

Shift work impact on nursing professionals

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Abstract - Shift work, prevalent in nursing, significantly impacts the health and well-being of nursing professionals. This study examines the multifaceted effects of shift work on nurses, focusing on physical health, mental health, and job performance. A comprehensive review of existing literature and a survey conducted among nursing professionals reveal key findings. The adverse health effects include sleep disorders, cardiovascular issues, and gastrointestinal disturbances. Mental health impacts encompass increased stress levels, burnout, and depression. Furthermore, the irregular work hours detrimentally affect job performance, leading to higher rates of errors and reduced patient care quality. The study underscores the necessity for organizational strategies and policies aimed at mitigating the negative consequences of shift work, thereby improving the overall well-being and efficiency of nursing professionals.

Keyword: Shift work, Impact, nursing professionals

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INTRODUCTION

A combination of rising product and service demand across all industries and the ever-increasing price tags on machinery and production line equipment has led to a remarkable spike in the need for shift workers in recent years. The importance of shift employment has grown due to economic shifts, the rise of 24-hour civilisations, and technical advancements.

According to Körmer et al. (2001), when two or more people, or groups of people, work in succession at the same location, it is called shift work. The same pattern might be performed many times for each worker's shift. Employees who work shifts have two options: either work at the same place at set intervals or follow a more flexible schedule (discontinuous, which includes rotating shift work). The two most common shift lengths in the workforce are eight and twelve hours. There are a few prerequisites, but the 12-hour plan is generally considered better. There should be no pressure on you, and you should be able to relax and enjoy yourself during the 16 hours in between shifts.

The 19th century saw the establishment of India's system of professional nursing education. The concept of public health nursing was created by Christian missionaries and military hospitals in Britain. Initially designed for female health visitors, rural midwives, and maternity aides, the 30-day training program was later extended to include auxiliary nurse midwives (ANMs) and nurse midwives. Not until 1854 did a Madras lying-in hospital begin teaching midwives alongside nurses. A two-year program was developed by the Indian Nursing Council (INC) to train ANMs to

provide basic nursing care, child care, midwifery, and preventative services in rural regions. In 1951, St. Mary's Hospital in Taran-Taran, Punjab was the first of its kind to open to the public. Two institutions offered ANM programs in 1952; by 1962, that number had risen to twenty-three. Healthcare for expectant mothers was primarily the responsibility of ANMs. Tying nursing education to more rigorous university-level academic programs may improve it, according to two commissions led by Drs. S. Radhakrishnan (1949) and Kothari (1964). Two nursing programs were the only ones recognised by the Radhakrishnan Commission while it was in existence. Bachelor of Science degrees in nursing were offered at both the Vellore campus, which was affiliated with the University of Madras, and the Delhi campus, which was tied to Delhi University.

In addition to advising state nursing councils and enforcing standards, the Indian Nursing Council is responsible for developing policies to ensure educational qualification equivalence and reciprocity throughout the Indian states. According to research done in six different Indian states, nursing councils are either directly or indirectly controlled by the administrative bodies of the medical profession that are in charge of health and medical services. The newly-appointed head of the INC is a nurse by training. There is currently a lack of clarity on the responsibilities and tasks of the nursing staff in public sector hospitals. It may be difficult to ascertain one's role in a healthcare setting. The regulations and statutes that apply to nurses differ from one state to the next. Staff nurses have been denied the chance to further their education beyond high

school, which is a major setback for their profession. There are no hard and fast rules that the nursing staff at any given facility is required to follow in order to provide excellent nursing care to patients. It is critical that we all keep in mind that learning is an ongoing process that continues even while we are serving others. Due to a lack of maturity, the nursing staff engages in professional, cultural, and social activities in an unproductive manner.

Today, nurses are often the first responders to situations involving potentially fatal diseases, infections, or acts of aggression by patients seeking mental health treatment or experiencing other forms of gender-based violence. A nurse's well-being must always come first, even while providing selfless care. Factors contributing to job stress include aggressive coworkers, excessive workloads, pressure to engage in unlawful or unethical behaviour, and prejudice towards other employees. There are several factors that contribute to these pressures, including work-life balance, inadequate leadership and internal communication, heavy workloads, unsupportive management, insufficient resources, job insecurity, technology advancements, and a more diverse workforce. For there to be a positive work environment, all rules, regulations, and guidelines should be crafted in a way that helps workers strike a balance between their personal and professional lives.

