

# Causes and Adverse Impact of Physician Burnout: A Systematic Review

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## ABSTRACT

**Objective:** To review the significant causes and effects of physician burnout in published literature.

**Methodology:** A systematic review was conducted for searching published literature on the causes and effects of burnout in three online databases. Inclusion and exclusion criteria were developed for final selection of papers. The selected papers were critically appraised and thematic analysis was done to identify major themes related to physician burnout.

**Results:** Thirty-one papers were finally selected among the 2,828 identified studies. The thematic analysis revealed demographic factors, e.g. age, gender, marital status, specialty and job position; and organizational factors, e.g. workload, interpersonal demands, job insecurity and lack of resources, as significant causes of burnout. The consequences of burnout included individual and organizational effects. The individual effects of burnout included physical health problems; while organizational effects included poor job performance, low organizational commitment, and turnover intentions.

**Conclusion:** Burnout is a recognized workplace hazard in the healthcare sector. The individual characteristics of physicians and working environment within hospitals are contributory factors of burnout. Therefore, proactive interventions should be taken at individual and institutional levels for preventing physician burnout by improving the personal lifestyle of physician and working environment in hospitals.

**Key Words:** *Burnout. Stressors. Physicians. Hospital. Systematic review.*

## INTRODUCTION

Burnout is a response to the chronic stressors that are prevalent in the workplace. It is characterized by feelings of emotional exhaustion and cynicism that leads to inefficacy and lack of accomplishment.<sup>1</sup> Burnout is a major risk factor in the work context, especially in professions that requires frequent interactions with public.<sup>2</sup> Physicians are exposed to social and emotional demands at work, while interacting with patients; and resultantly they develop symptoms of burnout. The burnout syndrome cultivates its seeds at some stage within the medical college, continues during residency period, and finally gets mature when physicians begin practice in hospitals.<sup>3</sup>

In the recent times, the working environment inside hospitals has become demanding; resultantly the burnout rates among physicians have increased. A national survey by Rossouw *et al.* revealed that 76% of physicians experienced symptoms of burnout.<sup>4</sup> They

found that job demands like workload, bad working conditions, lack of management support, limited vacation, and public system related frustration caused burnout symptoms among physicians. Burnout is associated with job dissatisfaction,<sup>5</sup> sick leave, turnover intentions,<sup>6</sup> and lower patient satisfaction with treatment and recovery time.<sup>7</sup>

Despite existing literature on burnout, only few papers have identified the significant causes and effects of physician burnout; therefore, some of the aspects of burnout are still unexplored. Recently, systematic reviews have been conducted on the burnout factors among physicians.<sup>8,9</sup> They suggested the researchers to further investigate the contributory factors of burnout. The current systematic review will update existing findings on the causes and effects of physician burnout.

The aim of this systematic review was to identify the significant causes and effects of physician burnout in published literature. The findings of this review will be helpful to formulate preventive strategies to avoid burnout symptoms among physicians.

## METHODOLOGY

A systematic review was conducted along the suggested lines of: (i) formulate research questions, (ii) identify and extract relevant literature, (iii) assess quality of studies, (iv) analyze and summarize results, (v) interpret and discuss the results.<sup>10</sup> As part of the systematic review, thematic analysis was also conducted to identify major themes related to physician burnout. Studies were

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searched in three online databases: PubMed, Taylor, and Francis; and Science Direct. Specific terms and keywords like, burnout, physician burnout, effects of physician burnout, causes of physician burnout, etc. were used to locate studies. Studies were selected on the basis of certain inclusion and exclusion criteria. Studies with sample consisting of practicing physicians, regardless of specialty or department, were included. Minimum 50% of practicing physicians were required, in case the sample consisted of different types of healthcare professionals. Only quantitative studies in the English language, which examined both causes and effects of burnout, published from the year 2010 till year 2016, were included.

Exclusion criteria were studies conducted on nurses and other healthcare professionals, on off-duty and trainee physicians, and studies only examining the causes of burnout.

