



Impact of Night Shift on Nurse's Physical and Mental Health: A Quantitative Descriptive Cross-sectional Study at MMC Mardan, Khyber Pakhtunkhwa, Pakistan

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ABSTRACT

Introduction: Night shift work is a common requirement in nursing but is associated with significant physical and psychological challenges. This quantitative descriptive cross-sectional study aimed to assess the impact of night shift duties on the physical and mental health of nurses working in MMC Mardan. **Methods:** A total of 142 registered nurses with more than one year of professional experience were selected through convenience sampling. Data were collected using a structured self-administered questionnaire and analyzed using descriptive statistics in SPSS version 26. **Results:** The finding reveals that a considerable proportion of nurses experienced persistent fatigue (35.2%), poor sleep quality (32.4%), headaches (35.2%), digestive issues (33.1%), and musculoskeletal pain (28.2%) after night shifts. In terms of mental health, a majority reported increased stress (30.3%), anxiety (29.6%), and depressive feelings (24.6%). Social and work-related challenges included difficulty balancing personal and professional life (35.2%) and a moderate negative impact on personal relationships (23.9%). Although some nurses reported coping mechanisms and employer support, these measures were not sufficient to counteract the adverse effects. **Conclusions:** The findings indicate that night shift work significantly affects nurses' physical health, emotional well-being, and social functioning, highlighting the need for improved scheduling policies, supportive programs, and preventive strategies to promote nurse health and patient care quality.

INTRODUCTION

The need for continuous care has made shift work an essential part of nursing. Shift work includes any schedule deviating from the traditional day shift, often categorized as fixed morning, evening, or rotating shifts, requiring nurses to work when sleep normally occurs. Numerous studies indicate that shift work negatively affects nurses' physical, psychological, and social well-being. In particular, night shifts are linked to altered body weight, increased risk of breast cancer, and poor sleep quality and duration [1]. Recent research further reveals that night shift workers experience higher levels of anxiety, stress, depression, and poorer social relationships than day workers [2]. This study aims to explore the impact of night shift work on nurses' physical and mental health at MMC Mardan. It is significant because nurses' health directly influences patient care quality and safety. Nursing is a demanding profession requiring high responsibility and frequent night work, which disrupts circadian rhythms and leads to psychological and physiological issues such as

fatigue, sleep disturbance, and occupational injuries [3]. Night shift nurses report poorer sleep quality, affecting physical, mental, and social health, whereas day shift nurses show significantly better health outcomes [4]. Despite these negative effects, some nurses prefer night shifts due to financial incentives, lower workload, or flexibility for personal responsibilities. However, night work can harm health, disturb family life, and reduce social interactions [1]. Studies in Nigeria and elsewhere confirm that night shift workers report higher anxiety, stress, and depression, and poorer social relationships than morning shift nurses [5]. Nurses working permanently at night, especially in psychiatric hospitals, face increased risks of cardiovascular and digestive disorders, breast cancer, burnout, and reduced work performance, which compromises care quality [6].

Globally, nurses experience burnout, anxiety, and depression due to night work and heavy workloads [7]. Night shifts cause fatigue, sleep disorders, and cognitive impairment, affecting nurses' occupational and social



functioning [8]. The prevalence of shift work is widespread—19% of EU workers and 26% of U.S. workers engage in night or rotating shifts—highlighting its global relevance [9]. Night shift workers often suffer from long-term poor sleep quality, even after retirement, leading to persistent health consequences. Coping methods like caffeine use and irregular naps further disturb circadian rhythms [10]. Disrupted sleep patterns and circadian misalignment are major contributors to insomnia, chronic fatigue, and Shift Work Sleep Disorder (SWSD) among nurses. These issues increase risks of medical errors and reduce alertness during work [11]. Night shifts also strain social life and emotional well-being, leading to depressive symptoms linked with poor sleep [12]. Furthermore, insufficient sleep contributes to obesity, diabetes, and cardiovascular diseases, as healthcare workers often sleep less than the recommended 7–9 hours [13]. Finally, night shifts impair cognitive functions such as attention, memory, and decision-making, directly affecting patient care [14].

