Original Article

Comparing the Impact of Workload on the Mental Health of House Officers at Public and Private Hospitals of Peshawar

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ABSTRACT

Healthcare environments place a high priority on the mental health of medical personnel, especially house officers. **Objective:** To compare the impact of workload on the mental health of house officers at public and private hospitals of Peshawar. **Methods:** Descriptive cross-sectional design was used to gather data from 164 house officers at four major hospitals in Peshawar, Pakistan (Khyber Teaching Hospital, Hayatabad Medical Complex, Kuwait Teaching Hospital, and Northwest General Hospital). In order to investigate the relationships between workload and mental health, data gathered from October 2023 to February 2024 via a standardized questionnaire on demographics, mental health, and workload was analyzed using descriptive statistics as well as inferential tests like chi-square and t-tests. **Results:** Out of 164 hospital patients, 29.7% had ages between 26 and 28. Among them 41.8% were female and 57.6% were male. Surgery (44.8%) and Medicine (54.5%) were the departments' representatives, while General Surgery (34.5%), Medicine (36.4%), Eye (15.2%), and ENT (13.3%) were the wards. The mean scores were (public: 30.69, private: 28.76; p-value.345), patient distribution (public: 11-40, private: 0-40; p-value 0.008), shift distribution (public: 0-15, private: 0-10), and self-reported concentration levels (p-value 0.051) showed significant differences between public and private hospitals. However, there was no discernible fluctuation in the strain levels (p-value = 0.658). **Conclusions:** House officers in Peshawar need special assistance from all sectors because of their tremendous responsibilities, particularly in public hospitals.

INTRODUCTION

The mental health of medical practitioners is critical in the field of healthcare. As students move from the academic environment to the real-world of patient care, house officers are an important group among these professionals [1, 2]. Given the possible effects on their mental health, the expectations made on house officers, especially in terms of workload, have drawn more attention [3, 4]. In the clinical context, house officers many of whom are recent medical graduates are given substantial responsibility [5]. They operate in a demanding and occasionally stressful workplace, juggling patient care, administrative duties, and ongoing education [6]. The long hours, heavy patient caseload, and lack of resources that characterize workload may be detrimental to house officers' mental health [7].

Numerous variables, like as sleep deprivation, emotional strain from patient interactions, and the difficulty to make critical decisions under time restrictions, all contribute to these professionals' overall stress levels [8]. Private as well as public hospitals are two separate categories within the healthcare system, with different patient demographics, organizational configurations, and financial allotments [9, 10]. Public hospitals, which typically service a larger population base and can be constrained by budgets and funds, may provide challenging working conditions and a heavy patient load for house officers [11]. On the other hand, private hospitals might offer better amenities and pay, but they may also face additional difficulties including meeting the needs of their clientele and meeting the

standards of affluent patients [12]. Understanding how these varied work environments impact house officers' mental health is crucial for developing tailored therapies and support systems [13]. The purpose of this research is to provide light on the unique challenges and demands that employees in public and private hospitals face by contrasting their experiences. Additionally, by outlining potential areas for improvement in both fields, this kind of comparative research may ultimately improve the overall efficacy and wellbeing of the medical staff. Peshawar, the capital of Khyber Pakhtunkhwa province, is a microcosm of Pakistan's wider healthcare system. Numerous public and private hospitals with distinct organizational structures and specializations in patient care may be found there [14]. In an attempt to provide results that are culturally relevant and transferable to other regions of Pakistan coping with similar healthcare concerns, this research focused on Peshawar. The study's goal was to assess how house officers' mental health at Peshawar's hospitals, both public and private, was affected by their workload.

