



## Original Article

# An ergonomic evaluation of tasks of healthcare unit personnel in different shifts in General Hospitals in West Bengal

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## Abstract:

The job challenges faced by healthcare unit personnel are psychological, temporal and physically demanding. Studies on psychological stress on nurses are available but unfortunately studies on physiological load or temporal analysis of tasks of nurses or attendants in general hospitals in India have not been reported so far.

The study aims at evaluating the perception of workload in different shifts among healthcare unit personnel and to develop better ergonomic management protocols.

The study population comprised 150 staff nurses and 175 attendants working in three government hospitals in West Bengal, India. The amount of time spent by nurses and attendants performing different tasks were recorded throughout the shifts using an activity analysis chart along with perceived exertion rating and heart rate throughout the shifts.

About 26.8% of the total working time throughout the day was spent in "direct care". In case of general duty attendants 24.4% of the duty time was spent in indirect care. Time spent in different tasks differed by shifts. More leisure time occurred in the night shift compared to the morning and afternoon shifts but duration of shift was longer (11 to 12 hours). Perceived exertion rating of healthcare unit personnel in night shift was more compared to other shifts but physiological response did not reflect that.

There were temporal variations of job demand in healthcare units. So, ergonomic orientation of layouts of departments, arrangement of activities, ergonomic way of keeping the records and use of proper communication system, were recommended reducing the stress of healthcare unit personnel.

**Key Words:** Activity analysis, Shift work, Nurses, General duty attendant, Working heart rate, Perceived exertion ratings.

## Introduction

India is a population intensive developing country and there are significant shortage of healthcare facilities

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and resources [1]. For best utilization of social services, the healthcare units should remain open 24 hours a day, all the days in a year. This means that the personnel working in healthcare units must work in shifts and work on weekends and holidays. Working in healthcare units, places considerable demands on employees, as the job demand of personnel in medical wards are continuously changing according to the patients' needs.

All staff of healthcare units have to respond properly, efficiently and effectively even in unforeseen situations. Even the slightest mistake may cause immense public criticism.

The job challenges faced by healthcare unit personnel are not only psychological (in both the cognitive and emotional sense) but also have a heavy physical component [2]. Sustained high qualitative temporal job demands in nurses caused emotional exhaustion [3]. The psychological work strains of nursing have a differentially greater impact on sleep impairment than physical demands, leading to reduced recovery from work strain between shifts [4,5]. Proper and special organization, distribution and co-operative attitude of healthcare unit personnel are required for a better quality healthcare [6,7]. Time pressure adversely affected patient safety for nurses with a high level of burn out [8]. Tarnow – Mordi et al (2000) found that patients exposed to high ICU work load were more likely to die than those exposed to lower work load [9].

The number of healthcare unit personnel that are in requirement in each ward substantially varies from ward to ward according to the degree of dependency of each patient and the attention time required [10]. In a review of nurse staffing, Spilsbury et al (2011) suggested that nurse staffing in a particular health care unit should consider patient turnover, staffing levels, worker stability and other factors [11]. Erikson et al (2006) conducted a questionnaire study on Norwegian nurses aides and concluded that most work factors were not predictors of the level of psychological distress [12].

Reports from other countries also showed a relationship between job dissatisfaction of nurses due to workload [13,14]. Perceived high job demand has been shown to be associated with job dissatisfaction, physical and mental exhaustion, staff turnover, and job-related illnesses and injuries [15 -17]. A study in the general hospitals of the Netherlands showed that Intensive care unit (ICU) nurses reported significantly higher uncertainty, higher complexity, and higher decision authority than non-ICU nurses. [18]. Again, work characteristics amongst nurses of hospitals and private healthcare units showed that the major differences in practice were in the work organization including “environmental uncertainty” and “decision making authority” [19]. Emotional demand in health-care environments is an important correlating factor for mental health of nurses. This is also supported in studies that have shown a link between job demands, financial strain and depression in US nurses [20].

