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The Effect of Night Shifts on Nurses' Health and Well-Being in Itanagar, Arunachal Pradesh

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Abstract

Objective: *The objective of this study was to analyze the effect of night shift work on nurses' health and well-being.* ***Methods:*** *100 nurses in all were chosen at random from various hospital located in Itanagar. Data was collected from night shift working nurses by self-administered questionnaire through personal interview method. Data was used to gather information on socio- demographic, anthropometric measurements, professional, physical activity, food habits and intakes were collected. To study the detrimental impact of night shift employment on the health and wellbeing descriptive frequency and correlation were used.* ***Results:*** *One hundred nurses in all, the majority of them had one or more health issues, digestive problems includes- disturbed appetite (60%), heartburn or stomach-ache (71%), feeling nausea/ dizziness (75%), difficulty in digestion (72%) and suffer from constipation (52%). Cardiovascular problems of the respondents it was found that out of 100 respondents (16%) workers reported that they are on their high blood pressure or cardiac problems and chronic chest disorder (6%) followed by (45%) workers were low blood pressure. About 23% of nurses regularly skip meals, followed by 52% of nurses who did so once or twice, and the majority of nurses did not eat at set times. The results showed that 72% of nurses often ate fast food; only 8% of nurses took home-cooked meals with them for dinner. During night shifts, chips, cookies, sweets, and were the most popular munchies.* ***Conclusion:*** *This study demonstrated that nurses working nights have bad eating habits that cause their diets to be unbalanced. They eat less nutrient-dense foods but a greater number of meals that are rich in calories. They also rarely engage in any sort of exercise outdoors from what they do for a living and frequently prefer to eat snacks rather than full meals. The hospital's nurses need to get nutritional hygiene counseling, and night shift food service needs to be enhanced.*

Keywords: *Night shift work, Health status, Physical activity, Nurses*

1. Introduction

Night shift work is common in certain profession areas, such as healthcare facilities, sales and travel. Since certain service businesses, like fast food restaurants and convenience stores, now offer 24-hour service, the employees who work there must work in shifts.

The body's biological clock, or circadian rhythm, regulates the release of several hormones and enzymes that control daily physiological and psychological processes. The majority of the time, work takes place during the day, and rest and sleep occur at night. The resulting circadian dysrhythmias have a detrimental effect on one's health and social well-being when this natural rhythm is distorted, as it is when a person works a night shift and must stay awake at night while sleeping during the day. The body's temperature, digestion, heart rate, and blood pressure, among many other bodily processes, change during the day.

Sleep deprivation has the biggest effect on human health. Without sleep, which is a functioning process, we could not survive. Due to the continual commotion of the waking world around us, one cannot sleep for long enough during the day or as peacefully as we do at night. Thus, the shift worker is less rested and experiences chronic weariness, which causes him to become agitated and listless while at work. To perform properly, a person needs to get enough physical, mental, and emotional rest.

Night shift work can have an adverse effect on health. Numerous studies have demonstrated a causal link between night work and heart disease, lipid profile changes, weight increase, and metabolic syndrome. Working late has a negative impact on one's health since it throws off circadian cycles and compromises cognitive function, which leads to lack of energy, sleep issues, and digestive issues. These elements can contribute to weight gain, obesity, heart disease, metabolic disorders, type 2 diabetes, and breast cancer. Overweight and obesity are possible consequences of night work, which is linked to an increase in BMI. A rise in BMI, waist circumference, and hip circumference are all highly correlated with cumulative night shift work. Excessive calorie consumption and a lack of physical activity at night can contribute to the weight gain that is associated with night work. For instance, night shift nurses tend to eat more snacks between meals, choose foods high in fat and sugar, and refrain from engaging in any physical exercise outside of work due to exhaustion brought on by their jobs. A buildup of subcutaneous fat and consequent gain in bodyweight can occur as a result of the nighttime shift nurses' frequent consumption of meals high in sugar and fat and their lack of exercise [9].