METHODS

The Khyber Teaching Hospital, Hayatabad Medical Complex, Kuwait Teaching Hospital, and Northwest General Hospital are the four main hospitals in Peshawar, Pakistan, where this study was carried out using a descriptive cross-sectional study design. The sample size of 164 house officers was determined using a proportional distribution method, allocating an equal portion from each of the four hospitals under investigation. However, it is essential to note that proportional distribution was solely used for sample size calculation and not as a sampling technique. The sampling technique employed adhered to the principles of non-probability purposive sampling, where house officers meeting the inclusion criteria and actively working at the chosen hospitals during the research period were selected. Those house officers on leave or who declined to take part in the survey were among the exclusion criteria. To gather information on participants' workloads and mental health indicators, an organized survey was created based on established measures and given to them. The questionnaire was divided into parts that evaluated mental health outcomes, workload variables, and demographic data. Over the course of five months, from October 2023 to February 2024, data was gathered. In order to guarantee thorough coverage of the experiences of house officers and workload differences throughout several seasons and clinical rotations, this period was chosen. A statistical software program was used to analyze the information gathered from the surveys. The features of the study population and workload factors were compiled using descriptive statistics, which included the computation of rates, proportions, means, and standard deviations. Workload variables and mental health outcomes were examined via the use of inferential statistics, such as t-tests and chi-square tests. P-values less than 0.05 were regarded as statistically meaningful. Ethical approval was obtained from the Ethical Review Committee of Prime Foundation Pakistan via ERC Approval Number: Prime/ERC/2024-71, dated: October 9, 2023. Prior to their participation in the study, every participant gave their informed permission, and safeguards were put in place to ensure the privacy of their data at all times throughout the investigation.

RESULTS

The demographic and departmental distribution statistics for a sample of 164 people in a hospital context are shown in Table 1. Age, gender, department, and wards are the four categories into which the data is divided. The data is broken down into two age categories in the age section: 23–25 years and 26–28 years. The frequency column shows how many people are in each age group: 115 people (69.7%) are between the ages of 23 years and 25 years and 49 people (29.7%) are between the ages of 26 years and 28 years. Data about the distribution of people by gender is provided in the gender section. There were two categories: Male and Female. There were 95 men (57.6%) and 69 women (41.8%) in each gender group, according to the frequency column. Data was shown in the department section according to the departments to which the persons belong. Medical and Surgery were the two departments that are mentioned. The number of people in each department is shown in the frequency column; there were 90 people in the medical department (54.5%) and 74 people in the surgery department (44.8%). In Table 1, Data on the distribution of patients across various wards, such as General Surgery, Medicine, Eye, and ENT (Ear, Nose, and Throat), is listed in the wards section. The number of patients in each ward is listed in the frequency column: 57 patients in General Surgery (34.5%), 60 patients in Medicine (36.4%), 25 patients in Eye (15.2%), and 22 patients in ENT (13.3%).

Table 1: Demographic Characteristics

Variables	Frequency (%)
Age (Years)	
23–25	115 (69.7)
26–28	49 (29.7)
Total	164 (100)
Gender	
Male	95 (57.6)
Female	69 (41.8)
Total	164 (100.0)
Departments	
Medical	90 (54.5)
Surgery	74 (44.8)
Total	164 (100)

Wards	
General Surgery	57 (34.5)
Medicine	60 (36.4)
Eye	25 (15.2)
ENT	22 (13.3)
Total	164 (100)

The mean ratings of a particular variable are compared between public and private hospitals in Table 2. With a Mean Score of 30.6951, a Standard Deviation (SD) of 6.55591, and a Standard Error (SE) of the Mean of 0.72398, there are 82 observations in the public hospital category. The results of Levene's test for equality of variances show a Significant Difference (F) between the two groups' variances. There is a significant difference (Sig.= 0.345, t= 1.970, df = 162) in the mean scores according to the t-test for equality of means between public and private hospitals, indicating that the variable under discussion differs between the two hospital types.

Table 2: Comparison of Mean Scores between Public and Private Hospitals

Categories of Hospital	N	Mean ± SD	Std. Error Mean	Levene's Test for Equality of Variances		t-test for Equality of Means	
				F	Sig.	t	df
Public Hospital	82	30.69 ± 6.55	0.72	0.897	0.345	1.970	162
Private Hospital	82	28.76 ± 5.95	0.65				