Ling et al [21] reported that the physical demand of nursing

activities performed in a geriatric rehabilitation ward varied widely over an 8-hour long dayshift, i.e. from low physical demanding activities such as documentation to high demanding such as in transferring a patient alone. Differences in job demands at night [21] and in morning shifts [22] were also reported. There were important cross-national differences in job characteristics, organizational characteristics and wellness - health outcomes [23].

#### **Indian Scenario:**

In India, government aided healthcare units and private healthcare sectors run parallel. Primary healthcare is provided to the rural people from health centres. The secondary stage of governmental healthcare is established in District Hospitals and the last stage is set up with Multi-specialty Hospitals in a capital city. In the government healthcare units, most of the expenses are born by the government. In Indian government hospitals, there are always heavy demands for medical services from the public. Many times healthcare unit personnel have to work without proper infrastructure. The scenario of healthcare is different from that of the studies performed on healthcare unit personnel in other developed countries. Although private healthcare organization set ups maintain the good infrastructure but that are affordable to only a few people.

In government healthcare, doctors, nurses and other staff are recruited by government agencies according to their qualifications. In the present study, two categories of healthcare personnel were studied - the staff nurses and the general duty attendants. The staff nurses have the qualification of graduation in nursing or diploma in nursing and training. Their duties are to provide nursing care to the patients along with maintenance of medical records in the ward. On the other hand, the general duty attendants (nurses' aides) are also recruited by the hospital authority on the basis of the essential qualification having school leaving certificate. Their duties include patient transfer; carry pathological samples, laundry collection, carrying different register, bills, memos to different departments, etc.

Studies on psychological stress on nurses are available but unfortunately studies on physiological load or temporal analysis of tasks of nurses or attendants in general hospitals in India have not been reported so far.

The present study focused on temporal analysis of tasks and then compared the physiological job demand and psychological perception of workload on different shifts by the nurses and general duty attendants in Indian healthcare units which may

help to provide better healthcare management and patient care.

## Methods

The tasks of two categories of the healthcare unit personnel namely "Staff Nurse" (SN) and "General Duty Attendant" (GDA) were analysed. The SN carries out nursing tasks and different ward management jobs, which require specific qualifications and training. The GDAs perform care taking and messenger-type jobs. These two groups are engaged in two types of work schedules i.e. general duty and rotating shift duty. In hospital wards SN and GDAs are engaged in rotating shifts.

**Direct observation:** To know the exact scenario, direct observation was carried out throughout all three types of shifts for one complete cycle.

**Location of Study:** The study was carried out in three multi-speciality government hospitals with very high intake of patients in Kolkata, the capital of the state of West Bengal, India. Apart from the local patients, a large number of referred patients from different district hospitals and rural healthcare units of the state are admitted here. The activity analysis and physiological assessment study were carried out in the wards consisting of patients with chronic illness who do not need constant monitoring or intensive care to avoid any inconvenience of patients and healthcare unit personnel.

**Subjects:** Among the healthcare unit personnel willing to take part voluntarily, a total of 150 SNs and 175 GDAs were randomly enrolled in the study from three different government hospitals of Kolkata. Among them 102 SNs and 121 GDAs completed the study and so, finally they were taken as subjects in full course of study. Before conducting the physiological studies with these subjects, the study procedure was explained clearly and written consent was given.

**Activity analysis:** An ergonomic self reporting activity analysis chart [24] was developed after several trials and used for activity analysis of the tasks of the healthcare unit personnel. A total of 64 SNs and 56 GDAs participated in this part of the study only and the rest did not co-operate.

Based on direct observations, tasks performed by the SNs and GDAs were divided into 19 and 17 types respectively (The descriptions of tasks performed are given in Tables 1 and 2). The amount of time spent in each task by the SNs and GDAs were recorded throughout the shifts.

