

Prevalence and Factors Associated with Burnout among Healthcare Professionals in India: A Systematic Review and Meta-Analysis

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ABSTRACT

Background: With increasing workload and dismal working conditions, healthcare professionals (HCPs) in India often suffer from burnout. Understanding the extent of these problems and the contributing factors is necessary to build a healthy workforce capable of serving the society. The purpose of this study was to systematically review and analyze: 1) the prevalence of burnout among HCPs in India and 2) the factors associated with burnout in this population. **Methods:** A systematic search of MEDLINE and EMBASE, from the inception of these databases to October 2019, was conducted using keywords. The search results were screened to identify studies evaluating burnout among HCPs in India using a standard burnout tool. Using a random effect model, the pooled prevalence of burnout was estimated using Maslach Burnout Inventory (MBI) in three domains: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). Risk factors for burnout were assessed qualitatively. **Results:** A total of 15 studies assessing burnout in 3845 Indian HCPs were identified. The pooled prevalence of burnout was 24% in the EE domain, 27% in the DP domain, and 23% in the PA domain. Younger age, female gender, unmarried status, and difficult working conditions were associated with increased risk of burnout. **Conclusion:** Burnout is highly prevalent among Indian HCPs, with close to one-fourth of them suffering from burnout. A number of personal and professional factors are associated with burnout, and these should be considered while developing solutions to tackle burnout.

Key words: Burnout, doctors, healthcare, India, meta-analysis

Key messages: As a considerable proportion of Indian HCPs suffer from burnout, appreciation of burnout as a major health-care-related problem is necessary to ensure timely interventions to tackle burnout.

Burnout is common in many professions and refers to a clinical syndrome characterized by excessive stress, lack of satisfaction, and a feeling of being overworked.^[1]

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Healthcare professionals (HCPs) are at an increased risk of developing burnout due to chronic exposure to high work stress.^[2] HCPs comprise of doctors, trainees, nurses, etc., who work collectively to take care of the different health-related needs of the society. Increased patient load, long and unsociable working hours, lack of a supportive work environment, daily confrontation with death, and lack of appreciation are some of the factors that have contributed to the development of burnout in HCPs.^[3] Burnout is increasingly getting recognition as it has severe consequences on the physicians' sense of wellness, institutions' performance, and patient outcomes.^[4] Burnout among HCPs can result in medical errors, hostile attitude toward patients, and a difficult working environment. Those suffering from burnout are also more prone to depression, anxiety, sleep disturbance, substance abuse, problems with marriage, early retirement, and even suicide.^[5-7] Due to the tremendous consequences of burnout in HCPs, it is very important to understand and tackle this emerging problem.

Although burnout and work-related stress have been studied widely in the western/developed countries, there has been a paucity of literature about burnout in India.^[6,8-11] A number of factors such as long working hours, lack of infrastructure, lack of leisure/recreational time, etc., can lead to burnout among HCPs.^[12,13] The growing incidence of violence on HCPs, especially doctors, may also contribute to stress in the healthcare profession.^[13,14] Previous studies have evaluated the extent of burnout among various HCPs from different parts of India. However, most of these studies included only a few specialties and were restricted to one or a few institutions. Although it would not be surprising to find a high prevalence of burnout among HCPs in India due to weaker health infrastructure, scarcity of resources, overburdened health system, and shortage of healthcare providers, a systematic review has not been conducted yet about the prevalence of burnout and its associated factors.^[7,15] Such a review will provide a much broader understanding of burnout and will help administrators and policymakers to ensure the wellbeing of HCPs in India.

Therefore, the purpose of this study was to systematically review and analyze: 1) the prevalence of burnout among HCPs in India and 2) the factors associated with burnout in this population.

METHODS

Study design

A systematic review was conducted on studies of burnout prevalence among HCPs in India according to Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. No ethical

approval was required as this systematic review was based on published data that did not contain any protected health information.

Eligibility criteria

All studies that were published in English from inception of these databases to October 2019, sampled a population of HCPs from India and used standardized tools to identify and estimate the prevalence of burnout were included in the review.

Literature search

Two large electronic databases (MEDLINE and EMBASE) were systematically searched for relevant publications from their inception to 15th October 2019 using a combination of relevant search terms. The following Boolean phrase was used: (“professional burnout” OR “burnout” OR “occupational stress”) AND (“health personnel” OR “healthcare professionals” OR “nurses” OR “residents” OR “physicians” OR “doctors”) AND (“India” OR “Indian”). The reference list of each full-text article was reviewed along with a search of related articles in Google Scholar to identify additional articles to be included in this review.

