

Digestive Disorders among the Shift and the Day-Working Nurses in Public and Private Hospitals of Peshawar, Pakistan



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Abstract

Background: This study aimed to assess the impact of shift work on digestive disorders among nurses in public and private sector hospitals in Peshawar. Employing an analytical cross-sectional design, data were collected at Lady Reading Hospital Peshawar and Northwest General Hospital Peshawar between May 2017 and August 2018.

Methods: A total of 252 nurses participated, with 227 providing responses. Data, obtained through a self-administered questionnaire via convenience sampling, received approval from the Ethical Committee and Advanced Studies and Research Board of Khyber Medical University, Peshawar. Demographic variables and participant responses were analyzed using frequency, percentages, and the Chi Square test to explore associations with digestive disorders. A P value less than 0.05 denoted statistical significance.

Results: The study revealed that current shift work significantly impacted digestive complaints. Notably, 40.7% of day workers and 54.6% of shift workers experienced digestive disorders ($P = 0.037$). Moreover, public sector hospital nurses demonstrated lower susceptibility to digestive disorders, with rates of 46.8% and 49.1% for public and private organizations, respectively ($P = 0.730$).

Conclusion: This research indicates that nurses engaged in continuous night shifts are notably predisposed to digestive disorders, while the type of hospital (public or private) does not significantly influence such disorders.

Keywords: Gastrointestinal issues, shift and day work, nursing professionals

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Introduction

The circadian rhythm in human body regulates the gastrointestinal (GI) activity and functions twenty four hours a day, such as cell proliferation, motility, digestion, absorption and electrolyte balance (1). Various factors are involved to influence the circadian rhythms like light and meal timings (2). Therefore, the physiology of shift workers are affected on account of altered sleep cycles and poor sleep quality (3).

Several industries and professional organizations perform work in shifts in order to provide constant services to their clients such as healthcare professionals and fire fighters (4). Shift working refers to the job when more than half of the working the working time include outside of the period starting between 0700 and 0900 hours in the morning and ending between 0600 and 0800 hours in the evening (5).

As nurses are required to accomplish essential tasks and perform their duties in shifts. Due to their schedule, they are more prone to develop physiological and psychological disorders which are decreasing their working proficiency and may also lead to many medical and nursing errors (6). Prior researchers noted that day workers did not experience mental and physical problems while

those working in multiple shifts constantly face lack of energy, lethargy, amnesia and unusually elevated strain (7). Additionally, the researchers show that gastrointestinal disorders are also common among shift workers that may include constipation, dyspepsia, upper abdominal pain, flatulence, loss of appetite, nausea, vomiting and peptic ulcers (5). Working in different shifts can disturb the peristaltic movements of GI tract and can cause problems in secretion of digestive enzymes and maintenance of PH balance (6). Other epidemiological studies suggest that people with disturbed sleep pattern or poor sleep quality (shift work or sleep apnea), reported increased appetite and higher risk for developing diabetes, obesity, and metabolic syndrome (3,8,9).

No national literature was found to be available on the effects of shift working in Pakistan. The body of evidences reinforces the need to identify gastrointestinal problem in shift workers. Therefore, this study was conducted with the objective to identify gastrointestinal disorders among nurses of public and private sectors.

Operational Definition: Any individual who has experienced any symptom like diarrhea, constipation, epigastric pain, vomiting, heart burn, regurgitation or bloating in the past 4 weeks two or more times will be considered positive for digestive disorders.

Methodology

An analytical cross-sectional study was conducted from May, 2017 to August 2018 after obtaining approval from the Advanced Studies and Research Board (AS&RB), and Ethical Committee of Khyber Medical University, Peshawar. A total of 252 nurse participants were selected through convenience sampling technique from Lady Reading Hospital (LRH) and North West General of Peshawar. The Slovin’s formula ($n = N/1+N(e)^2$) was used to calculate the sample size. Those nurses who were engaged in current working shift for last 1 month and having at least one year working experience were enrolled in the study. Those nurses who had managerial position and chronic diseases and already suffering from digestive disorders were excluded from the study. The purpose of the study was explained to the participants and consent form was taken before collection of data.