**Heart rate:** The resting heart rate of each SN and GDA participating in this study was measured just after awaking in the morning. Before the beginning of shifts the SN and GDAs put on a Polar heart rate monitor (S810i, Finland) and recordings were taken throughout the shift. Total 34 SNs and 32 GDAs participated in the study and the rest did not turn up. Heart rate response was divided into eight sub-groups (stated in Table 4 and 5 in result section). Percentages of time spent in each corresponding sub-groups of heart rate were studied all three shifts.

**Perceived exertion rating:** Perceived exertion was noted using Borg's Scale [25] during different shifts. The participants while performing the activity rated subjectively the anticipated exertion.

**Analysis of data:** Descriptive statistics were used to express the data as Mean  $\pm$  SD of the variable and student t-test was used to find out significance ( $p < 0.05$ ).

## Results

### Tasks of SNs

All the task types performed by the SNs were subdivided into 4 groups based on patient care relationship. These were:

**Direct care:** These types of tasks include medical measurements (like recording of body temperature, blood pressure, pulse rate, etc.) preparation of medicine and dispensing to the patients, saline infusion, blood transfusion and transfer of patient from bed to wheel chair.

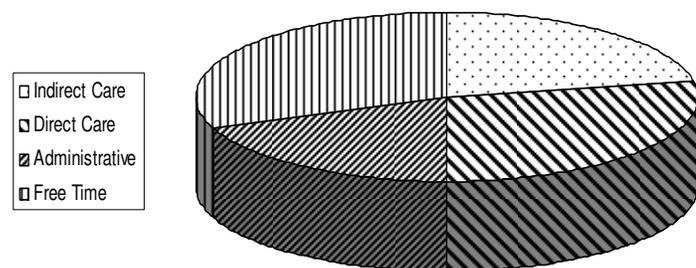
**Indirect care:** These types of task include bed making, discussion with doctor, ward management, etc.

**Administrative:** These types of tasks include maintenance of various registers such as record of admission, discharge, diet, medicine, pathological tests, laundry, etc.

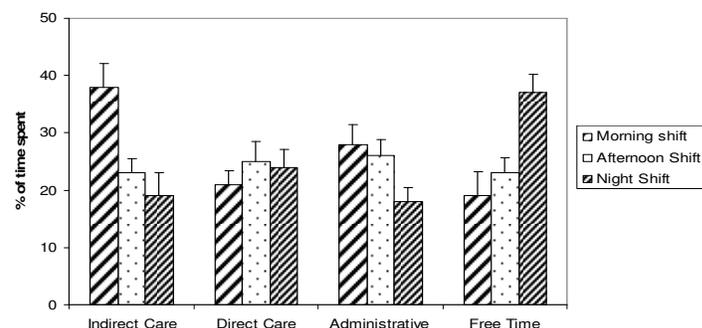
**Free time:** This time constitutes tea and coffee breaks, meal time, rest, etc.

Total time spent in different types of tasks by the SNs throughout 24 hours is presented in Figure 1. It was observed that only 26.8% of the total time is spent by the nurses in direct care throughout the day. Time spent for administrative and indirect care tasks are 21.4% and 25.6% respectively. The time spent in different shifts is given in Figure 2.

**Figure 1. Total time spent in different types of tasks by staff nurse in 24 hours.**



**Figure 2. Activity of analysis of staff nurses in different shifts.**



It may be seen from Figure 2 that the percentage of time spent by the nurses in morning shift in indirect patient care tasks were more than ( $p < 0.05$ ) those of the time spent in other two shifts. This is attributed to the time spent in activities such as discussion and patrol with doctors, bed making and laundry collection and return, etc., are much more in the morning shift (Table 1).

**Tasks of GDAs**

All the tasks performed by the GDAs are divided into three groups:

**Direct care:** These types of jobs include changing of patients' body position, supply of drinks, help in toilet, transportation of patient, dressing, etc.

