

Research Article

Physician Burnout during Covid-19 Pandemic in Pediatric Emergency Rooms of Low-Middle Income Country, Pakistan

Zareen Qasmi^{*1}, Irfan Habib¹, Huba Atiq¹, Sharmeen Nasir², Shah Ali Ahmed¹, Fehmina Arif²

¹Pediatrics Emergency Department, ChildLife Foundation, Karachi, Pakistan.

²Pediatrics Department, Dow University of Health Sciences, Karachi, Pakistan.

Abstract: Background: Burnout can adversely affect the mental health, quality of life and quality of work of healthcare workers.

Objective: We aimed to assess the burnout rate among physicians working in pediatric emergency rooms during COVID-19 pandemic, in public sector hospitals of Pakistan.

Materials and Methods: It is a descriptive study performed in March 2021. We included all physicians working in the pediatric emergency departments of 9 public sector hospitals of Sindh, Pakistan, excluding those who didn't give consent. The participants were sent an online questionnaire based survey, comprising of Copenhagen Burnout Inventory (CBI) tool along with three added COVID-19 specific questions. It was disseminated electronically. Data was analyzed using SPSS ver22.

Result: A total of n=249 physicians filled the forms out of 320, giving a response rate of 77.8%. Majority 187 (75.1%) were females. Most of the physicians were females n=187 (75.1%) and worked primarily in emergency department n=186 (74.7%). The Copenhagen Burnout Inventory (CBI) score revealed that 88 (35.3%) of the physicians had burnout (Score > 50). The most common component was Personal burnout in 122 (48.9%). Physicians working in emergency department, full time shifts and at junior designations had higher rates of burnout (P value <0.05).

Conclusion: Burnout is a significant problem in pediatric emergency departments, specifically during the COVID-19 pandemic. Timely training and provision of supplies along with safety, security and alleviation of fear are important strategies to overcome burnout.

Keywords: Burnout, Emergency departments, COVID-19, Pediatric emergency, Mental health, Health care professionals, Pandemic, Healthcare Quality indicators.

INTRODUCTION

The word “burnout” was originally used by Freudenberger in 1974 to describe a state of emotional fatigue [1]. There are various tools to measure burnout like MBI (Maslach Burnout Inventory) and CBI (Copenhagen Burnout Inventory). In the recent times of COVID-19, the working environment inside hospitals has become demanding resulting in increased burnout [2].

A national survey conducted in South Africa revealed that 76% of emergency physicians experienced burnout [3]. Different studies quote varying rates of burnout from 13.4% to 60% [4-6]. Emergency department (ED) physicians and specialty trained physicians have higher burnout [7, 8]. During the current COVID-19 pandemic, the emergency physicians are experiencing high workload and multiple psychosocial stressors, including shortage of personal protective equipment (PPE) and fear of acquiring and transmitting the disease to family, which is an additional risk factor for burnout [9].

Despite existing literature on burnout among doctors, there is no data available on pediatric emergency physician's burnout.

*Address correspondence to this author at the Pediatrics Emergency Department, ChildLife Foundation, Karachi, Pakistan.
Email: drzareenqasmi@gmail.com

Therefore, we designed this survey to assess the rate of burnout among physicians working in overcrowded pediatric emergency rooms, during COVID-19 pandemic, in public sector hospitals of Pakistan.

MATERIALS AND METHODS

This is a descriptive study, performed in March 2021 in the Pediatric Emergency Departments (PEDs) of 9 public sector hospitals of Sindh, Pakistan, supported by ChildLife Foundation. Sample size was calculated using Epi Info calculator taking confidence interval 95%, margin of error 6% and prevalence of severe levels of emotional exhaustion among physicians 31.9% [10]. The estimated sample size was 232. The study was approved by the institutional review board of Dow University of Health Sciences (IRB-1780/DUHS/APPROVAL/2020).

The participants were sent an online, questionnaire-based survey which comprised of socio-demographic questions and the Copenhagen Burnout Inventory (CBI) tool. CBI is an internationally recognized tool consisting of 19 items to assess burnout, including Personal, Work related and Patient related burnout. Scores of 50 to 74 are considered ‘moderate’, 75–99 are high, and a score of 100 is considered severe burnout. We added three

more questions which were Hospital and PPE related in context of COVID-19. These questions had responses along a five point Likert scale, but they were not included in the CBI scoring.

All physicians working in the PEDs during the study period were included in the study, while those who didn't give consent and incompletely filled forms were excluded. Physicians who were primarily employed in PEDs were labelled as Emergency Department (ED) physicians, while those who were working in the ED temporarily were labelled as Non-Emergency Department (Non-ED) physicians. These included Postgraduate trainees and Interns. All physicians were categorized into full timer or part timer depending upon their working hours of more than or less than 36 hours per week.

After taking informed consent, the online questionnaire was sent to the participants as a google link using Short message service and/or WhatsApp. They were given a time of 48 hours to fill it at their convenience. The questionnaire was anonymous and data was accessible only to the investigators.