Study selection and data collection

After removal of duplicates, titles and abstracts of the identified studies were initially reviewed by two authors (VK, JG) independently. Studies considered eligible for full-text screening were retrieved for a full review. The following information was extracted from each paper satisfying the eligibility criteria: publication details, the region of the study, study population, sample size, and tool used to assess burnout. When necessary and feasible, the authors of the included studies were contacted to obtain additional information. Several scales and questionnaires are available to measure burnout; these include the Maslach Burnout Inventory (MBI), the Copenhagen Burnout Inventory (CBI), the Burnout Clinical Subtype Questionnaire (BCSQ), the Shirom-Melamed Burnout Measure (SMBM), and the Oldenburg Burnout Inventory. Among these, MBI is the most widely used tool in the medical literature for identifying and measuring burnout. MBI consists of 22 items that measure burnout in three different domains (emotional exhaustion, EE; depersonalization, DP; personal accomplishment, PA), with nine items in the EE subscale, five in the DP subscale and eight in the PA subscale.^[16] Scoring is based on the Likert scale, with each question assessed on a scale of 0 (not at all) to 5 (yes, absolutely). The prevalence of burnout is reported separately for all the three domains using prespecified thresholds (≥ 27 in EE, ≥ 13 in DP, ≤ 31 in PA), and was recorded for the present study. The prevalence of burnout reported using other tools was also recorded as appropriate.

Risk of bias in individual studies

Modified five-point Nottingham–Ottawa scale was used to assess the risk of bias in individual studies.^[17] The risk of bias was assessed on five separate domains: representativeness of the sample (low risk – multiple institutions/specialties; high risk – single institution/specialty), sample size (high risk – less than 200; low risk – more than or equal to 200), response rate (low risk - $\geq 80\%$ response rate; high risk - $< 80\%$ response rate), assessment of burnout (low risk – use of MBI for assessment of burnout; high risk – use of a standard tool other than MBI), and quality of reporting (low risk – burnout defined using predefined thresholds published in literature; high risk – lack of reporting of burnout prevalence or burnout defined using authors' own thresholds). Each criterion was given a score of either 1 (low risk of bias) or 0 (high risk of bias), with the maximum obtainable score being 5 (higher scores indicate higher quality of study). The total numerical score was calculated for individual studies and a score of ≤ 3 corresponds to a high risk of bias (low-quality study). Two of the authors (VK, ZGH) independently assessed the risk of bias for each eligible study, and disagreements were resolved by the third author (JG).

Statistical analysis

The primary outcome of interest was the pooled prevalence of burnout. As different studies used different burnout tools,

the pooled prevalence of burnout was computed only using the studies using MBI and reporting burnout in the three domains. Forest plots were developed to assess the pooled prevalence of burnout. Due to the expected heterogeneity among the studies, a random-effects model was used to estimate the pooled prevalence. The I-squared (I^2) test was used to assess heterogeneity. The factors associated with burnout were assessed qualitatively. Ninety five percent confidence intervals (CI) were computed, and a P value of less than 0.5 was taken as the threshold for statistical significance. Analyses were performed using R software (version 3.1.3, Vienna, Austria).^[18]

RESULTS

Study characteristics

The PRISMA flowchart summarizing the data collection process is presented in Figure 1. A total of 212 studies were initially identified. A systematic stepwise process was used to exclude studies that did not fulfill the eligibility criteria. A total of 15 studies that met the inclusion criteria were finally included in this review. Data extracted from each study have been summarized in a tabular form and presented in Table 1.

All the 15 papers included for review were cross-sectional studies. The final sample size of the included studies varied from 56 to 576. Gandhi *et al.*^[19] reported the highest