The search process was carried out within a time period of two months, and 2,828 studies were initially identified. In the first step, the titles and abstracts of 2,828 studies were reviewed, whereas 1,723 studies did not meet the inclusion & exclusion criteria. In the second step, the detailed texts and sections of remaining 1,105 studies were reviewed, and further 787 studies were excluded on the basis of non-conformance with inclusion & exclusion criteria. In the final step, the remaining 318 studies were further reviewed and 256 studies were dropped. The remaining 62 studies were reviewed for quality; among these, 31 studies did not meet quality criteria. Therefore, only 31 studies were finally selected for systematic review, as is clear from Figure 1.

The quality assessment was made by eight items of Epidemiological Appraisal Instrument (EAI),<sup>11</sup> and five additional items developed by an expert panel. Total thirteen items covered eight methodological aspects, i.e. hypothesis/objectives; problem statement/research gaps; study design; population and sampling; missing

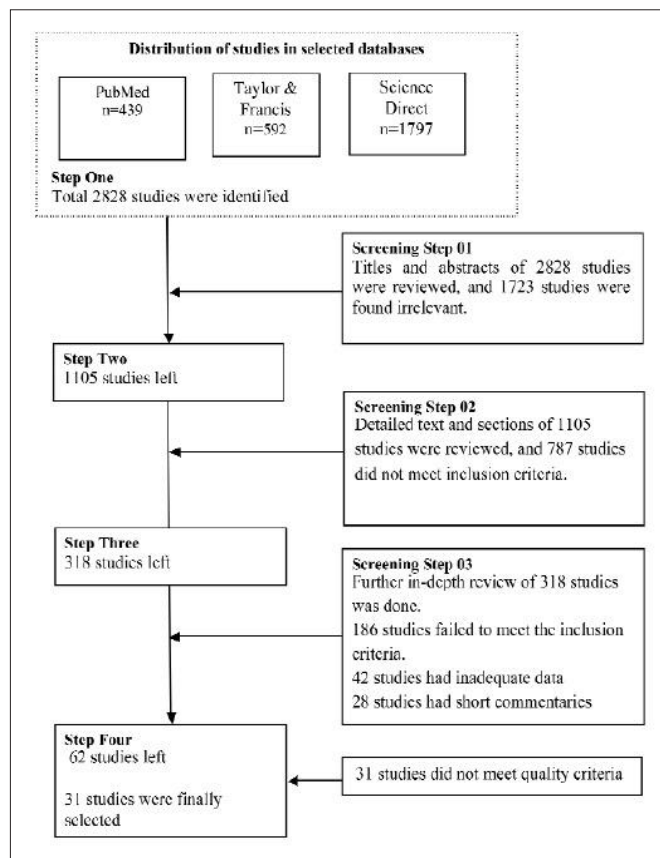


Figure 1: Flowchart for the stepwise screening of studies.

data record; statistical analysis; presentation of findings; discussion; conclusion; and recommendations. All items were scaled on three levels, i.e. no=0, partial=1 and yes=2. EAI scores can be divided as 0.0 to 0.75 (poor), 0.76 to 1.25 (average), and 1.26 to 2.00 (high). Out of 62 studies, 31 studies were excluded due to poor methodological quality. The remaining 31 studies had a mean score of 1.598, and inter-rater reliability Kappa value of 0.69. This review did not include any human subjects, personal information or any confidential data; therefore, no ethical approvals were required.

## RESULTS

The selected studies were published between year 2010 and 2016. These studies were conducted in the United States, Australia, Taiwan, Pakistan, Malaysia, Yemen, Iran, China, Hong Kong, Denmark, Japan, Germany, France, and Italy. The population of respondents ranged from minimum 82 to maximum 7,288. Most of the studies had 'cross-sectional'; however, some of the studies had 'longitudinal' and 'exploratory' research designs. The age of respondents was between 21 and 71 years, with an average of 38.76 years, the details given in Table 1.