Data on the distribution of patients across various daily criteria is shown in the "Patients per day" section (figure 1). Nine patients (11%) are in the 0–10 range, 32 patients (39%) are in the 11–20 range, 32 patients (39%) are in the 21–30 range, and 9 patients (11%) are in the 31–40 range at public hospitals. Of the patients in private hospitals, 49 (60%) fall into the 0–10 age group, 24 (29%) fall into the 11–20 age group, 5 (6%) fall into the 21–30 age group, and 4 (5%) fall into the 31–40 age group. There is a substantial variation in the patient distribution between public and private hospitals, as shown by the p-value of 0.008 in this section.
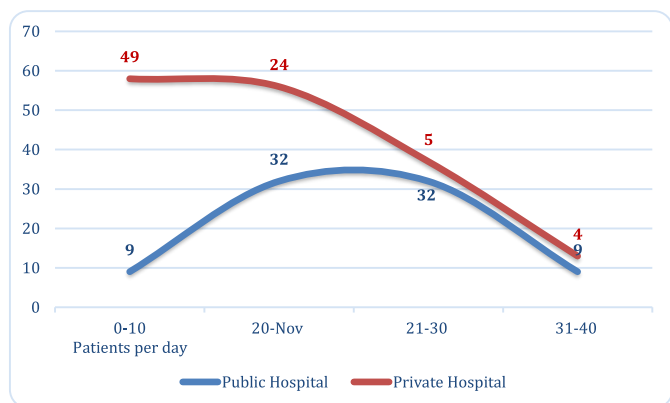

Figure 1: Comparative Patient Distribution Analysis: Public vs. Private Hospitals

Data on the distribution of shifts performed each month across various lengths is shown in the "Twenty-Four Hours Shift per Month" section. 52 shifts (63%) at public hospitals are in the 0–5 range, 27 shifts (33%) are in the 6–10 range, and 3 shifts (4%) are in the 11–15 range (Figure 2). There are 71 shifts (87%) in the 0–5 range, 11 shifts (13%) between 6–10, and no shifts in the 11–15 range at private hospitals. There is a significant variation in the shift distribution between public and private hospitals, as shown by the p-value of 0.032 for this section.
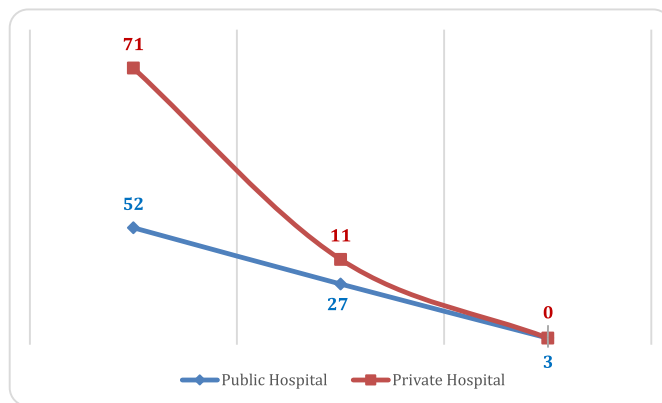

Figure 2: Comparative Analysis of Shift Distribution: Public vs. Private Hospitals

There is information about the self-reported capacity to focus under the "Been Able to Concentrate" section. In public hospitals, 8 people (10%) say they can focus more than usual, 17 people (21%) say they can concentrate the same as usual, 49 people (60%) say they can concentrate less than usual, and 8 people (10%) say they can concentrate considerably less than usual (figure 3). Thirteen (16%) say they can focus better than usual at private hospitals, thirty-five (43%) say it's the same as usual, thirty-four (42%) say it's less than usual, and not a single person (0%), say it's considerably less than usual. The p-value in this section is 0.051, indicating that there is a somewhat significant difference between public and private hospitals' self-reported concentration levels.
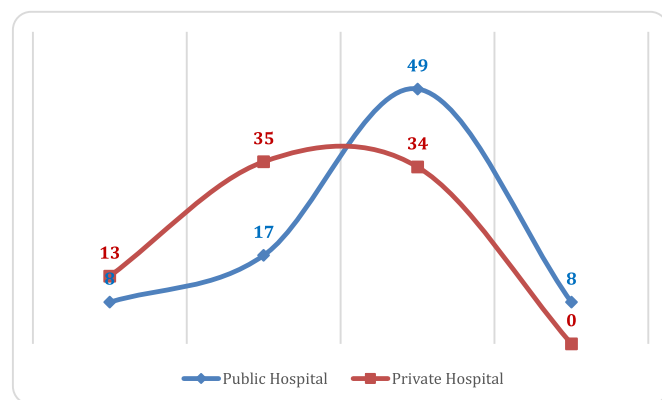

Figure 3: Comparative Analysis of Self-Reported Concentration Levels: Public vs. Private Hospitals Data on people's self-reported

levels of strain are included in the "Constantly under Strain" section.