Researchers have shown that shift workers are more likely to have "impaired health," less sleep overall, and increased weariness, all of which have serious implications for workers' well-being. In addition, studies have shown that shift workers are more likely to have anxiety, depression, gastrointestinal issues, cardiovascular illness, and birth defects. Shift workers, according to Folkard and Tucker (2003), have "disrupted circadian rhythms." Lastly, the effects of shift work on workers may vary depending on characteristics like gender. Shift work is more often demanded of women than males, according to Åkerstedt et al. (2002). They go on to say that rigid work schedules seem to have a more detrimental effect on women than males. In a study that looked at the relationship between flexible work schedules and "productivity, job satisfaction, and work schedule satisfaction," the researchers found that workers reported higher levels of happiness when their schedules allowed them more leeway to cater to both their work and personal lives.

An essential consideration when planning shift work is that actual and ideal work schedules may vary. Schedules that are based on objective data, including actual and expected labour hours, are called objective schedules. Although certain employees may find 12-hour hours or shifts that include day and night more exhausting than others, schedules might also be seen as such. Distributional justice, procedural justice, informational justice, and interpersonal justice are the four types of scheduling justice that Uhde et al. (2020) outlined as relevant in this setting. Components of justice, including process, cultural sensitivity, and method, may make use of subjectivity. It is necessary

to consider both the subjective experiences of the parties concerned and the actual quality of the shift schedule (from an economic or legal aspect), according to Uhde et al. (2020), when assessing various forms of justice and perceived fairness. When looking at the shift work schedules, this will be taken into account later on in the data collection and analysis process, along with the "facts" and the workers' perspectives on their schedules.

METHODOLOGY

Purposive sampling was used in the study using a cross-sectional comparative study design. The sample group consisted of deliberately selected registered nurses from both urban and rural areas who work in government and private institutions. A consistent sample size of 500 respondents was chosen from both public and private hospitals, resulting in a population of $n = 1000$.

The objectives provided the framework for organising the study. Two phases of the research were conducted: first, the general characteristics of the 1000 respondents in the macro sample were ascertained; second, a comprehensive analysis of health indicators was conducted on 200 respondents in the subsample.

The study used interview approaches since it is believed that this is a suitable strategy to proceed quickly and carefully with the information collection. Data were collected from government and commercial hospitals in rural and urban areas as well as from these sites over a period of more than 1.5 years.

A pilot study with fifty participants was conducted to make sure all of the instruments designed for the research work. To prevent data overlap and improve accuracy, modifications were performed.

The macro sample consisted of 500 nurses who were specifically selected and met our inclusion criteria. From the macro sample, respondents for the micro-sample were chosen for a detailed study.

Details on the statistical analysis of data from macro and micro samples are given below. Versions 20 of SPSS Statistics were used for all data analysis. The blood pressure readings of the respondents were statistically correlated with the shift parameters using the Pearson chi square tests.

The pregnancy outcomes of nurses from both sectors were the main focus of the research. The next step was to relate this data to shift parameters using the Pearson chi square test.

RESULT

Details of shift pattern followed by respondents

This section deals with the shift work pattern of respondents followed. It explains the duration of shift, number of shift change per month,

frequency of night shift schedules, their preference and reason for the different type of shift.

Table 4.1: Shift pattern followed by respondents

Duration of shift duty	Government hospital						Private hospital					
	Rural		Urban		Total		Rural		Urban		Total	
	Number	%	Number	Percentage	Number	%	Number	%	Number	%	Number	%
6 - 8 hrs	220	44	246	49.2	466	93.2	234	46.8	244	48.8	478	95.6
>8 hrs	30	6	4	0.8	34	6.8	16	3.2	6	1.2	478	95.6
Total	250	50	250	50	500	100	250	50	250	50	500	100

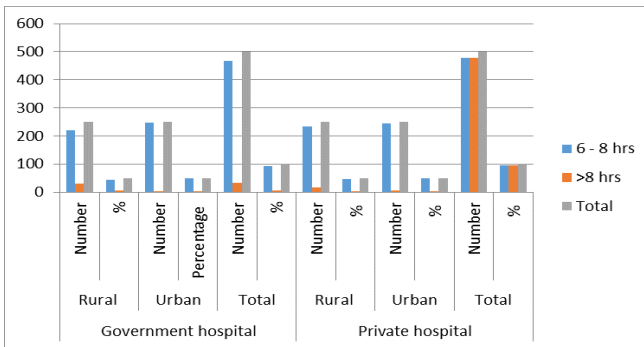


Table 4.1: Shift pattern followed by respondents

The majority of nurses in both government (84%) and commercial (51.2%) hospitals had shift changes more than ten times each month, according to the statistics shown in table 4.8. This was followed by changes in the government (10.4%) and private (30%) sectors occurring four to six times a month. Unwanted consequences for nurses' health result from their frequent shift changes.