METHODS

A quantitative descriptive cross-sectional study was conducted to examine the physical and mental health of nurses who perform their duty in the night shift. A random sample of 142 registered nurses (both male and female) who had more than one year of experience and were currently working in different units of MMC Hospital, including general wards, critical care units, and emergency departments, was included. Data were collected by distributing a self-administered structured questionnaire, using a convenience sampling technique. The questionnaire comprised four sections: Demographic Information (gender, qualification, number of night duty per month, unit, marital status, Designation, and length of employment). Physical Health Variables (fatigue, sleep quality, headaches, digestive issues, weight changes, musculoskeletal pain, etc.) Mental and Emotional Well-being Variables (stress, anxiety, depression, mood disturbances, etc.) Social and Work-related Factors (job satisfaction, work-life balance, employer support, coping mechanisms, etc.). The questionnaire used a five-point Likert scale ranging from “Never” to “Always” for physical and mental health items, and from “Not at all” to “Extremely” for social and work-related items. Collected data were coded and entered into Statistical Package for the Social Sciences (SPSS) version 26.0 for analysis. Descriptive statistics such as frequencies and percentages were used to summarize demographic characteristics and responses related to physical, mental, and social health indicators.

RESULTS

A total of 142 nurses took part in this study, which looked at how working night shifts affects their physical and

mental health. Out of them, 35.9% were male and 64.1% were female. In terms of education, 40.1% had a Bachelor of Science in Nursing (BSN), 31.7% had a General Nursing Diploma, and 28.2% were nurses with additional training after getting their RN. Most of the people (53.5%) worked around 10 night shifts each month, and 41.5% worked about 7 night shifts each month. Most participants (59.2%) worked in general wards, while others worked in critical care units (21.1%) and emergency departments (19.7%) over half of the people in the study were married (54.9%), and most of them were staff nurses (92.3%). Of the nurses surveyed, 58.5% had worked for 1 to 4 years, and 26.8% had worked for 5 to 8 years as shown in table 1.

Table 1
Demographic Characteristics of Participants

Variables	Frequency (%)
Gender	
Male	51(35.9%)
Female	91(64.1%)
Professional qualification	
General Nursing Diploma	45 (31.7%)
BSN	57 (40.1%)
POST RN	40 (28.2%)
MSN	0 (0%)
Average number of night shifts duty per month	
7 shifts	59(41.5%)
10 shifts	76(53.5%)
More than 10shift	7 (4.9%)
Unit/ward	
General ward	84 (59.2%)
Critical	30(21.1%)
Emergency	28 (19.7%)
Marital status	
Single	62 (43.7%)
Married	78 (54.9%)
Divorced	2 (1.4%)
Separated	0 (0%)
Designation	
Staff nurse	131 (92.3%)
Nurse Manager	0 (0%)
Nurse Instructor	0 (0%)
others	11 (7.7%)
Length of Employment (years)	
1 to 4 years	83 (58.5%)
5 to 8 years	38 (26.8%)
9 to 12 years	11 (7.7%)
13 to 16 years	10 (7.0%)

According to Table 2 (Part A) working night shifts had significant physical effects on nurses. Most people said they always felt tired after night shifts (35.2%), and poor sleep quality (32.4%). Also, 35.2% reported they had sometimes headaches while 33.1% have digestive problems like indigestion and nausea. Since starting night shifts, 30.3% of people noticed rarely changes in their weight. 28.2% responded that they sometimes experienced muscle and joint pain and 26.1% said they had sometimes trouble going to sleep after working nights. These results show that working night shifts significantly affects physical health and sleep

