Short Reports

Absenteeism among nurses in a tertiary care hospital in India

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ABSTRACT

Background. Absence due to sickness among nurses has not been studied in-depth in the Indian setting.

Methods. We studied the sickness pattern among 385 nurses during one calendar year and retrospectively compared the absenteeism among nurses in different work areas of a tertiary care hospital.

Results. Sickness leave was availed by 68.9% of nurses at least once during the year. Nurses in the ward area were significantly older (43[5.4] years of age) than those in operation theatres (38[6.2] years of age) and intensive care units (39[5.9] years of age). The average annual duration of absenteeism per nurse (index of severity) was 27.7 days/person. The average sickness leave days/spell (index of duration) was 8.82 days/person. The annual inception rate of non-sickness leave (index of frequency) was 1.57 spells/person and for sickness leave was 1.27 spells/person. While nurses working in the ward area took the highest number of unplanned sickness leave (7.36 days/spell), the planned sickness leaves were highest (64.8 days/spell) among those in operation theatres. About half the episodes of sickness were related to diseases of the respiratory tract, digestive system, infections and injury. Planned sickness leave mainly constituted maternity leave related to childbearing and was highest among younger nurses in operation theatres and intensive care units.

Conclusion. Unplanned leave demands greater administrative adjustments and substitution. Inappropriate substitution may compromise patient care and sharing of work by the staff present; it may increase the workload and absenteeism. Occupational welfare services at tertiary care hospitals should work towards decreasing absence due to sickness among nurses.

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INTRODUCTION

Nurses form the backbone of the healthcare delivery system worldwide. Adequate patient care and outcomes in tertiary care hospitals are dependent upon the availability of nurses with appropriate skills in adequate numbers, e.g. 1 nurse per bed in intensive care units (ICUs), 1 for every 2 beds in postoperative wards and 1 for every 4 beds in other wards. Maintaining this ratio is a challenging task for hospital administrators. In India there is a paucity of trained nursing staff in tertiary care hospitals. With an increase in centres providing specialized healthcare in India, there has been a concomitant increase in hospital beds in public as well as private sector hospitals, and maintaining an optimum nurse:bed ratio has become a challenge. Absence due to sickness among nurses continually strains hospital functions[1,2] and few studies from Asian countries[3] or India have looked at this problem. Sickness absence due to trivial illnesses or those that are difficult to diagnose with high accuracy have been correlated with a poor work environment and work dissatisfaction.[4] We assessed the problem of leave of absence among nurses at a tertiary care hospital in India.

METHODS

This retrospective study was done at the Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, a tertiary care teaching hospital. The institute has specialty departments in the disciplines of cardiology, cardiovascular and thoracic surgery, neurology, neurosurgery, nephrology, urology, medical and surgical gastroenterology, medical and surgical endocrinology, and clinical immunology (Table I). It also has supportive departments of radiology, pathology, radiotherapy, anaesthesia and transfusion medicine.

A convenience sample of nursing staff's official leave records in one calendar year (January to December 2005) was obtained. All data were collected from the medical certificate on a proforma including details of age, gender, rank, work area, leave spells, leave days, month, reason and disease. To compare the leave pattern, all leave records were grouped into 3 work zones with a similar patient workload. One group included nurses working in different wards (called ward area), another group included nurses working in specialized areas with long working hours such as operation theatres (OT), cardiac catheterization laboratories and dialysis unit (called OTs). The third group was of nurses working in various surgical and medical ICUs. Nurses working in areas other than these (radiodiagnosis, outpatients or daycare units) were excluded as their duties involved only day-time work (n=50). Other exclusion criteria are given in Table II.

TABLE I. Hospital characteristics

Area	n	Nurses posted	Bed occupancy in the study year (%)
In-patient beds (all departments)	615	298	69.5
Intensive care beds	62	128	43.9–94.2*
Operation theatres	12	124	–
Cardiac catheterization suite	2	8	–
Haemodialysis beds	14	24	–

* Bed occupancy varied in different intensive care units with neurosurgery having the highest

Work schedule

As nurses work in shifts without any days off, they are entitled to 96 days of leave in a year (8 days/month) as well as 8 days of casual leave in a year. In addition, the 3 national holidays are given in the form of duty off to each nurse. Thus, the working days/nurse/year is 258. We studied the leave of absence pattern of nurses during these working days for which they needed to get a sanction for availing leave.