12 people (15%) in public hospitals say they are not at all straining, 33 people (40%) say they are not straining more than usual, 27 people (33%) say they are straining somewhat more than usual, and 10 people (12%) say they are straining as usual (Figure 4).
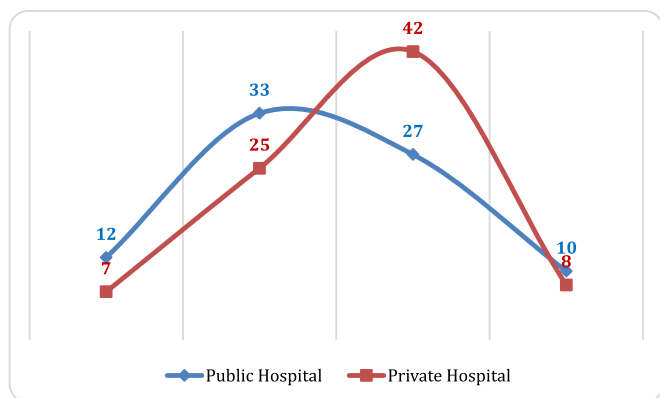

Figure 4: Comparative Analysis of Self-Reported Strain Levels: Public vs. Private Hospitals

In private hospitals, 7 people (9%) say they are not at all straining, 25 people (30%) say they are not straining more than usual, 42 people (51%) say they are straining more than usual, and 8 people (10%) say they are straining normal. The reported levels of strain at public and private hospitals do not significantly vary, as shown by the p-value of 0.658 for this area.

Table 3: Comparative Analysis of Healthcare Statements between Public and Private Hospitals

Statements		Public Hospital	Private Hospital	p-value
Patients per day	0-10	9	49	0.008
	11-20	32	24	
	21-30	32	5	
	31-40	9	4	
Twenty-Four Hours Shift per Month	0-5 days	52	71	0.032
	6-10 days	27	11	
	11-15 days	3	0	
Been Able to Concentrate	Better than usual	8	13	0.051
	Same as usual	17	35	
	Less than usual	49	31	
	Much less than usual	8	0	
Constantly Under Strain	Not at all	12	7	0.658
	No more than usual	33	25	
	Rather more than usual	27	42	
	Usual	10	8	

DISCUSSION

The study's departmental distribution and demographic data are consistent with other results from studies conducted in healthcare settings. In the age range of 23 to 25, 115 people (69.7%) and 49 people (29.7%) respectively were in the 26 to 28 age range. This distribution reflects similar age demographics seen in the study of Griffiths *et al.*, indicating a general trend in the healthcare workforce [15]. Our results showed that 90 persons (54.5%) belonged to the Medical department and 74 individuals (44.8%) belonged to the Surgery department. According to study by Chen *et al.*, and Wang *et al.*, these findings are in line with the dominance of the medical and surgical departments, which highlight the typical organizational structure of healthcare facilities [16, 17]. Our data shows that there were 57 individuals (34.5%) employed in general surgery, 60 individuals (36.4%) in medicine, 25 individuals (15.2%) in eye care, and 22 individuals (13.3%) in ENT. These percentages are in line with the distribution seen in Schweitzer *et al.*, in 2004 study, which highlights the prevalence of patient's in general medical and surgical wards as well as specialty wards for specific medical conditions [18]. The comparison of mean scores between public and private hospitals provides insight into the variations in a given attribute based on the kind of healthcare setting. The average score for the public hospital category is 30.6951, with a standard deviation of 6.55591 and a standard error of the mean of 0.72398. These findings are consistent with studies by Zhang *et al.*, and Li *et al.*, on the distribution and variability of clinical markers in hospital settings [19, 20]. The t-test for equality of means also shows an important distinction in mean scores between private and public organizations (Sig. = 0.345, t = 1.970, df = 162). This finding aligns with previous research conducted by Chen *et al.*, and Wang *et al.*, which demonstrated variations in healthcare practices and results across different types of healthcare establishments [16, 17]. This suggests those different public and private institutions' differences in patient demographics, treatment approaches, and resource distribution may be partially responsible for the observed heterogeneity in the variable under investigation. The daily patient distribution in public and private hospitals, as shown in this study, is in line with previous research on patient flow in healthcare settings. In public hospitals, the 0–10 range comprises 9 patients (11%) while the 11–20, 21–30, and 31–40 ranges include 32 patients (39%) and 9 patients (11%) respectively of the patients in private hospitals, 49 (60%) are between the ages of 0 and 10, 24 (29%) are between the ages of 11 and 20, 5 (6%) are between the ages of 21 and 30, and 4 (5%) are between the ages of 31 and 40. The differences between public and private hospitals that have been noticed might be related to variables that affect patient distribution patterns, such as hospital size, patient demographics, and service offers. These ratios align with findings from Johnson et al study, which found similar trends in the distribution of patients over different daily thresholds [21]. The section "Twenty-Four Hours Shift per Month" shows how shifts are worked