Table 4.2 Number of shifts changes taken in a month

No. of shift change per month	Government hospital						Private hospital					
	Rural		Urban		Total		Rural		Urban		Total	
	Number	%	Number	Percentage	Number	%	Number	%	Number	%	Number	%
1-3	22	4.4	4	0.8	26	5.2	18	3.6	44	8.8	62	12.4
4-6	40	8	12	2.4	52	10.4	10	2	140	28	150	30
7-10	0	0	2	0.4	2	0.4	18	3.6	14	2.8	32	6.4
>10	188	14.8	232	46.4	420	84	204	2.4	52	10.4	256	51.2
Total	250	50	250	50	500	100	250	50	250	50	500	100

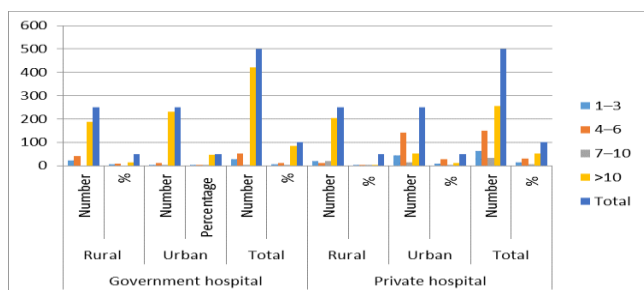


Figure 4.2: Number of shifts changes taken in a month

Government nurses are required by law to work three consecutive nights on a night shift. In this research, all

nurses from government hospitals had three consecutive nights off.

In the case of private hospitals, a large percentage of the nurses (39.2%) worked four consecutive nights, 38% worked five consecutive nights, and 9.2% worked seven consecutive nights. Just 4% of respondents reported sleeping through three consecutive nights. The respondents believed that the 24-hour rest period that nurses and doctors received following each night shift schedule was insufficient. Working more than three consecutive 12-hour shifts is seen as a "unhealthy" shift schedule, according to Jeffrey (2017). He said that allowing employees to choose their shift schedules encouraged structural empowerment and a positive work atmosphere. Accordingly, most private hospital nurses in the current research had "unhealthy" shift patterns.

Table 4.3: Successive night shift days

Successive night shift	Government hospital						Private hospital					
	Rural		Urban		Total		Rural		Urban		Total	
	Number	%	Number	Percentage	Number	%	Number	%	Number	%	Number	%
3 days	250	50	250	50	500	100	0	0	20	4	20	4
4 days	0	0	0	0	0	0	158	31.6	38	7.6	196	39.2
5 days	0	0	0	0	0	0	92	18.4	96	19.2	188	37.6
7days	0	0	0	0	0	0	0	0	96	19.2	96	19.2
Total	250	50	250	50	500	100	250	50	250	50	500	100

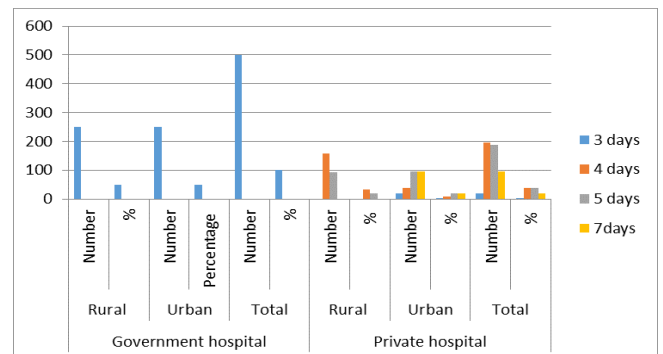


Figure 4.3: Successive night shift days

Health status of the respondents

This part covers a variety of illnesses, treatments, and symptoms experienced in the last six months, as well as a mental health and stress evaluation.

Based on relevant research, a few frequent health issues caused by shift work were chosen (Anbazhagan et.al, 2016; Devadarshini, 2010 and Khammar et.al, 2017). The study's chosen symptoms were adjusted after consultation with medical specialists. Table 4.4 provides details.

Table 4.4: General health problems experienced by respondents

Symptoms	Government hospital			Private hospital		
	Rural	Urban	Total	Rural	Urban	Total
Fatigue	13.6	24.0	37.6	23.2	25.6	48.8
Sever headache	8.4	20.0	28.4	13.6	15.2	28.8
Muscle pain	4.0	2.8	6.8	18.0	22.4	40.4
Rhinitis	5.6	2.4	8.0	18.0	22.4	40.4
Knee pain	20.4	21.2	41.6	26.0	24.8	50.8
low back pain	19.6	26.0	45.6	30.0	30.0	60.0
Acidity/indigestion	4.4	12.4	16.8	9.2	16.0	25.2
Bloating/ excessive gas in stomach	3.2	6.0	9.2	8.4	13.2	21.6
Varicose vein	8.8	12.8	21.6	4.8	5.6	10.4
UTI	1.2	.4	1.6	.4	1.6	2.0