Dietary behavior can be influenced by sociodemographic criteria such as age and gender, and by occupational characteristics such as experience and workload. The work system has implications for lifestyle and health. Deregulation of physiological rhythm phases and irregular mealtimes are two potential detrimental effects of night shift. It contributes to the emergence of digestive issues, which then results in the development of disorders of the digestive system, sleeps disorders, neuropsychiatric disorders, an elevated risk of obesity, and impaired glucose tolerance [12]. As far as we are aware, there hasn't been any research done on the detrimental impact of night shift employment on the health and wellbeing in Itanagar. This study was carried out to assess the effects of night shift work on the health of Itanagar nurses and to investigate any potential links between night shift work, diet, and an increase in BMI.

2. Materials And Methods

Participant's selection and recruitment

The present study was conducted in various hospitals located in Itanagar, Arunachal Pradesh. The sample consisted of 100 nurses between the age group of 20 to more than 50 years, working as night shifts. The subjects were 93 female nurses and 7 male nurses as there were only few male nurses. Nurses were asked to fill in a questionnaire during the survey. Participants were recruited from seven medical units: emergency department, intensive care unit, medical, surgical, obstetrics & gynecology, pediatrics, and other. The investigator briefed each chosen nurse on the goal and significance of the research study and requested for their cooperation.

Data collection

Data was collected from night shift working nurses by self-administered questionnaire through personal interview method. Personal information form with closed- ended questions was designed by the authors to obtain information about Sociodemographic data, including details on participants' gender, age, height, weight, BMI, level of education, working years, physical activity, smoking, consumption of alcohol, and whether or not they took sleep aids, duration of sleep after a night shift, number of nights worked in the previous year, number and type of meals consumed, food habits, and more with a focus on diet and lifestyle, including typical snacks while working nights, exercise information, how often they exercise, and other relevant data, are collected. Data was immediately transformed into a Google sheet after the results and data collecting were complete. As a result, it was possible to evaluate and analyze all the results in a single spreadsheet.

Statistical Analysis

The data obtained were analyzed using the IBM SPSS Version 29. We first performed a descriptive statistical analysis to evaluate frequency and percentage calculations for categorical variables and mean ± standard deviation (SD) calculations for continuous variables. Correlation analyses (Pearson correlation coefficients) were carried out to assess the relationship between BMI, smoking habits, food habits, health status and physical activity. The primary factors that are related to the night shift nurses' health and welfare were to be found through this analysis.

3. Results and Discussion

Demographic profile of the respondents

One hundred nurses in all took part in the survey. The participant's demographic characteristics are as shown in Table 1. Age distribution of respondents revealed that 98% and 2% of nurses were belonged to 20-30years and 30-40 years respectively. Most participants were females 93% (93/100) and 7%

(7/100) were males and 79% (79/100) were unmarried. In addition, most of the nurses had either a bachelor's degree 33% (33/100) or a diploma 31% (31/100) with 73% (73/100) of the individuals who participated were staff nurses, and 72% (72/100) had one to three years of work experience. 34 out of 100 individuals, or 34%, were employed in the medical division. A nurse may work the night shift for a week in a row if they participate in regular night shift work, which was indicated by 100% of the nurses. Additionally, only 46% (46/100) of the nurses stated that they enjoyed working nights while the remaining 54% (54/100) stated that they disliked it. 33% (33/100) of respondents had worked 1–5 nights a week in the year before the study.

Table 1: Profile of the respondents' demographics

Variables	Categories	Frequency (n=100)	Proportion (%)
Gender	Male	7	7%
	Female	93	93%
Age Group	20-30	98	98%
	30-40	2	2%
	40-50	0	0
	>50	0	0
Education	Graduate	33	33%
	Post graduate	29	29%
	PhD	7	7%
	Diploma	31	31%
Marital Status	Single	79	79%
	Married	19	19%
	Divorced	2	2%
Work Experience	1-3	72	72%
	4-6	18	18%
	7-10	4	4%
	>10	6	6%
Department	Emergency	13	13%
	Intensive care unit	16	16%
	Surgical	16	16%
	Medical	34	34%
	Obstetrics & Gynaecology	13	13%
	Paediatrics	8	8%
	Others	0	0
Night Shift Pattern	Rotating	100	100%
	Fixed	0	0
Likes night shift work	Yes	46	46%
	No	54	54%
Night shifts done in the past one year (weeks)	1-5	33	33%
	6-10	9	9%
	11-20	8	8%
	I cannot remember	50	50%