Table 2 (Part A)
Frequency and Percentage of Physical Health

(Part A) Variables	Never Frequency (%)	Rarely Frequency (%)	Sometimes Frequency (%)	Often Frequency (%)	Always Frequency (%)
I experience fatigue after a night shift.	7(4.9%)	15 (10.4%)	35 (24.6%)	35 (24.4%)	50 (35.2%)
I have poor sleep quality following night shifts.	2 (1.4%)	22 (15.5%)	42 (29.6%)	30 (21.1%)	46 (32.4%)

I experience headaches after working night shifts.	9 (6.3 %)	21 (14.8%)	50 (35.2%)	34 (23.9%)	28 (19.7%)
I experience digestive issues (e.g., indigestion, nausea) after night shifts.	23 (16.2%)	35 (24.6%)	47 (33.1%)	16 (11.3%)	21 (14.8%)
I notice weight changes since starting night shifts	21 (14.8%)	43 (30.3%)	36 (25.4%)	23 (16.2%)	19 (13.4%)
I experience musculoskeletal pain after working night shifts.	9 (6.3%)	21 (14.8%)	40 (28.2%)	34 (23.9%)	38 (26.8%)
I have trouble falling asleep after night shifts.	17 (12.0%)	22 (15.5%)	37 (26.1%)	34 (23.9%)	32 (22.5%)

The emotional and mental effects of working night shifts were significant as shown above Table 2 (Part B). Most nurses said that due to working night shifts, they always felt stressed, and it negatively affected their perception (30.3%). 29.6% sometimes felt anxious after the night

shift. Also, 24.6% said they sometimes felt sad, depressed, or hopeless during or after working long night shifts. The information shows that working night shifts for a long time can lead to high stress, anxiety, and mood problems in nurses.

Table 2 (Part B)

Frequency and Percentage of Mental Health & Emotional Wellbeing

(Part B) Variables	Never Frequency (%)	Rarely Frequency (%)	Sometimes Frequency (%)	Often Frequency (%)	Always Frequency (%)
I feel stressed due to working night shifts.	9 (6.3%)	19 (13.4%)	38 (26.8%)	33 (23.2%)	43 (30.3%)
Working night shifts negatively affects my perceptions.	22 (15.5%)	28 (19.7%)	43 (30.3%)	24 (16.9%)	25 (17.6%)
I feel anxious because of working night shifts	19 (13.4%)	27 (19.0%)	42 (29.6%)	22 (15.5%)	32 (22.5%)
Over the past two weeks, I have felt down, depressed, or hopeless due to night shifts.	30 (21.1%)	32 (22.5%)	35 (24.6%)	20 (14.1%)	25 (17.6%)

Night shift work was also found to negatively affect social relationships and job satisfaction. A large number of people, 23.9% said that working night shifts moderately impacted their personal life and relationships. While 33.8% felt their employer supported them somewhat to a lot and were happy with their current work schedule. Also,

35.2% of people said they had trouble managing their work and personal life. While 31.7% tried different ways to cope, like exercising, getting better sleep, and getting support from friends or family, these methods weren't enough to fully reduce the problems caused by working at night.

Table 2 (Part C)

Frequency and Percentage of Social & Work-Related Factors

(Part C) Variables	Not at all Frequency (%)	Slightly Frequency (%)	Moderately Frequency (%)	Very much Frequency (%)	Extremely Frequency (%)
Working night shifts negatively impacts my personal life and relationships.	21 (14.8%)	26 (18.3%)	34 (23.9%)	29 (20.4 %)	32 (22.5%)
I feel supported by my employer in managing night shifts.	22 (15.5%)	30 (21.1%)	48 (33.8%)	32 (22.5%)	10 (7.0%)
I am satisfied with my job despite the night shift schedule.	17 (12.0%)	19 (13.4%)	47 (33.1%)	48 (33.8%)	11 (7.7%)
I am able to balance work and personal life while working night shifts.	9 (6.3%)	28 (19.7%)	50 (35.2%)	42 (29.6%)	13 (9.2%)
I use coping strategies (exercise, diet, sleep, and stress management, social support) to manage the effects of night shifts.	18 (12.7%)	25 (17.6%)	45 (31.7%)	37 (26.1%)	17 (12.0%)