Entitled paid leaves

In any given year, a nurse is entitled to avail of 30 days of earned leave, full-paid maternity leave for 135 days, medical leave and half-pay medical leave (if one year of medical leave during service has been exhausted). Extraordinary leave of absence without payment for a long duration can also be availed. We categorized these leaves of absence as planned (when prior sanction was taken) or unplanned (sudden absence with approval taken telephonically/verbally and application submitted after availing the leave). We grouped sickness leave into leave certified by an attending doctor with a fitness record or uncertified medical leave. Absence indices calculated were leave spells (number of times leave taken), duration (leave days), total absence rate (days/spell), sickness absence rate (days/spell), and sickness to non-sickness leave spells ratio. The reasons for taking sickness leave were compared for 3 work areas of nurses.

Data analysis and statistics

All data were entered in Microsoft Excel and SPSS-10.0 was used for analysis (SPSS Inc., Chicago, IL). To analyse the statistical significance between mean values of different parameters, analysis of variance (one-way ANOVA) was applied. We also calculated odds ratio for sickness *v.* non-sickness leave and planned *v.* unplanned leave in 3 work areas. A p value <0.05 was considered significant between the compared means at 95% confidence interval.

RESULTS

The bed occupancy in the ward area ranged from 48% in endocrine surgery to 96.3% in the nephrology ward. In the ward area, 298 nurses were posted to look after 615 beds. For 62 ICU beds, 128 nurses were posted (Table I). Of a total of 550 nurses, 385 were included in the study (Table II). Most of the nurses were women (7.95:1). Of these, 39 (3.5%) did not take any leave during the study year. The average leave period in the studied cohort was 27.7 days/person in the year. A total of 4315 work-days were lost due to sickness leave while 6255 work-days were lost against non-sickness leave (sickness leave ratio of 0.69). Overall, 44.8% of leave spells in the year were due to sickness leave. The average sickness leave of 11.2 days/person was less than the non-sickness leave of 16.2 days/person. The sickness leave rate of 8.82 days/spell was also significantly lower than the non-sickness leave rate of 10.4 days/spell (Table II). While only 38% of non-sickness leave was unplanned, a significantly ($p<0.05$) higher proportion of sickness leave (61%) was unplanned.

TABLE II. Demographic characteristics of the cohort

Characteristic	Value
Total number of nurses working during the study year	550
Number included in the study	385
Nursing staff excluded	155
Retired during the study year	8
Had not completed a year of service	101
Data not available	34
Incomplete records	12
Mean (SD) age of nurses (in years)	40.9 (5.9)
Gender distribution (female:male)	342:43
Non-sickness leave spells	602 (55.2%) 1.56/person
Sickness leave spells	489 (44.8%) 1.27/person
Overall absenteeism (days/person)	27.7
Sickness absenteeism (days/person)	11.2
Non-sickness leave (days/person)	16.2
Sickness leave ratio (sickness leave/non-sickness leave days)	0.69
Planned sickness absenteeism (days/person)	14.4
Unplanned sickness absenteeism (days/person)	13.1
Mean (SD) sickness leave days/spell	8.82 (15.8)
Mean (SD) non-sickness leave days/spell	10.41 (18.6)

The month-wise distribution of leave showed that the maximum number of nurses took leave in May and June while the minimum number took leave in April and August. While the leave days/spell were more due to sickness in the months of January and August, these were significantly more due to non-sickness reasons in May and June.

The area-wise analysis showed that nurses were significantly older in ward areas than in OTs or ICUs (Table III). The unplanned sickness leave spells were highest (42%) among nurses working in the ICU area. Sickness to non-sickness leave ratio for days (0.88) and spells (1.05) were significantly ($p<0.05$) higher among ICU nurses (Table III). The odds ratio for sickness leave spells (0.247) was also significantly higher among ICU nurses. Certified to uncertified sickness leave spell ratio in all areas were similar but the ratio of days was significantly ($p<0.05$) higher (3.93) in those working in OTs. Similarly, planned sickness leave for pregnancy, childbirth and puerperium was highest among nurses working in OTs (36.1%) and ICUs (37%) than those in wards (15.5%). While planned sickness leave rate was significantly ($p<0.001$) higher in OT nurses (64.8 days/spell), unplanned sickness leave rate was highest in ward nurses (7.36 days/spell; Table III).