Nutritional Anthropometry

An anthropometer with a precision of 0.1 cm was used to measure the height. The weight in kilograms was determined using a portable platform weighing balance. Without assistance, wearing comfortable attire, and without shoes, the subjects stood while bearing the weight. By using the formula defined as the ratio of weight in kg to height in square meters, the anthropometric data was further used to compute BMI. Table 2 shows that average height of females was 159.48 ± 7. 85, the average weight was 52.13 ± 7. 51. The average BMI level is 20.56 ± 2.69.

Table 2: Average nutritional status of the nurses

Anthropometric measurements	Mean	Standard deviation
Height	159.48	7.85
Weight	52.13	7.51
BMI	20.56	2.69

In terms of health behaviors, the frequency distribution revealed the sleep hours and exercise habits of the night shift nurses (Table 3). Majority of nurses 68% reported that they sleep only 3-6 hours after night duty. In contrast, compared to nurses working the day or evening shifts, 54% of those on the night shift reported never exercising and having trouble falling asleep at night.

Table 3: Health behaviour of the subject

Particular	Categories	Frequency	Percentage
Number of hours slept after night shift duty	Less than 3 hours	18	18%
	3-6 hours	68	68%
	More than 6 hours	14	14%
How often do you exercise?	Daily	16	16%
	3-4 times in a week	15	15%
	1-2 times in a week	25	25%
	Never	54	44%

Pearson's correlation was conducted to find if there is a relation between BMI, food habits, smoking, health status and physical activity. As indicated in Table 4, the correlation analysis's findings revealed that BMI was negative correlation with smoking (r= -0.081), health status (r= -0.178), and physical activity (r= -0.108), with the correlation being statistical significance (p= 0.01); However, BMI was determined to be positively correlated with eating habits. Smoking and eating habits had a positive correlation (r= 0.267), and this difference was statistically significant. However, there was no statistically significant correlation between eating habits and physical activity or health status (r=0.061 and 0.064, respectively).

Significant correlations were found between smoking and health status (r= 0.139) and physical activity (r= 0.110). In contrast, there was a strong positive correlation between physical activity (r= 0.050) and health status.

Table 4: Correlation between BMI, food habits, smoking, health status and physical activity

Pearson's Correlation	BMI	Food Habits	Smoking	Health status	Physical activity
BMI	1				
Food Habits	0.122	1			
Smoking	-0.081	0.267	1		
Health status	-0.178	0.061	0.139	1	
Physical activity	-0.108	0.064	-0.110	0.050	1
Pearson's correlation coefficient; P<0.01 and P<0.05					

The purpose of this study was to determine how working at nights affected the health and wellbeing of nurses. The findings demonstrated that the 20 per cent of workers due to digestive disorder that requires to take regular meals on medical advice. Disturbed appetite was experienced by majority of worker (60%), suffer from heartburn or stomach-ache (71%), feeling nausea/ dizziness (75%), difficulty in digestion (72%) and suffer from constipation (52%). Cardiovascular problems of the respondents it was found that out of 100 respondents (16%) workers reported that they are on their high blood pressure or cardiac problems and chronic chest disorder (6%) followed by (45%) workers were low blood pressure. Thus, it may be concluded that the digestive and cardiovascular systems were most common in nurses working the night shift. This can be the result of inconsistent eating habits. The digestive difficulties were caused by the night shift workers eating dinner in the middle of the night rather than at the middle of their shift. These results are well supported by [3], who discovered that gastrointestinal ailments are among the most often reported health effects of shift workers. It is predicted that night shift employees

have these issues 2 to 5 times more frequently than people who don't work nights. The majority of study participants worked night shifts, which may be one of the causes of their stomach issues.