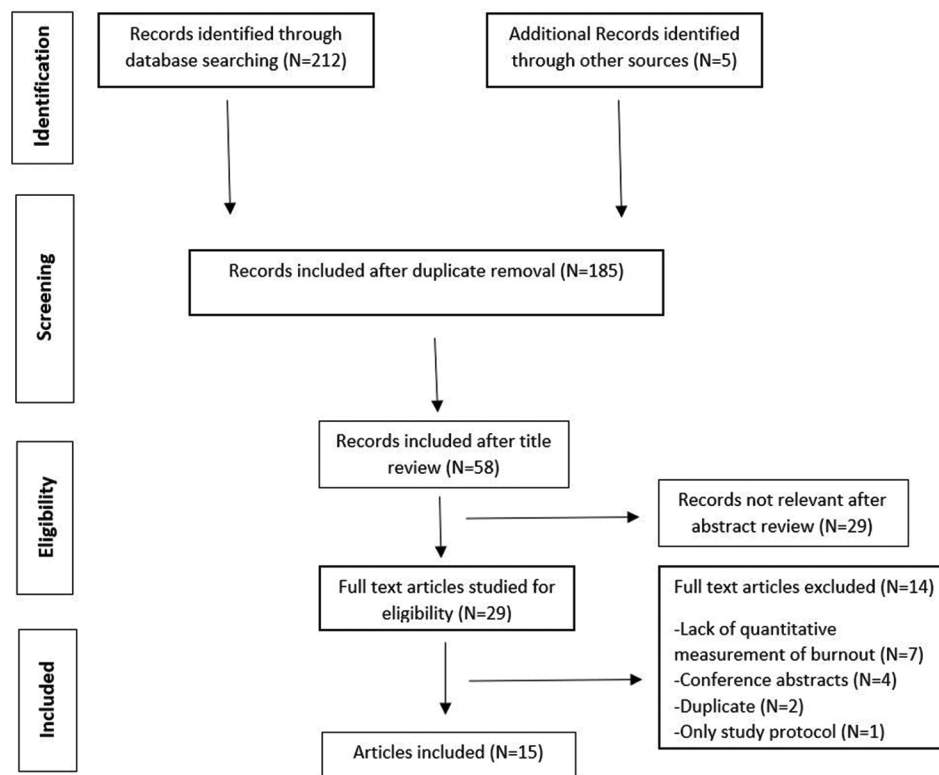


Figure 1: The flow diagram showing the inclusion of studies based on Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines

Table 1: Characteristics of included studies

Study	Number of respondents (response rate, %)	Department/specialty	Participants	Location	Scale/s used to assess burnout
Khanna <i>et al.</i> , 2013 ^[25]	576 (36%)	All medical specialties	Doctors, nurses, physiotherapists	Rajasthan	MBI
Swami <i>et al.</i> , 2013 ^[23]	56 (64%)	Medical and surgical specialties	Resident doctors	Rajasthan	SMBM
Reddy <i>et al.</i> , 2014	416 (unclear)	Dentistry	Faculties and students	Andhra Pradesh	MBI
Shetty <i>et al.</i> , 2015 ^[26]	72 (57%)	Dentistry	Post graduate dental students	Karnataka	MBI
Jugale <i>et al.</i> , 2016 ^[1]	68 (59%)	Dentistry	Dentists	Karnataka	6 item MBI
Kulkarni <i>et al.</i> , 2016 ^[24]	97 (80%)	Dentistry	Newly graduate dentists	Udaipur	CBI
Langade <i>et al.</i> , 2016 ^[20]	482 (5%)	All medical specialties	Registered medical practitioners	Across India	Abbreviated MBI and BCQS-12
Ratnakaran <i>et al.</i> , 2016 ^[22]	558 (77%)	All medical specialties	Interns and residents	Kerala	CBI
Shetty <i>et al.</i> , 2017 ^[27]	299 (14%)	Orthopedic surgery	Physicians	Across India	MBI
Wilson <i>et al.</i> , 2017 ^[16]	105 (unclear)	Emergency department	Nurses, residents and doctors	South India	MBI
Gandhi <i>et al.</i> , 2018 ^[19]	200 (100%)	Anesthesia, and surgical branches	Residents	Chandigarh	BCSQ-12
Grover <i>et al.</i> , 2018 ^[13]	445 (26%)	All specialities (except psychiatry)	Residents and faculty	Chandigarh	MBI
Sreelatha <i>et al.</i> , 2018 ^[28]	100 (55%)	All specialities	Residents	Andhra Pradesh	MBI
Chichra <i>et al.</i> , 2019 ^[29]	303 (58%)	All specialities	Faculty	Tamil Nadu	MBI
Baruah <i>et al.</i> , 2019 ^[30]	68 (unclear)	Emergency department	Doctors, nurses, paramedics	Assam	MBI