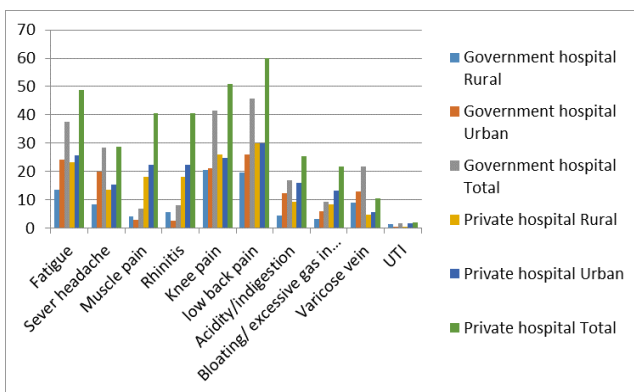


Figure 4.4: General health problems experienced by respondents

The data above shows the range of health issues that respondents had during the previous six months as a result of doing shift work. The majority of respondents with low back pain were in the private (60%) and government (45.6%) sectors. The second most prevalent health issue reported in government (41.6%) and private (50.8%) hospitals was knee discomfort, which came in second. Fatigue accounted for 37.6% of respondents from government hospitals and 48.8% from respondents from private hospitals, making it the third most prevalent health issue.

Mental health of the respondents

One of the most reputable and often used screening tools for identifying and assessing mental health is the General Health Questionnaire (GHQ), created in 1972 by British researcher Goldberg (Romppel et al., 2013). The GHQ assists in determining the respondents' psychological discomfort during the previous several weeks. The general health questionnaire-12 (GHQ12), an adaptation of the Goldberg and Williams (1988) instrument, was also used to evaluate the respondents' mental health state. It is a screening instrument for assessing mental health at the moment. After receiving an expert grade, six assertions were chosen from the original twelve. Based on the scale reliability data, the Cronbach alpha value is 0.80. Each question on the Likert-style scale offered four possible

answers, ranging from far less than usual (1) to better than usual (4). Poor mental health is correlated with higher scores on each dimension.

Elovaini et al. (2010) and colleagues performed a research on nurses to investigate the potential associations between shift work and insecure work contracts and poor workplace comfort, including psychological distress, low job participation, and low work ability using GHQ12. Vinod et al. (2011) carried out a second research to use GHQ to assess psychological stress in a variety of health professions.

The relationship between GHQ and socioeconomic factors was examined. The outcomes are shown in table 4.5.

Table 4.5: GHQ scores of nurses in government sector and their association with socioeconomic variables

Particulars	Category	Rural areas n=250				Urban areas n=250			
		Mean	SD	f/t value	p-value	Mean	SD	f/t value	p-value
Age (years)	25 - 30	17.5	2.3	3.6	<.05°	18.2	3.4	4.07	<.01..
	30 - 35	17.2	2.3			18.4	3.3		
	35 - 40	16.9	2.6			17.4	2.8		
	40 - 45	15.5	3.3			15.2	2.6		
	Total	16.9	2.7			17.5	3.1		
Experience (years)	Upto5	16.6	2.9	0.297	0.83	16.6	2.9	3.6	<.05°
	> 5-10	16.9	2.8			17.9	3.1		
	> 10-15	17.0	3.3			16.9	4.1		
	> 15	17.1	2.0			19.2	2.2		
	Total	16.9	2.7			17.5	3.1		
Marital Status	Married	70.8	10.3	1.6	0.12	73.7	12.7	1.40	0.16
	Unmarried	81.1	9.1			69.9	13.9		
	Total	16.9	2.7			17.5	3.1		
Designation	Head Nurse	17.4	2.0	1.83	0.16	19.2	2.7	2.19	0.12
	Staff Nurse G1/ Senior SN	17.6	2.7			18.0	3.2		
	Staff Nurse G2/ Junior SN	16.6	2.8			17.2	3.1		
	Total	16.9	2.7			17.5	3.1		

Table 4.5 above demonstrates that there was a significant difference in scores between respondents from rural hospitals and respondents from metropolitan areas with regard to age ($p < .05$ and $p < .01$, respectively). According to the scores, the respondents' younger age group (25–30 years old) had greater psychological discomfort. This might be brought on by an unbalanced work-family schedule, an excessive workload, or job discontent. Vinod et al. (2017) observed similar results among health professionals in Bagalkot, India.

CONCLUSION

This study highlights the profound impact of shift work on nursing professionals, emphasizing the urgent need for interventions to address the associated health and performance issues. The findings indicate that shift work is linked to significant physical and mental health challenges, which in turn compromise job performance and patient care quality. To enhance the well-being of nursing staff and ensure optimal patient outcomes, healthcare organizations must implement targeted measures. These may include flexible scheduling, adequate rest periods, health promotion programs, and support systems for stress management. Future research should explore innovative solutions and long-term strategies to mitigate the adverse effects of shift work in the nursing profession.

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