This study shown that night shift employment has an impact on eating behaviors and food preferences, because of which nurses tend to have bad eating habits. Comparable to other writers [4] we observed that night shift nurses frequently skipped meals, snacked excessively at night, and consumed foods high in fat and sugar. About 23% of nurses regularly skip meals, followed by 52% of nurses who did so once or twice, and the majority of nurses did not eat at set times. The majority of nurses skipped breakfast after their night shift. They slept right away and didn't eat till they were awake. It was because of this inconsistency in meal time that fewer complete meals were eaten throughout the day and more snacks were consumed at night. As other studies [6], we discovered that high fat; high sugar snacks like chips, cookies, sweets, and cake were the most popular nighttime nibbles. A small percentage of nurses like to nibble on fruits and nuts. As stated by [5], Night shift nurses typically have a craving for extremely fatty and excessive sugar foodstuffs when they are at work, and this is primarily due to stress.

The findings of this survey showed that 72% of nurses often ate fast food; only 8% of nurses took home-cooked meals with them for dinner. The results we obtained are backed up by the findings of a study [1], demonstrated that while they enjoy it, night shift nurses eat more fast food at work. However, this study supports the conclusions of other researchers who found that some night workers consume fast food at night not because they enjoy it but rather because it is the most widely consumed type of meal that is easily available overnight [2, 11]. Additionally, according to our findings, 88% of nurses consumed caffeinated beverages and 12% consumed sodas at night to stay alert. Similar findings were observed by [8] in their investigation. In order to stay up at night, they discovered that night duty nurses tended to consume more stimulant substances like caffeine and smoke. However, our smoking data showed that night shift duty were not the main reason some nurses smoke. In reality, 10 percent of nurses smoke every day out of every 100 nurses.

According to our research, night shift employment makes nurses eat imbalanced diets and engage in less physical exercise. Out of 100 nurses, half (44%) did not engage in any sort of exercise outdoors from what they do for a living since they lacked the time or were exhausted after their night shift. In fact, some authors [7, 10] indicated that nurses working night shifts fail to exercise even when they have the time to do so because of the exhaustion brought on by the type of work they do.

50% of nurses in our survey who were in the highest percentage stated that they gained bodyweight followed by 20% of nurses had reported weight loss and 14% of the nurses reported that during the past year, their weight has fluctuated. It was because of overeating, consuming too much of junks, sleeping pattern, irregular diet and due to workload or night duty. According to [7, 10] had agreed that the bodyweight gain related to night duty was likely the result of high amount of calorie consumption throughout the late hours and a lack of exercise.

We must acknowledge that our study has some limitations. Despite the fact that our sample size was appropriate, there were less male nursing professionals than female ones. As a result, overall study results were given without comparing gender disparities. There was no comparison with other healthcare facilities because the study is monocentric. The current study shows that the physical side effects of working nights would undoubtedly be prevented or at least restricted by nutritional measures. A nutritionist can assist in the implementation of practical techniques that will enable night duty nurses to choose a healthier, better planned healthy diet. To execute these solutions in this situation, it is first required to educate employers about the negative consequences night shift work has on employees' health. Then, in order to evaluate the impact of these treatments and tactics, we can think about keeping track of the nurses for a predetermined period of time. It is vital to address issues including irregular mealtimes, snacking, inactivity, and a lack of meals at night while trying to reduce the likelihood of getting overweight and obese.

4. Conclusion

This study demonstrated that BMI significantly correlated with a number of variables, including smoking, health, and physical activity. All variables were discovered to be associated with one another. Additionally, it was discovered that nurses working nights have bad eating habits that cause their diets to be unbalanced. They eat less nutrient-dense foods but a greater number of meals that are rich in calories. They also rarely engage in any sort of exercise outdoors from what they do for a living and frequently prefer to eat snacks rather than full meals. The hospital's nurses need to get nutritional hygiene counseling, and night shift food service needs to be enhanced.

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