Among the diseases that contributed to sickness absenteeism (spells), the highest were respiratory system (22%) followed by digestive system (13.6%), injuries (9.9%) and infectious or parasitic diseases (9.1%; Table IV).

DISCUSSION

Our study shows that the nursing profession in India is dominated by women. Sickness leaves were commonly unplanned and of short duration (less than a week/spell) and were more frequently (higher spells/person) taken by nurses working in ICUs. Longer planned sickness leaves (days/spell) were mainly related to child-bearing and were highest among OT nurses who were also significantly younger in age than those working in the wards. Fong and Cheng also reported that age and marital status are important factors for absenteeism.[3] Short sickness leaves were related to infectious diseases, and were highest among nurses working in ICUs.

Healthcare institutions worldwide face a problem when confronted with sickness absenteeism among nurses, which may not necessarily be related to being sick.[1–8] We found that non-sickness leaves constituted more than half the leaves of absence. Planned non-sickness leave days/spell were significantly higher in the months of May and June corresponding to school holidays, while unplanned sickness leave days/spell were higher in January and August corresponding to seasonal changes in our region.

TABLE III. Area-wise distribution of sickness leave

Item	Ward area	OT area	Intensive care units
Total number of nurses	221	81	83
Gender (male:female)	24:197	13:68	6:77
Mean (SD) age (in years)	43 (5.4)*	38 (6.2)	39 (5.9)
Number (%) that took no leave	25 (11.3)	5 (6.5)	9 (10.5)
Total number of leave spells	601	216	274
Mean (SD) absenteeism rate (spells/person)	2.71 (1.2)	2.56 (1.1)	3.6 (1.7)*
Sickness leave days ratio (sickness leave/non-sickness leave)	0.58	0.66	0.88*
Sickness leave spells ratio (sickness leave/non-sickness leave)	0.73	0.75	1.05*
Certified/uncertified sickness leave ratio (spells)	2.78	2.13	2.46
Certified/uncertified sickness leave days ratio (days)	0.66	3.93*	1.48
Planned non-sickness leave spells	203 (34%)	75 (35%)	70 (26%)
Planned sickness leave spells	54 (09%)	21 (10%)	31 (12%)
Unplanned non-sickness leave spells	143 (24%)	49 (23%)	62 (22%)
Unplanned sickness leave spells	201 (33%)	71 (32%)	111 (42%)*
Mean (SD) planned sickness rate (days/spell)	18.0 (8.5)	64.8 (18.4)†	21.6 (14.5)
Mean (SD) unplanned sickness rate (days/spell)	7.36 (2.6)*	4.88 (3.4)	3.89 (9.1)
Odds ratio for sickness/non-sickness leave spells (95% CI)	0.108 (0.071–0.165)	0.193 (0.105–0.354)	0.247* (0.145–0.418)

OT operation theatre * p<0.01 (statistically significant at 95% confidence interval) † p<0.001

TABLE IV. Disease pattern of sickness leave in different work areas of the hospital

International Classification of Diseases group	Ward area	OT area	Intensive care	Number of leave spells
Infections and parasitic disease	19 (9.4)	8 (11.1)	8 (7.4)	35 (9.1)
Neoplasms	0	1 (1.4)	0	1 (0.3)
Disease of blood, blood forming organs and immune system	0	0	2 (1.9)	2 (0.6)
Endocrine, nutritional and metabolic diseases	14 (6.9)	1 (1.4)	0	15 (3.9)
Mental and behavioural disorders	4 (2)	0	0	4 (1)
Disease of the nervous system	0	0	1 (0.9)	1 (0.3)
Disease of the eye and adnexa	2 (1)	0	1 (0.9)	3 (0.9)
Disease of the ear and mastoid	0	0	1 (0.9)	1 (0.3)
Disease of the circulatory system	5 (2.5)	0	2 (1.9)	7 (1.8)
Disease of the respiratory system	55 (27.1)	9 (12.5)	21 (19.4)	85 (22.2)
Disease of the digestive system	23 (11.3)	8 (11.1)	21 (19.4)	52 (13.6)
Disease of the skin and subcutaneous tissue	1 (0.5)	0	0	1 (0.3)
Disease of the musculoskeletal system and connective tissue	17 (8.4)	5 (6.9)	5 (4.6)	27 (7)
Disease of the genitourinary system	6 (3)	4 (5.6)	2 (1.9)	12 (3.1)
Pregnancy and childbirth and puerperium	32 (15.8)	26 (36.1)	40 (37)	98 (25.6)
Injury, poisoning or other external injury	25 (12.3)	9 (12.5)	4 (3.7)	38 (9.9)
External causes of morbidity and mortality	0	1 (1.4)	0	1 (0.3)