**Table I Time spent (in percentage) by the nurses in different activities in different shifts.**

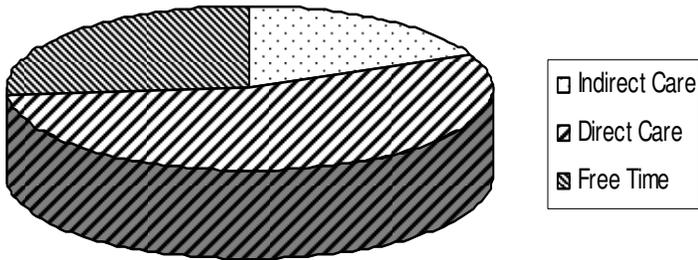
Tasks	Morning Shift (N=31)	Afternoon Shift (N=31)	Night Shift (N=21)
1. Medicine preparation & dispensing to patients	7.5 ±3.22 (0.0-16.7)	6.3±2.80 (4.7-13.3)	6.2±2.34 (3.8-11.4)
2. Medical measurements	5.5±1.81 (0.0-8.3)	6.4±2.38 (0.0-13.1)	6.1±2.33 (1.5-11.4)
3. Drug injection/saline infusion/blood transfusion	6.7±4.02 (0.0-8.31)	6.9±3.41 (0.0-14.8)	7.1±3.63 (0.0-14.1)
4. Blood sampling	3.0±0.95 (0.0-4.2)	2.7±0.49 (0.0-3.6)	1.2±0.71 (0.0-2.8)
5. Body position changing	3.8±0.89 (0.0-5.3)	3.1±0.91 (0.0-4.8)	2.6±1.36 (0.0-5.3)
6. Help in dressing	4.7±1.60 (0.0-6.3)	5.2±1.07 (0.0-7.2)	2.7±0.50 (0.0-3.3)
7. Help in eating/feeding	4.9±1.61 (0.0-6.9)	3.8±1.20 (0.0-5.9)	3.1±0.91 (0.0-4.8)
8. Help in excretion	3.3±1.05 (0.0-5.6)	3.0±1.26 (0.0-5.9)	3.7±2.30 (0.0-9.2)
9. Tube feeding	5.1±0.84 (0.0-5.6)	3.2±1.55 (0.0-4.8)	2.7±1.39 (0.0-4.2)
10. Discussion/patrol with doctor	12.3±4.08 (6.9-23.3)	11.0±3.94 (4.1-21.4)	5.2±2.15 (0.0-9.1)
11. Bed making	7.5±2.71 (0.0-13.7)	5.2±2.53 (0.0-12.3)	4.9±1.70 (0.0-7.6)
12. Laundry collect & return	7.2±2.65 (0.0-13.9)	5.6±1.64 (0.0-8.7)	3.8±1.53 (0.0-6.8)
13. Transporting patient	2.7±0.07 (0.0-2.8)	3.4±0.57 (0.0-3.9)	1.0±0.08 (0.0-2.5)
14. Drink supply	3.3±1.58 (0.0-8.3)	2.8±1.13 (0.0-4.9)	2.5±1.33 (0.0-5.3)
15. Help in bathing	4.3±1.17 (0.0-5.6)	0.0±0.00 (0.0-0.0)	0.0±0.00 (0.0-0.00)
16. Response to call	5.9±2.46 (0.0-12.5)	6.0±1.96 (0.0-9.5)	6.9±2.95 (0.0-12.9)
17. Recording & documentation	14.1±6.14 (0.0-27.6)	11.4±5.88 (4.8-26.7)	9.7±4.00 (4.5-15.9)
18. Discussion with patients' party	8.4±4.35 (0.0-27.2)	11.2±3.45 (3.6-25.0)	4.5±3.93 (0.0-13.9)
19. Miscellaneous	10.1±7.16 (0.0-24.0)	5.1±4.06 (0.0-14.4)	7.1±3.38 (0.0-14.4)

(Values: Mean ± SD; Figures in the parentheses indicate the range)

**Indirect care:** These include laundry collection and return, carrying messages and memos to the respective departments, collecting pathological test reports, etc.