MBI - Maslach Burnout Inventory; CBI - Copenhagen Burnout Inventory; BCSQ - Burnout Clinical Subtype Questionnaire; SMBM - Shirom-Melamed Burnout Measure

response rate with 100% (200/200) of the contacted HCPs responding to the survey, whereas Langade *et al.*^[20] reported the lowest response rate of 5% (482/9,691). The total number of HCPs from the 15 studies was 3845, out of which 2202 (57%) were males and 1034 (27%) were females. Gender characteristics were not defined for 609 (16%) participants. The majority of the HCPs were doctors ($n = 3650$, 95%), of which 1168 (32%) were residents from different specialties. Nurses from different specialties ranked second, with $n = 131$, followed by paramedical staff ($n = 36$) and physiotherapists ($n = 28$). Eight studies included HCPs from multiple specialties, four from dentistry, two from the emergency department, and one from orthopedics. To estimate burnout, nine studies used 22 item MBI scale, two used the CBI scale, one used abbreviated MBI along with BCSQ-12, one used BCSQ-12, one used 6-item MBI scale, and one used SMBM.

The mean total score for bias was 2.7 ± 1.1 (range, 0–4). Eleven studies had a high risk of bias (score ≤ 3), whereas the remaining four had a low risk of bias. Sample size (7 out of 15 studies had a high risk of bias) and response rate (13 out of 15 studies had a high risk of bias) were the two most common domains where a high risk of bias was present [Figure 2].

Prevalence of burnout

Out of the 15 included studies, ten were used to estimate the pooled prevalence of burnout using MBI in three domains (EE, DP and PA). Prevalence was obtained from the published data for eight studies and the unpublished data, for the remaining two studies (Jugale *et al.* 2016,^[1] Grover *et al.* 2018^[13]) [Figure 3]. Using random-effects model, 24% (95% CI: 16–36%) of the HCPs were found to have

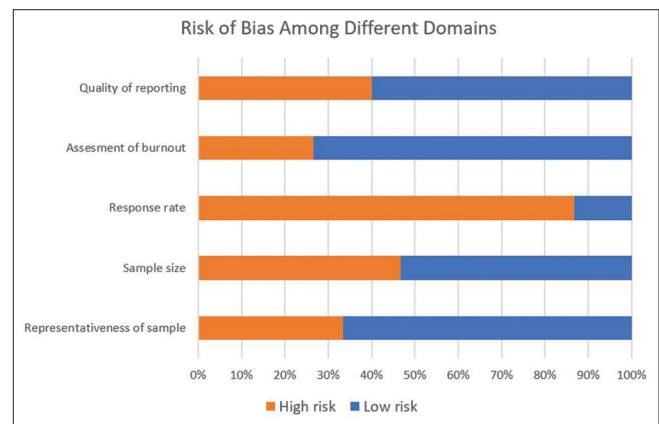


Figure 2: Bar chart showing the distribution of risks of bias among various domains for all the included studies ($n = 15$)

high scores in the EE domain, 27% (95% CI: 15–44%) were found to have high scores in DP domain, and 23% (95% CI: 11–42%) had a low score in the PA domain [Figure 3]. There was significant heterogeneity among the studies for all the three domains (EE: $I^2 = 97%$, $P < 0.01$; DP: $I^2 = 98%$, $P < 0.01$; PA $I^2 = 98%$, $P < 0.01$). Although Reddy *et al.*,^[21] used MBI, information on prevalence could not be obtained from published or unpublished data, and hence, that study was not included in quantitative analysis. Using the CBI, Ratnakaran *et al.*^[22] found that 55% of the respondents had personal burnout, 35% had work-related burnout, and 35% had patient-related burnout. Studies by Swami *et al.*^[23] and Kulkarni *et al.*^[24] assessed only the factors associated with burnout and did not report the prevalence of burnout.

Factors associated with burnout

Age was assessed by nine studies,^[1,20,24-30] of which three found that younger age was associated with a higher risk