The data were collected through an adopted questionnaire consisting of demographic information and questions about digestive health (10). The GI symptoms included in the questionnaire were diarrhea, constipation, epigastric pain, vomiting, heart burn, regurgitation, and bloating. The frequency of each digestive problem experienced during the last four weeks was measured by a Likert scale (0-4). Any individual who reported at least one complaint as “twice a week” on Likert scale was considered positive for digestive disorders. The data were analyzed through Statistical Package for Social Sciences (SPSS) version 20. Chi Square test was applied to analyze demographic variables and Digestive disorders. The P value less than 0.05 was considered statistically significant.

Results

Demographic Variables

About 227 questionnaires were returned thus the response rate was 90.1%. The important variables included in the study are summarized in table 1. Out of 227 subjects, 111 (48.9%) were from Public Hospital and 116 (51.1%) were from Private institution. The sample consist of 96 (42.3%) males and 131females (57.7%). Demographic variables are displayed in Table 1.

Table 1: Demographic characteristics

Variable (n=227)	Categories	Frequency	Percentage
Age (In years)	20 to 25	116	51.1 %
	26 to 30	92	40.5
	31 to 35	14	6.2
	More than 35	5	2.2
Gender	Male	96	42.3
	Female	131	57.7
Hospital	Public	111	48.9
	Private	116	51.1
Second Job	Yes	43	18.9
	No	184	81.1
Current Shift	Day Shift	108	52.4
	Rotating Shifts	119	47.6

Digestive Disorders

The analysis showed that (40.7%) of Day workers and (54.6%) of Shift workers were suffering from Digestive problems (P = 0.037). The frequency and percentages of different symptoms related to Digestive complications between Day Working and Shift Working nurses are summarized in Table 2.

Table-2: Digestive disorders among day and rotating shift workers

Complains		Day Shift	Rotating Shift	Total
Epigastric Pain	Yes	4 (3.7%)	11 (9.2%)	15 (6.6%)
	No	104 (96.3%)	108 (90.8%)	212 (93.4%)
Vomiting	Yes	1 (0.9%)	6 (5%)	7 (3.1%)
	No	107 (99.1%)	113 (95%)	220 (96.9%)
Constipation	Yes	10 (9.3%)	12 (10.1%)	22 (9.7%)
	No	98 (90.7%)	107 (89.9%)	205 (90.3%)
Diarrhea	Yes	1 (0.9%)	16 (13.4%)	17 (7.5%)
	No	107 (99.1%)	103 (86.6%)	210 (92.5%)
Heart Burn	Yes	13 (12%)	29 (24.4%)	42 (18.5%)
	No	95 (88%)	90 (75.6%)	185 (81.5%)
Regurgitation	Yes	9 (8.3%)	19 (16%)	28 (12.3%)
	No	99 (91.7%)	100 (84%)	199 (87.7%)
Bloating	Yes	3 (2.8%)	9 (7.6%)	12 (5.3%)
	No	105 (97.2%)	110 (92.4%)	215 (94.7%)
GI Medicine Intake	Yes	34 (31.5%)	51 (42.9%)	85 (37.4%)
	No	74 (68.5%)	68 (57.1%)	142 (62.6%)

Digestive Disorders among Public and Private Hospitals:

The data were further analyzed for digestive disorders among nurses working in public and private hospitals. Digestive Disorders among nurses working in Public Hospital were 46.8% and 49.1% nurses working in Private Hospital (P = 0.730). Different symptoms related to Digestive disorders among public and private hospital workers are displayed in table 3.