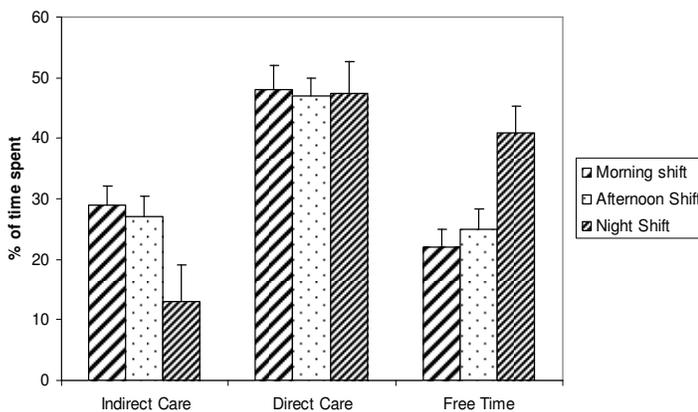
**Free time:** These constitute tea / coffee breaks, preparation of their own meals, meal time, rest hours, etc.

**Figure 3. Total time spent in different types of tasks by general duty attendants in 24 hours.**



Time spent in different types of tasks by the GDAs throughout 24 hours is presented in Figure 3. It was observed that 24.4% of the time spent by the GDAs was in indirect care. Time spent in different tasks differed by shift (Figure 4).

**Figure 4. Activity analysis of general duty attendants in different shifts (values: Mean ± SD).**



From the results, it may be seen that the direct care and the indirect care tasks are slightly greater during morning shifts. A large part of the time (12.8% in the morning shift and 12.3% in afternoon shift) are spent by GDAs in transporting call book for doctors and carrying other information and memos (Table 2).

Table 3 shows the number and duration of breaks of healthcare unit personnel. It can be seen that the average time spent in indirect healthcare is less during the night shift.

**Temporal aspect of job demand:**

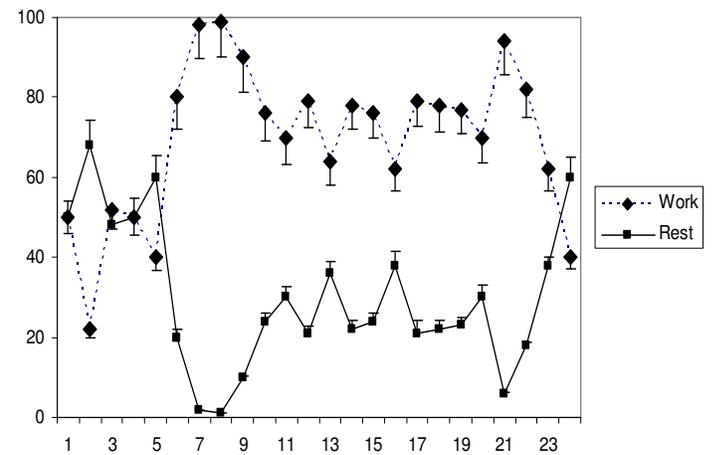
The temporal analysis of percentage of work rest of SNs and GDAs are presented in Figs 5 and 6. The morning shift in healthcare units is from 7:00 to 13:00 hours, evening shift from 13:00 to 20:00 hours and night shift is from 20:00 to 7:00 hours.

The Figures showed that job demand is high in the morning and first two hours of night shift compared to other times.