STATISTICAL ANALYSIS

Data was analyzed using SPSS v22.0. Percentages and frequencies were calculated for quantitative variable. Demographic variables were stratified for burnout score using Chi-Square/ Fisher-Exact Test. P-value of <0.05 was considered significant.

RESULT

A total of 320 participants were sent the questionnaire, out of which 249 filled the forms giving a response rate of 77.8%. Majority 187 (75.1%) were females. Most of the physicians 186 (74.7%) were from emergency department. Out of the 186 emergency physicians, majority were working full time, i.e., 169 (90.8%). Majority of the physicians were graduates 175 (70.3%) while most common designation was medical officer 110 (44.2%) (Table 1).

Table 1. Demographic Characteristics of PED Physicians.

| Demographic Characteristics | n | % |
|----------------------------------------------|-----|------|
| Gender | | |
| Female | 187 | 75.1 |
| Male | 62 | 24.9 |
| Department | | |
| Emergency Department (ED) | 186 | 74.7 |
| Non-Emergency Department (Non-ED) | 63 | 25.3 |
| ED physicians Working Hours (n=186) | | |
| Part time (Less than 36 hours) | 17 | 9.1 |
| Full time (More Than 36 hours) | 169 | 90.9 |
| Non-ED Physician Working Hours (n=63) | | |
| Full time (More than 36 hours) | 50 | 79.4 |
| Part time (Less Than 36 hours) | 13 | 20.6 |

| Physician Designation | | |
|----------------------------------------------|-----|------|
| Senior Medical Officer/Consultant/Specialist | 68 | 27.3 |
| Medical Officer | 110 | 44.2 |
| Postgraduate Trainees | 71 | 28.5 |

The Copenhagen Burnout Inventory (CBI) score revealed that 88 (35.3%) of the physicians had burnout (Score > 50). The most common component was Personal burnout in 122 (48.9%) and Moderate burnout was most common (Table 2).

Table 2. Burnout Scores among PED Physicians.

| Burnout scoring | Moderate Burnout (50%-74%) | High Burn-out (75%-99%) | Severe Burnout (100%) | Total |
|-------------------------|----------------------------|-------------------------|-----------------------|-------------|
| Personal burnout | 88 (35.3%) | 30 (12%) | 04 (1.6%) | 122 (48.9%) |
| Work related burnout | 79 (31.7%) | 23 (9.2%) | 04 (1.6%) | 106 (42.5%) |
| Patient related burnout | 49 (19.6%) | 20 (8%) | 02 (0.8%) | 71 (28.5%) |
| Overall Burnout | 76 (30.5%) | 11 (4.4%) | 01 (0.4%) | 88 (35.3%) |

Demographic variables were stratified for burnout scores which yielded interesting findings (Table 3). Emergency physicians had significantly high rate of overall burnout as well as all three individual components of burnout, as compared to non-emergency physicians. Medical officers were found to have significantly high overall, personal and work related burnout rates. Female gender had significant association only for personal burnout (p-value 0.032). For patient related burnout, postgraduate qualification had significantly high rates (p-value <0.001). Full timers had significantly higher personal and work related burnouts.

Among individual responses, females significantly wonder how long they will be able to continue working with patients (p-value 0.021). Furthermore, emergency physicians had significantly higher scores for most of the questions including emotional exhaustion (p-value <0.001), feeling worn out at end of the working day (p-value <0.001) and finding it hard and frustrating to work with patients (p-value 0.002).

In response to COVID-19 pandemic specific questions, majority of the physicians, significantly ED physicians, often and always, found it hard to work due to limited availability of PPE (41%), felt more drained out of energy due to the added burden of wearing PPE (51%) and felt that their patient management is affected due to limited availability of COVID testing (47.8%).

Table 3. Burn our Stratified for Demographic Variables.

| Variables | Personal burnout n (%) | P value | Work related burnout n(%) | P value | Patient related burnout n (%) | P value | Overall burnout n (%) | P value |
|-------------------------|------------------------|---------|---------------------------|---------|-------------------------------|---------|-----------------------|---------|
| Gender | | | | | | | | |
| Male | 27(22.1%) | 0.03 | 27(25.4%) | 0.85 | 22(30.9%) | 0.16 | 23(26.1%) | 0.73 |
| Female | 95(77.8%) | | 79(74.5%) | | 49(69%) | | 65(73.8%) | |
| Department | | | | | | | | |
| Emergency | 78(63.9%) | <0.001 | 64(60.3%) | <0.001 | 44(61.9%) | <0.001 | 57(64.7%) | 0.008 |
| Non-emergency | 44(36%) | | 42(39.6%) | | 27(38%) | | 31(35.2%) | |
| Working hours | | | | | | | | |
| Full time | 107(87.7%) | 0.039 | 91(85.8%) | 0.006 | 64(90.1%) | 0.50 | 78(88.6%) | 0.12 |
| Part time | 15(12.2%) | | 15(14.1%) | | 7(9.8%) | | 10(11.3%) | |
| Qualification | | | | | | | | |
| Postgraduate | 84(68.8%) | 0.283 | 76(71.6%) | 0.301 | 47(66.1%) | <0.001 | 61(69.3%) | 0.820 |
| Fellows | 17(13.9%) | | 14(13.2%) | | 10(14%) | | 11(12.5%) | |
| Undergrad | 21(17.2%) | | 16(15%) | | 14(19.7%) | | 16(18.1%) | |
| Designation | | | | | | | | |
| Specialist / consultant | 19(15.5%) | <0.001 | 12(11.3%) | <0.001 | 12(16.9%) | 0.066 | 9(10.2%) | <0.001 |
| Medical officer | 64(52.4%) | | 54(50.9%) | | 36(50.7%) | | 51(57.9%) | |
| Others | 39(31.9%) | | 40(37.7%) | | 23(32.3%) | | 28(31.8%) | |