Table-3: Digestive disorders among public and private hospital workers

Complains		Public	Private	Total
Epigastric Pain	Yes	8 (7.2%)	7 (6%)	15 (6.6%)
	No	103 (92.8%)	109 (94%)	212 (93.4%)
Vomiting	Yes	4 (3.6%)	3 (2.6%)	7 (3.1%)
	No	107 (96.4%)	113 (97.4%)	220 (96.9%)
Constipation	Yes	12 (10.8%)	10 (8.6%)	22 (9.7%)
	No	99 (89.2%)	106 (91.4%)	205 (90.3%)
Diarrhea	Yes	6 (5.4%)	11 (9.5%)	17 (7.5%)
	No	105 (94.6%)	105 (90.5%)	210 (92.5%)

Complains		Public	Private	Total
Heart Burn	Yes	21 (18.9%)	21 (18.1%)	42 (18.5%)
	No	90 (81.1%)	95 (81.9%)	185 (81.5%)
Regurgitation	Yes	7 (6.3%)	21 (18.1%)	28 (12.3%)
	No	104 (93.7%)	95 (81.9%)	199 (87.7%)
Bloating	Yes	5 (4.5%)	7 (6%)	12 (5.3%)
	No	106 (95.5%)	109 (94%)	215 (94.7%)
GI Medicine Intake	Yes	34 (31.5%)	46 (39.7%)	85 (37.4%)
	No	74 (68.5%)	70 (68.3%)	142 (62.6%)

Association of demographic variables and digestive disorder:

Various variables were studied to determine the prevalence of digestive disorders linked with demographic variables. Most of variables were showing non-significant result. According to the study conducted the ratio of digestive disorders among both gender groups were 55.2 % in males while 42.7% in females (P = 0.063). The results were analyzed to identify the difference in prevalence of digestive disorders among nurses working in public and private sector hospitals. The prevalence of digestive disorders among nurses working in public hospital and private hospital were 46.8% and 49.1% (P = 0.730) respectively. The prevalence of digestive disorders among nurses working in different departments like emergency department, critical care units, medical units and surgical units were 37%, 60.9%, 50, and 38.5% (0.032) respectively. The digestive disorders among day shift nurses were compared with rotating shift workers. Results showed that 40.7% nurses working in day shift and 54.6% nurses working in rotating shifts were suffering from digestive disorders (P = 0.037). Results related to different variables are summarized in Table-IV.

Table 4: Association of demographic variables and digestive disorders

Variables	Stratification	Frequency n=227	Digestive Disorders n (%)		x ²
			Yes	No	
Age Groups in Years	20-25	116 (51.1%)	53 (45.7%)	63 (54.3%)	0.861
	26-30	92 (40.5%)	47 (51.1%)	45 (48.9%)	
	31-35	14 (6.2%)	7 (50%)	7 (50%)	
	35>	5 (2.2%)	2 (40%)	3 (60%)	
Gender	Male	96 (42.3%)	53 (55.2%)	43 (44.8%)	0.063
	Female	131 (57.7%)	56 (42.7%)	75 (57.3%)	
Marital Status	Single	158 (69.6%)	77 (48.7%)	81 (51.3%)	0.744
	Married	69 (30.4%)	32 (46.4%)	37 (53.6%)	
Educational Level	RN	161 (70.9%)	79 (49.1%)	82 (50.9%)	0.587
	Post RN BSN	30 (13.2%)	12 (40%)	18 (60%)	
	Generic BSN	35 (15.4%)	18 (51.4%)	17 (48.6%)	
	MSN	1 (0.4%)	0 (0.0%)	1 (100%)	
Experience	1-3 years	103 (45.4%)	46 (44.7%)	57 (55.3%)	0.532
	4-6 years	71 (31.3%)	36 (50.7%)	35 (49.3%)	
	7-10 years	44 (19.4%)	24 (54.5%)	20 (45.5%)	
	>10 years	9 (4%)	3 (33.3%)	6 (66.7%)	
Hospital	Public	111 (48.9%)	52 (46.8%)	59(53.2%)	0.730
	Private	116 (51.1%)	57 (49.1%)	59(50.9%)	
Working Unit	Emergency	46 (20.3%)	17 (37%)	29 (63%)	0.032*
	Critical Units	69 (30.4%)	42 (60.9%)	27 (39.1%)	
	Medical Units	60 (26.4%)	30 (50%)	30 (50%)	
	Surgical Units	52 (22.9%)	20 (38.5%)	32(61.5%)	
Second Job	Yes	43 (18.9%)	23 (53.5%)	20 (46.5%)	0.425
	No	184 (81.1%)	86 (46.7%)	98 (53.3%)	
Current Working Shift	Day Shift	108 (47.6%)	44 (40.7%)	64 (59.3%)	0.037*
	Rotating Shift	119 (52.4%)	65 (54.6%)	54 (45.4%)	