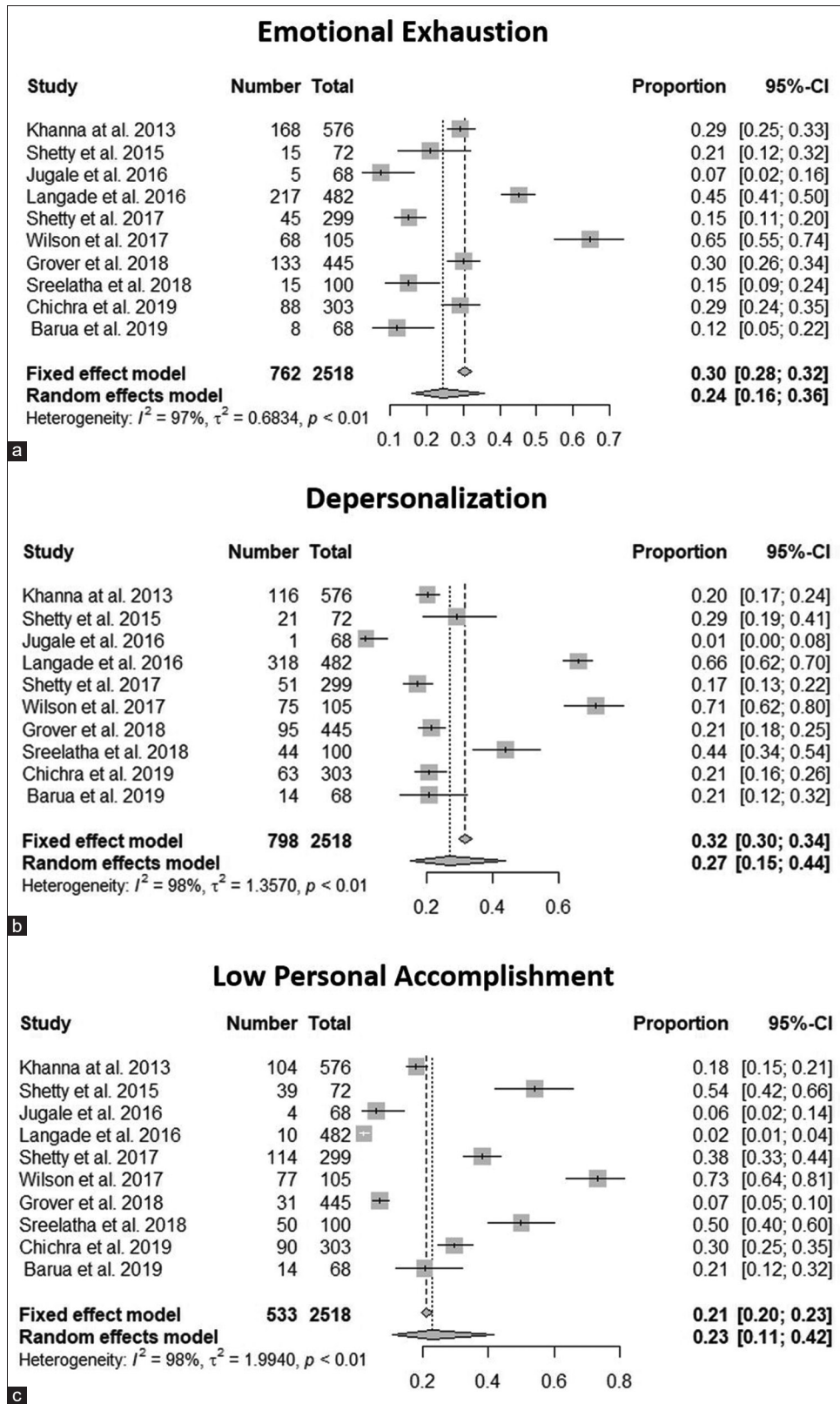


Figure 3: (a) The forest plot showing the pooled prevalence of burnout among the Emotional Exhaustion domain of Maslach Burnout Inventory. (b) The forest plot showing the pooled prevalence of burnout among the Depersonalization domain of Maslach Burnout Inventory. (c) The forest plot showing the pooled prevalence of burnout among the Low Personal Accomplishment domain of Maslach Burnout Inventory

of burnout,^[1,25,29] whereas the remaining six studies failed to show a statistically significant association between

age and burnout.^[20,24,26-28,30] Gender was evaluated by 11 studies,^[1,13,19,20,22,24-29] of which three found that

females were more likely to suffer from burnout.^[13,25,26] Langade *et al.*^[20] too reported an association between females and burnout, though statistical analysis was not performed. The other seven studies did not find any significant association between burnout and gender.^[1,19,22,24,27-29] Jugale *et al.*,^[1] Shetty *et al.*,^[27] and Sreelatha *et al.*^[28] evaluated the association between marital status and burnout and found that unmarried respondents were more likely to have burnout. A number of other closely related factors, such as longer working hours,^[20,26] professional dissatisfaction,^[25,26] perceived stress,^[23] low remuneration,^[20] lack of time for leisure activities,^[26] disturbed sleep-wake cycle,^[16] and lack of respect at work^[20,22] were also mentioned as risk factors for burnout.