DISCUSSION

Burnout is increasingly being recognized as a major concern on a global scale [11]. ED is the most strenuous department in hospitals and inadequate physical working conditions and overcrowding leads to higher risk of burnout [12]. We designed this survey to assess physician burnout in our pediatric ED with additional COVID-19 related physical and psychosocial stress.

In our study, majority of the participants were females (75%). In similar studies conducted in Turkey and Portugal, female physicians were higher in percentage. In a study conducted in general practitioners of Austria, the number of male medical officers and female specialist was higher [12-14]. In our study 35.5% of the physicians had burnout, out of which majority (30.5%) had moderate burnout. Literature review shows that the rate of burnout among healthcare workers (HCW) varies from alarmingly high rates to much lower rates [15]. In United Kingdom, a very high burnout rate of 79% was reported during COVID-19 pandemic among HCW using CBI tool, while on the other hand, in Turkey burnout rate of 16% was reported among ED professionals using MBI tool. Shahzad S, *et al.* reported a burnout rate of 21.3% in ED personnel of a private sector hospital of Islamabad, Pakistan using MBI tool, while Majeed F, *et al.* reported that more than 50% of postgraduate trainees in a public sector institute of Pakistan had burnout, using CBI tool [12, 16-18]. The variation in scores from different institutes can be explained by the structure of the healthcare system, attitudes of the patients and

physicians, changes in the study design and instruments used [19]. The public sector institutes in Pakistan, in general, lack basic facilities for the physicians, along with shortage of medical supplies and minimum security. Large private sector hospitals and Non-Government Organizations (NGOs) like ChildLife Foundation, on the other hand, make sure to provide a safe and effective working environment with all the basic facilities and medical supplies, thus the difference in burnout rates is plausible. A systematic review of studies revealed that studies which employ CBI tool recorded higher burnout, than those using MBI tool [20]. Our study despite using CBI tool has recorded a lower rate of burnout, which is encouraging for the organization.

Burnout rates when stratified for work related variables revealed that ED physicians and full timers had higher rates. Burnout among emergency personnel in Egypt was also influenced by age, years of experience, frequency of workplace violence and work burden [21]. According to Arora M, *et al.* [22], work-related (hours of work, years of practice etc.) and non-work-related (age, gender etc.) aspects are both linked to burnout. In our study junior physicians had the highest rate of burnout. This is possible because of the limitation of knowledge, fear of patient outcome and behavior of seniors. Similar to our study, other researchers have also discovered that nurses experienced higher levels of emotional exhaustion than physicians [21, 23]. Female gender was significantly associated with personal burnout in our study. Females have the added responsibility to look after the household and kids after the duty hours and they face a general

lack of opportunities and recognition. Studies report that risk of burnout in female physicians is higher and it may be up to 60% higher than in male physicians [24, 25].

This study is among the few efforts to highlight this important mental health issue faced by the physicians. It is a multicenter study but all centers are public sector hospitals. It would be interesting to know the burnout rates of private sector. Though the rate of burnout in our study is not high, yet strategies need to be implemented to reduce it further. We recommend that problems faced by the physicians on duty should be periodically discussed and appropriate steps should be taken to resolve the problems. The anxiety and fear during epidemics and pandemics should be alleviated by timely training of physicians and provision of needed supplies.

CONCLUSION

Burnout is a significant problem in pediatric emergency departments, specifically during the COVID-19 pandemic. Timely training and provision of supplies along with safety, security and alleviation of fear are important strategies to overcome burnout.

AUTHORS' CONTRIBUTION

- **Zareen Qasmi:** Conceived the idea, acquired data and drafted the article.
- **Irfan Habib:** Contributed to acquisition of data and reviewed the article.
- **Huba Atiq:** Contributed to acquisition of data, drafted and reviewed the article.
- **Sharmeen Nasir:** Analyzed the data and drafted the article.
- **Shah Ali Ahmed:** Acquired the data and drafted the article.
- **Fehmina Arif:** Analyzed the data and critically reviewed the article.

CONFLICT OF INTEREST

Declared none.

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