Discussion

Various studies have reported on the harmful effects of shift work and long working hours on the wellbeing of workers (11, 12). This study was conducted to evaluate the relation of shift work with gastrointestinal problems among nurses working in public and private sector hospitals. Gastrointestinal disorders are global concerns rising rapidly which needs to be monitored by health care workers (4, 13).

In the current study, gastrointestinal disorders were reported by 54.6% nurses working in rotating shift schedules. This percentage was much higher (81.9%) reported in a previous study in Iran (6). An earlier study concluded that engagement in shift work is associated with development of multiple digestive disorders like Irritable Bowel Syndrome and abdominal pain (9). The proportion of nurses suffering with digestive disorders was higher among

nurses working in private hospital than public hospital.

In our study, the incidence of symptoms related to Digestive Disorders were statistically non-significant ($p = 0.861$) among different age groups. About 51.5% participants from age group of 26 to 30 years were suffering from Digestive Disorder. Similarly, a study conducted by Saberi reported that the prevalence of Digestive Disorders was higher ($P=0.015$) among nurses less than 40 years of age⁶. The present study reported that the frequency of different gastrointestinal problems such as epigastric pain, diarrhea, vomiting, heart burn, regurgitation and bloating were comparatively higher among shift working nurses. Likewise, other studies also reported higher incidence of GI problems among shift workers than day workers¹⁴. Similarly, the prevalence of Irritable Bowel Syndrome was significantly higher among shift workers than day workers (15). We found that the use of different medications for Digestive Disorders was higher among shift workers. Similarly the use of gastrointestinal medicines was found higher among shift workers in a study conducted by Saberi⁶. Abnormal eating behaviors have also been linked with nursing shift work. Nurses' usually consumed unhealthy junk foods and energy drinks to stay alert and cope with their jobs (16). There was no significant difference between those nurses who were engaged in second job and those who were not.

Conclusion

Shift working in modern world cannot be eliminated specifically the vital services required 24/7. Shift duties have a positive association abnormal eating behaviors among health care workers in hospitals. Abnormal eating behaviors like consuming cold meals, higher consumption of coffee and energy drinks along with disturb circadian rhythm leads to gastrointestinal complications. More advance research studies are required among larger groups of nurses to further evaluate the relation of shift work and Digestive Disorders. Furthermore, health promotional interventions should be initiated in hospitals to promote healthy dietary habits among shift workers

Limitations of the study:

This study has some limitations including. The study population consisted of nurses working in public and private hospitals. The nurses are thought to be exposed to higher stress and long working hours due to their job description and work nature. This may affect the generalizability of our results on shift workers other than nurses. Only two hospitals were targeted in this study hence we can have generalized this data for the tertiary care hospitals operating in the province at particular. Another limitation is the timeframe which is very short for conducting a handsome research work. The study was only centered to the nurses although after healthcare professionals yet need to be evaluated. It only encompasses to health issues of the nurses. It only generates data about nurses working in healthcare settings, yet other sectors need to be explored. One of the key limitations of the study is that due to rotating shifts probability sampling was not possible.

Conflict of interest:

The authors declared no conflict of interest.

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