DISCUSSION

The findings of this study indicated that night shift work adversely affects nurses' physical, mental, and social well-being at MMC Mardan. Most of the people who answered said they felt tired, had trouble sleeping, had headaches, and had pain in their muscles and joints after working night shifts. These findings align with prior research demonstrating that night shift employment disrupts circadian rhythms and sleep-wake cycles, resulting in physiological disturbances including fatigue, sleep deprivation, and gastrointestinal discomfort [15], [16]. Research has demonstrated that prolonged exposure to irregular working hours leads to metabolic disorders in nurses [17].

In this study, the most common physical symptoms were poor sleep and persistent fatigue. This aligns with the findings [18], who emphasized that night shift nurses

experience reduced sleep duration and poorer sleep efficiency compared to day shift nurses. Disrupted sleep patterns interfere with the recovery process, leading to cumulative sleep debt and increased risk of cardiovascular and digestive issues [19]. The high rate of musculoskeletal pain and headaches reported in this study may also be attributed to prolonged standing, awkward postures, and irregular rest periods during night shifts, as supported by research from [7].

Regarding mental health, the study found that a considerable number of nurses frequently felt stressed, anxious, and depressed as a result of night shift work. These findings are consistent with previous research that identified shift work as a major contributor to psychological distress and burnout in nurses [20]. In particular, poor sleep quality has been strongly associated with mood disturbances and cognitive decline [21]. The

results of the present study are also comparable with those of [22], [23], who found that nurses working rotating or permanent night shifts reported higher levels of anxiety and depressive symptoms compared to those working day shifts.

Furthermore, this study highlighted the social and work-related consequences of night shift work. Approximately one-fourth of participants reported that night shifts negatively affected their personal relationships and work-life balance. This agrees with the findings of [24], who stated that night shift schedules interfere with family and social life, reducing opportunities for social interaction and causing emotional exhaustion. Although some nurses reported using coping mechanisms such as exercise, diet control, and social support, these strategies were insufficient to fully mitigate the adverse effects of night shift work. This is consistent with research by [25], which found that coping strategies among night shift workers often provide only partial relief unless supported by organizational interventions such as flexible scheduling or psychosocial support programs.

Interestingly, while a portion of the nurses expressed job satisfaction despite the challenges, this may be linked to external motivators such as night shift allowances or reduced daytime workload. Nevertheless, the overall evidence from this and prior studies underscores the urgent need for healthcare administrators to implement policies that minimize the health risks associated with night shift work. These may include limiting consecutive

night shifts, providing adequate rest breaks, and offering counseling or wellness programs aimed at stress reduction and sleep improvement.

In summary, the present study reinforces global evidence that night shift work poses substantial threats to nurses' physical and mental health, social well-being, and overall quality of life. These findings emphasize the importance of organizational awareness and preventive strategies to promote nurses' well-being and ensure the delivery of safe, high-quality patient care.

CONCLUSION

This study concludes that night shift has significant adverse impacts on the physical, mental, and social health of nurses at MMC Mardan. The most common problems reported were chronic fatigue, trouble sleeping, headaches, musculoskeletal pain, stress, anxiety, and depression. Night shift work also made it harder to balance family and work life, which added to the emotional stress. Some coping strategies were used, but they weren't enough to completely lessen the negative effects. These results show how important it is for organizations to have policies that support their employees, such as limiting consecutive night shifts, giving them enough time to rest, improving their support systems, and offering wellness and counseling programs. Improving the working conditions of night shift nurses is essential not only for their personal health but also for maintaining high-quality patient care and ensuring a healthy nursing workforce.

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