OT operation theatre Values in parentheses are percentages

The overall days of absence have been reported to increase with advanced age,[9,10] and this could be a reason for more frequent unplanned sickness leaves of longer duration among ward nurses (7.36 days/spell) than those posted in OTs or ICUs. Employees' absence from work has also been reported to be due to non-specific, personal, unsatisfactory working conditions,[11] and 'withdrawal from work phenomenon'.[3] Apart from genuine 'sickness' from chronic diseases of longer duration, short duration episodes of sickness constituting two-thirds of the leaves of absence in this study were considered a reflection of low morale.[3] Our observation of more uncertified sickness leaves among ward nurses could also reflect the unchallenging nature of work in the wards leading to a lack of motivation. This is further supported by the observation that the lowest number of unplanned and uncertified sickness leaves were taken by OT nurses, where the work is more challenging and involves learning new skills.

It is a major administrative challenge to provide replacement for unplanned sickness absence of nurses,[12] especially in ICUs, where maintaining the patient:nurse ratio is more important than in any other work area of the hospital.[13] Nurse managers and patients expect on-duty nurses to complete all their allocated tasks in time to meet the healthcare needs of patients irrespective of the shortage of staff. Nurses perform patient care activities without adequate support from nurse managers.[5] The commonly practised solution of extending the work schedule of those working in the previous shift or reallocating tasks of absentee nurses to those present maintains continuity of patient care, but adds to work hours and workload.

The other strategy of substitution from the pooled nursing staff increases the probability of replacement by nursing staff unfamiliar with the work environment and lacking the desired commitment. For example, replacing a trained ICU nurse with an untrained nurse may compromise patient care, and affect the overall performance as well as raise concerns of safety.[14]

In specialized work areas such as OTs and ICUs, replacement nurses should have similar skill sets as those they are replacing. As this may not be possible, the extra work is often distributed to the available nurses. This results in an increase in work time and workload and if this happens frequently it may lead to job-stress and burnout of specialist nurses. It may also adversely affect their morale[1] and add to absenteeism.[15] The extra workload has also been reported to lower the quality of patient care,[1,16] and various tasks may either remain incomplete or scheduled deadlines may be missed.[17] We observed significantly higher leave spells/person among ICU nurses than those working in wards.

Nursing is an inherently demanding profession, with a focus on the patient than on the provider of patient care. Research shows that having lower number of patients per nurse is associated with a higher quality of care, fewer medical errors and adverse events.[6] Hospitals with higher number of patients per nurse have increased operating costs, staff turnover, overtime, and increased absenteeism due to illness/injury.[18] In developing countries such as India, where there is a shortage of trained nurses, retaining such a specialized work force in a cost-effective manner becomes a daunting task for hospital managers. The lower nurse-to-patient ratio in our study may have contributed significantly to unplanned absenteeism.

Nursing staff working in ICUs are particularly vulnerable to uncommon and opportunistic infections.[19,20] We found a higher odds ratio (0.247) for sickness absenteeism among ICU nurses than those working in wards, with a higher rate of respiratory infections among ICU nurses than those working in wards.

Our study has limitations. As we did a retrospective study and extracted data from available records, there could have been data loss due to incorrect documentation. Some leave overlapping at the end of the previous year or the beginning of the following year were restricted to the year of study only. This may have led to exclusion of planned long leaves of absence.

In summary, the management of short unplanned sickness leave among nursing staff is a challenge for hospital administrators. A predominantly female population of nurses leads to more planned leaves related to childbirth. The leave pattern for non-sickness absence corresponded with school holidays. The provision of adequate number of nurses, especially with specialized skill sets, may allow for easier management of leaves of absence of nurses from specialized areas such as ICUs and OTs.

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