such as type of dietary pattern, number of food frequencies per day, tendency to skip meals, and food preferences were examined as independent variables to BMI status.

Table 5: Relation between Waist-to-Hip Ratio and BMI status, n=114

Waist-hip ratio	BMI Status			
	Underweight	Normal BMI	Overweight	Obese (%)
Low risk	1 (16.7)	19 (27.9)	7 (25)	0 (0)
Moderate	0 (0)	6 (18.8)	6 (21.4)	1 (8.3)
High risk	5 (83.3)	43 (63.2)	15 (53.6)	11 (91.7)

Source: Field survey, 2024

The association between dietary behavior and BMI status was analyzed, where the types of food pattern, number of meals per day, missing meal tendency, and food preference were analyzed as dependent variables. The variables like food pattern and Convenience food preference were significantly associated with the BMI status, with p values of 0.005 and 0.059, respectively. In the food pattern of those who consumed more non-vegetarian food, 95.7% are more prone to abnormal BMI.

Discussion and Conclusion

For the nutritional assessment, the underweight, overweight, and obese categories were categorized, and underweight and overweight were considered abnormal or unhealthy weights. Table 1 shows the association between dietary patterns and nutritional status. In the age category, the majority of respondents had abnormal BMI in the more than 35 years' age category, 58.7%, and this variable was statistically significant at $p<0.001$. Similarly, in the working position, the senior staff (58.7%) had more abnormal BMI as compared to junior staff, and a significant association was observed with BMI status (0.046).

The work duration hasn't been found significant with BMI status, where almost the same percentage of respondents have normal (70.6) and abnormal BMI (73.9). Another variable, the working nature, was found statistically significant (0.030), where regular duty workers had a normal BMI weight compared to shift-wise duty work, with nurses.

Additionally, marital status was found to be significantly associated ($p=0.006$) with the dependent variable, where the married woman (54.3%) was more prone to abnormal BMI, overweight, and obesity as analyzed via BMI status.

The majority, 94.7% of respondents, prefer homemade food, and they also prefer their fast food, 75.4%. In Convenience food preference, 39.5% prefer Convenience food over normal food. The majority, 80.7% of respondents, prefer to consume Convenience food, and some prefer fast food too. The fast food, such as pasta, momo, chowmein, burger, was preferred mostly, and in Convenience food, chips, noodles, and soft drinks were preferred on an off day.

Abnormal BMI was significantly correlated with age (above 35 years), marital status, working position, and type of work ($p < 0.05$), suggesting that married women, shift workers, and senior staff were at higher risk. On the other hand, given the same percentages of normal and abnormal BMI, there was no significant correlation between job length and BMI. A high intake of fast and convenience foods, such as momo, chowmein, chips, and soft drinks, indicates a dual dietary pattern that may contribute to the rising incidence of excessive BMI, despite a strong preference for home-cooked meals.

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