DISCUSSION

Burnout among HCPs has been associated with depression, anxiety, drug and alcohol abuse, deterioration in health,^[31] and suboptimal patient care.^[32] Burnout and work-related stress have been studied widely in developed countries, but there is a paucity of literature about the same in the Indian context. This study was designed to systematically review and analyze prevalence and risk factors of burnout among Indian HCPs. After a systematic search of online databases, 15 studies that assessed burnout among 3845 Indian HCPs were included. Our study found that burnout is widely prevalent among Indian HCPs, and many personal and professional factors are associated with increased risk of burnout.

In the present study, the pooled prevalence of burnout ranged from 23% to 27% depending on the domain in which burnout was assessed. Most studies from different parts of the world have reported a similar prevalence of burnout.^[9,33-35] Trufelli *et al.*^[35] conducted a systematic review on the prevalence of burnout among 2,375 oncologists across the world. They reported a burnout prevalence of 36% in the EE domain, 34% in the DP domain, and 25% in the PA domain. Rodrigues *et al.*^[36] conducted a meta-analysis and found the overall prevalence of burnout among residents from all specialties to be 35%. In a systematic review, of more than 100 studies, by Rotenstein *et al.*,^[37] the assessment and prevalence of burnout showed substantial variation between studies, with the prevalence in some studies being more than 80%, while in some others it was less than 10%. In another systematic review among 4,108 Arab HCPs, the burnout prevalence for the three domains ranged from 20 to 81% for EE, 9 to 80% for DP, and 13 to 86% for low PA.³ Similarly, the overall prevalence of burnout among Iranian nurses was estimated to be 36% based on 21 studies including 4,180 participants.^[38] In yet another meta-analysis,

the prevalence of burnout among oncology nurses was found to be 30%, 15%, and 35% in EE, DP, and PA domains, respectively.^[39] This suggests that burnout is a universal problem across specialties and different sets of HCPs, with miniscule difference between the developed and developing world.

Multiple factors such as younger age, female gender, unmarried status, and difficult working conditions were found to be associated with burnout in some studies included in this review. However, many studies failed to show an association between burnout and age/gender, suggesting that there is inconclusive evidence to consider them as risk factors for burnout. The heterogeneity in the results of the studies could be related to unadjusted confounding factors. Although younger HCPs can be expected to have increased workloads, low remuneration, and less respect, the incidence of burnout might also be affected by the specialty and the hospital. The higher rate of burnout found in females highlights the need for gender equality and family-friendly work environments, especially in a patriarchal society like India.^[40-42] The higher burnout observed in unmarried HCPs could be related to the lack of family support, which is a known risk factor for depression and suicide.^[43,44] Similar to our findings, Amofo *et al.*,^[45] in a review of 47 studies, found that younger age, female sex, and unmarried status are predictors of burnout. In a meta-analysis of 65 studies, Lee *et al.*^[11] reported that burnout was negatively associated with autonomy, positive work attitudes, and quality and safety culture, whereas it was positively associated with workload, constraining organizational structure, conflicts, low standards, negative work attitudes, and work-life conflict. Therefore, maintaining a friendly and stress-free working environment is of paramount importance in reducing burnout among HCPs.

Even though our study is the first of its kind among Indian HCPs, it has many limitations. Only a handful of studies could be included in this review. Even among these studies, there was heterogeneity with respect to the tool used to assess burnout, making it difficult to perform a comparison between the studies. As a result, only ten studies could be used to evaluate the pooled prevalence of burnout. Many studies had small sample sizes, and the response rates were very low in most of them. This in itself is a limitation compared to the fact that there are about 12–15 million registered HCPs in India^[46] belonging to different geographical, ethnic, and subspecialty classes. The working environment is also markedly different across the various health care systems in India and was not accounted for in this study. Finally, the present study was also unable to perform quantitative analysis with respect to risk factors

associated with burnout, due to the heterogeneity in the assessment of risk factors among the included studies.

CONCLUSION

In summary, our analysis found that, based on the pooled results, approximately one-fourth of Indian HCPs suffer from burnout. There was substantial variation in the reported prevalence of burnout among the studies. Appreciation of burnout as a major health-related problem will help in its early detection and will ensure timely interventions to tackle this problem effectively. Some of the possible strategies to prevent burnout include a reduction in working hours, scheduled staff meetings, encouraging cooperation/discussion between professionals, workshops to improve coping skills, etc.^[47,48] As the Indian healthcare system is constantly changing, with significant differences in physician-patient relations and working environment compared to other healthcare systems, it is important to implement strategies specifically addressing burnout in the Indian system. Therefore, further studies are required to assess the effectiveness of these various interventions in reducing burnout among Indian HCPs.

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Conflicts of interest

There are no conflicts of interest.

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