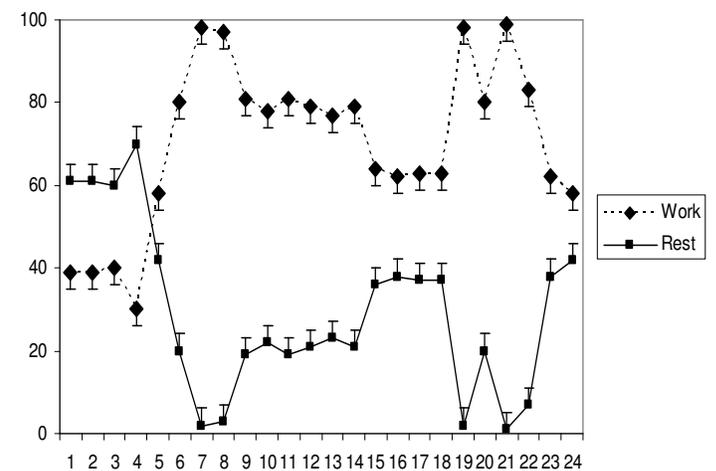
**Physiological work demand:**

Resting heart rate (Mean ± SD) recorded in SNs and GDAs in the morning was 69.4 ± 4.68 beats/ min and 70.6 ± 5.12 beats/ min respectively. The heart rate ranges and the proportion of time spent in each shift by SNs and GDAs are given in table 4 and 5. The tasks of GDAs are more physically demanding than SNs.

**Figure 5. Percentage (%) of time spent in work and rest by staff nurses in different shifts. The Percentage of time is shown on x-axis and hours in 24:00 scale in y-axis.**



**Figure 6. Percentage (%) of time spent in work and rest by general duty attendants in different shifts. The Percentage of time is shown on x-axis and hours in 24:00 scale in y-axis.**



**Discussions**

According to Gadbois, nursing aids (GDAs) were generally subjected to demand of physical work whereas more complex mental activities are demanded from nurses, who are responsible for progress of patients' recovery and must deal with untoward incidents [22]. It was observed that different administrative recordings and documentation tasks like discharge of patients,

**Table II Time spent (in percentage) by the general duty attendants in different activities in different shifts.**

Tasks	Morning Shift (N=30)	Afternoon Shift (N=27)	Night Shift (N=20)
1. Help in saline infusion/blood transfusion	4.7±0.23 (0.0-5.1)	2.7±0.91 (0.0-3.8)	2.1±1.90 (0.0-4.1)
2. Help in Blood sampling	2.4±0.92 (0.0-2.4)	0.0±0.00 (0.0-0.0)	1.7±0.71 (0.0-2.8)
3. Body position changing	3.7±1.59 (0.0-8.3)	4.5±1.92 (0.0-8.4)	3.0±1.42 (0.0-5.3)
4. Help in dressing	5.2±3.83 (0.0-13.3)	4.6±1.90 (0.0-8.3)	2.5±0.50 (0.0-3.0)
5. Help in eating/feeding	5.1±2.66 (0.0-13.9)	5.3±1.95 (0.0-8.4)	4.6±1.87 (0.0-9.1)
6. Help in excretion	5.1±2.34 (0.0-7.2)	6.8±3.41 (0.0-11.9)	8.0±2.71 (0.0-11.4)
7. Help in Tube feeding	2.6±0.84 (0.0-5.6)	2.0±0.80 (0.0-2.8)	0.0±0.00 (0.0-0.0)
8. Call book/instructions carry	12.8±4.88 (4.8-20.8)	12.3±4.23 (7.1-20.2)	6.6±2.97 (3.0-11.4)
9. Bed making	7.5±3.03 (0.0-13.7)	7.5±2.95 (0.0-11.9)	5.5±3.45 (1.5-11.4)
10. Laundry collect & return	7.4±1.81 (0.0-10.0)	7.2±1.58 (0.0-10.7)	5.0±1.74 (0.0-7.6)
11. Transporting patient	12.4±5.64 (0.0-23.7)	9.1±2.41 (0.0-14.3)	4.4±1.35 (0.0-6.1)
12. Drink supply	9.6±3.55 (0.0-18.3)	9.6±3.44 (0.0-15.5)	9.6±2.84 (5.3-15.9)
13. Help in bathing	4.8±1.55 (0.0-8.3)	0.0±0.00 (0.0-0.0)	0.0±0.00 (0.0-0.0)
14. Discussion with patients' party	10.1±4.09 (0.0-14.7)	8.4±3.25 (0.0-16.2)	2.7±0.71 (0.0-3.7)
15. Response to call	7.6±3.158 (0.0-14.7)	8.4±4.26 (2.4-17.9)	11.7±3.82 (5.2-18.9)
16. Recording & documentation	4.4±2.20 (0.0-10.7)	5.6±2.58 (0.0-13.1)	2.3±1.02 (0.0-3.8)
17. Miscellaneous	10.7±4.81 (0.0-19.2)	6.3±1.83 (0.0-9.8)	6.7±3.27 (0.0-10.4)