each month and offers information on workload distribution and staffing trends in both public and private institutions. In public hospitals, 52 shifts (63%) fall between 0 and 5, 27 shifts (33%) fall between 6 and 10, and 3 shifts (4%) fall between 11 and 15. At private hospitals, there are 71 shifts (87%) between 0 and 5, 11 shifts (13%) between 6 and 10, and no shifts between 11 and 15. These results are consistent with research by Smith *et al.,* which found differences in shift distribution across various kinds of healthcare institutions [22]. The significance of staffing concerns and workload management methods in healthcare organizations is shown by the p-value of 0.032, which indicates a significant difference in shift allocation between public and private hospitals. As shown in the "Been Able to Concentrate" section, the self-reported capacity to concentrate is a crucial component of the mental health and work performance of healthcare professionals. In public hospitals, 8 people (10%) say they can focus more than usual, 17 people (21%) say they can concentrate the same as usual, 49 people (60%) say they can concentrate less than usual and 8 people (10%) say they can concentrate considerably less than usual. Thirteen (16%) say they can focus better than usual at private hospitals, thirty-five (43%) say it's the same as usual, thirty-four (42%) say it's less than usual, and not a single person (0%), say it's considerably less than usual. Further research is necessary to confirm this discovery, even if the p-value of 0.051 indicates a marginally significant difference in concentration levels between public and private institutions. The influence of work environment elements, including workload, job satisfaction, and organizational culture, on healthcare workers' capacity to focus has been addressed in studies by Lee *et al.,* and Patel *et al* [23, 24]. The section on people's self-reported levels of stress offers information on the mental health of medical staff members working in both public and private hospitals. 12 people (15%) in public hospitals say they are not at all straining, 33 people (40%) say they are not straining more than usual, 27 people (33%) say they are straining somewhat more than usual, and 10 people (12%) say they are straining as usual. In private hospitals, 7 people (9%) say they are not at all straining, 25 people (30%) say they are not straining more than usual, 42 people (51%) say they are straining more than usual, and 8 people (10%) say they are straining normal. The reported levels of strain across the two kinds of hospitals did not vary significantly, as shown by the p-value of 0.658. This is in contrast to studies conducted in different organizational contexts by Wang *et al.,* and Li *et al.,* that identified differences in stress levels among healthcare professionals [17, 20]. This disparity highlights how difficult it is to quantify psychological strain in healthcare environments and might be caused by a variety of factors, such as sample size, cultural variations, and methodological variations among studies.

CONCLUSIONS

When examining the impact of workload on house officers' mental health, Peshawar's public and private hospitals differ slightly from one another. While similar challenges, such a heavy patient load and demanding work schedules, exist in both public and private healthcare settings, there are certain pressures that are unique to each. House officers may be less focused and more anxious in public hospitals due to longer hours and higher patient numbers. Still, while having comparatively smaller patient caseloads, private hospitals still have the burden of meeting the expectations of affluent patients. These findings emphasize the need of specific support networks and therapeutic approaches to address the mental health of house officers in both public and private healthcare environments, increasing the flexibility and effectiveness of the medical community in Peshawar and beyond.

Authors Contribution

Conceptualization: AZ
Methodology: ZA
Formal analysis: FK, RI, FZ
Writing, review and editing: MS, HI, AZ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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