**Table III Number and duration of breaks of healthcare unit personnel.**

Personnel		Morning shift	Afternoon shift	Night shift
Staff nurse	No. of Breaks	3.36±0.99 (2-6)	3.97±1.22 (2-7)	5.58±1.60 (3-9)
	Duration of breaks (mins)	22.03±9.13 (10-40)	24.83±11.63 (5-80)	48.01±32.03 (5-150)
General duty attendants	No. of Breaks	3.39±1.28 (2-6)	4.07±1.25 (2-7)	5.13±1.93 (3-10)
	Duration of breaks (mins)	24.31±9.19 (5-50)	27.19±12.84 (5-80)	54.59±33.68 (10-140)

maintenance of registers for diet, pathological tests, etc., are more in morning shifts. Some backlog entries of morning shifts are done by the SNs working in afternoon shifts. The main visiting hours were in the afternoon shifts. It was observed that on an average 11.24% of the working time were spent by SNs in afternoon shift to discuss with the patients' party.

In the night shift, there were neither admissions (except the

emergency patients) nor discharge of patients and there are fewer visitors, so administrative tasks are reduced during night shifts. Free time is more specially in wards with non-serious patients in night shift than those of the other two shifts. But the duration of the whole night shift is considerably long (i.e., about 11 to 12 hours). Rogers et al (2004) observed that the risks of making error by staff nurses significantly increased when work

shifts were longer than twelve hours, so the nurses on night shifts can make considerable mistakes while performing their duties in hospitals [26].

The average time spent in indirect healthcare including messenger duties, recording and documentation, bed making is lower during the night shift compared to morning and afternoon shifts. This is mostly due to the reduction of new admission and discharges of the patients except the emergency cases during the night shift. Different medical tests like X-rays, ECG, blood/urine/ stool tests, etc., are not usually rendered during the night shift except in emergencies. There is an increase in the duration of free time in the night shift, but the shift duration is much longer (about 11 to 12 hours) compared to other two shifts. However, nurses' invigilation of patients through the organizing framework of activities of daily living is not necessarily a repressive feature of nursing practice, but rather has the potential to be used to advocate on patients' behalf in certain circumstances [27].

**Table IV The percentage of total working hours for each corresponding HR interval of nurses and perceived exertion rating in different shift.**

Heart rate (Beats/min)	Morning shift	Afternoon shift	Night shift
<70	9.2±4.18	14.3±5.21	20.1±9.45
70-80	16.4±6.91	17.7±4.04	19.2±7.03
81-90	20.1±5.35	19.1±6.98	16.2±4.82
91-100	17.8±7.01	16.4±6.21	9.6±3.23
101-110	14.0±6.47	12.0±5.08	6.2±4.21
111-120	11.4±2.97	9.1±2.71	3.9±8.19
121-130	8.7±2.13	6.7±2.94	4.9±2.71
>131	5.9±1.98	4.3±1.98	2.4±1.41
PER	15.4±3.51	12.9±3.02	16.3±3.39

The most physically strenuous and challenging task of the GDAs is lifting of patients. About 90% of the adult patients are over 50 kg of body weight and as the human body is bulky, so handling of patients becomes unstable. The healthcare unit personnel have to handle patients in a variety of awkward (and often unplanned) situations. Various studies show that WMSDs are common among healthcare workers [28-30]. Nuikka et al [31] showed that workload in primary care situations and in transporting the patient can be classified as moderately heavy, based on heart rate and relative workload.

There are no fixed breaks in the healthcare units. The duration and number of breaks varies in each shift depending upon the condition of the patients. It was also observed that the duration

**Table V The percentage of total working hours for each corresponding HR intervals of GDAs.**

Heart rate (Beats/min)	Morning shift	Afternoon shift	Night shift
<70	7.1±3.91	12.9±5.12	19.1±8.92
71-80	9.1±4.37	15.1±7.91	22.9±9.98
81-90	12.4±5.41	14.8±6.82	18.3±7.53
91-100	14.9±6.21	14.5±7.86	12.8±6.85
101-110	18.5±7.41	18.3±5.92	11.9±6.78
111-120	20.7±6.98	16.4±4.95	10.7±4.39
121-130	14.1±6.21	10.2±3.89	6.4±3.87
>131	11.4±5.38	7.2±4.91	2.5±1.01
PER	14.7±3.98	12.4±4.1	16.4±4.85

and number of breaks available are most in the night shifts and least in the morning shifts. This is due to the fact that all the healthcare unit services like outdoors, admission, discharge, surgical operations, pathological tests, etc., are rendered in the morning shift. But in night shift many services are restricted to emergency situations only.

According to Gadbois [32], the beginning of the night is important for the overall progress of work during night shift, period of contact between night staffs and patients, which determined the efficient assimilation of technical information on patient's status, for the planning of any foreseeable treatment, without which the patient's demand will be more frequent on healthcare unit personnel. The last two hours at which the night shift ends, the work load is increased as healthcare unit personnel have to execute two series of tasks 1) those related to patient care and ii) technical work need to hand-over to the healthcare unit personnel coming in morning shift.

Nurses routinely perform activities that require lifting heavy loads, lifting patients, working in awkward postures, and transferring patients out of bed and from the floor [33]. The high prevalence of musculoskeletal disorders among nurses is thought to be due to physical work demands, as well as to work organizational factors, of which scheduling is an important component [21, 34-37]. In the present study, it was observed that the most physically strenuous task of the healthcare unit personnel was lifting of patients. The GDAs and SNs have to handle it in variety of awkward and often unplanned situation.

Nurses' work motivation has proven to be an important factor for their intent to work [38] and job satisfaction [39]. Detection of the factors that increase and decrease the motivation levels of

nurses is considered to be useful as a means of preventing their dissatisfaction and burnout [40], or intention to quit nursing [41]. Moreover, a motivated and satisfied nurse has probably greater readiness to take care of patients and collaborate, and thereby provide a better healthcare service. Despite limited empirical evidence staff nurses appear to be motivated [42].

From the tables 4 and 5, it was revealed that physical work load was maximum in the morning shift but both SNs and GDAs rated maximum exertion in night shift. Perceive exertion rating of healthcare unit personnel in night shift was more compared ( $p < 0.05$ ) to other shifts but physiological response did not reflect that. Probably, work performed during the period of nocturnal deactivation was more fatiguing and sleep takes place during the period of diurnal activation which was less restorative and social desynchronizations make the night shift more stressful.

## Conclusion

There were temporal variations of job demand in healthcare unit. The time spent in different types of tasks by the nurses was not proper, such as they spent a large percentage of time in indirect care like discussion with patient party, recording and documentation task and thus it needs reorientation. The physiological work demand was excessive in the tasks specially related with patient transfer. Apart from that rotating shift system of work also add on the perceived work load. So, ergonomic orientation of layouts of departments, arrangement of activities, ergonomic and electronic way of documenting the records and use of proper communication systems are recommended which may probably help reduce the stress of the nurses while at work in the hospitals.

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