Among the demographic characteristics, the thematic analysis revealed seven major factors related to burnout, i.e. age, gender, marital status, number of children,

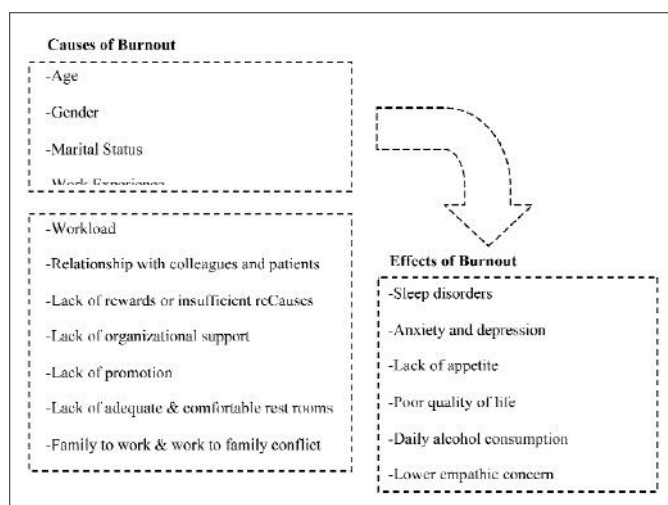


Figure 2: The causes and effects of physician burnout.

specialty, working experience and job position. The majority of selected studies identified gender and age as significant factors associated with physician burnout. For example, some studies reported female physicians had high burnout.<sup>12-16</sup> Age-wise, young physicians were reported to have a high burnout as compared to the senior physicians. For example, two studies reported that physicians in the age category of 25 to 35 years had experienced high level of emotional exhaustion and depersonalization.<sup>14,16</sup> For this reason, some studies reported that the burnout level was high among the young and less experienced physicians who were at initial career job positions.<sup>15,17,18</sup> The marital status and children were also found to be significant factors of burnout. Unmarried physicians had higher level of burnout, and physicians without children were also more prone to burnout.<sup>14,17-19</sup> Finally, dissatisfaction with specialty was correlated with emotional exhaustion and depersonalization.<sup>16,20</sup> Physicians working in specialties like surgery, pediatrics, gynecology, and emergency medicine experienced more burnout due to the demanding nature of these specialties.<sup>15,21,22</sup>

The identified studies have revealed different causes of burnout. The majority of studies have reported workload as one of the dominant causes of burnout. The details show that physicians experience workload in shape of daily/weekly working hours;<sup>12,23-25</sup> general workload;<sup>26,27</sup> overnight duty;<sup>20</sup> administrative duties;<sup>12</sup> complexity of tasks; over time and schedule inflexibility;<sup>14</sup> patient overload; patients serviced per shift; consultations per week/day etc.<sup>15,19,21,28</sup> The relationship with colleagues and patients was another source of burnout. The physicians experienced burnout because they were not feeling part of a coherent team,<sup>29</sup> there was lack or absence of communication or cooperation between colleagues,<sup>13,24</sup> dissatisfaction with doctor-patient relationship,<sup>25</sup> working with incompetent colleagues,<sup>30</sup> and dealing the problematic patients where patients disagree with therapeutic choices.<sup>13,27</sup>

Other causes of burnout include lack of rewards or insufficient resources,<sup>13,29</sup> lack of organizational support,<sup>21</sup> lack of promotions and lack of adequate comfortable rest rooms and other facilities,<sup>30</sup> low supervisor support,<sup>25</sup> family to work conflict and work to family conflict,<sup>27,31</sup> lack of work autonomy and lack of clinical autonomy,<sup>32,33</sup> personality types,<sup>34</sup> job insecurity,<sup>35</sup> shortage of equipments,<sup>21</sup> anxiety due to clinical uncertainty and reluctance to disclose uncertainty to patients<sup>36</sup> and lack of opportunities for professional development.<sup>24</sup>

The majority of studies have reported three symptoms of burnout, i.e. emotional exhaustion, cynicism or depersonalization and self efficacy or accomplishment. These symptoms were measured by Maslach Burnout Inventory (General Survey),<sup>37</sup> and Maslach Burnout

Inventory.<sup>38</sup> However, some of the studies used the modified versions of Maslach Burnout Inventory as Wang *et al.* used the Chinese version of Maslach Burnout Inventory-Human Service Survey.<sup>17</sup> Similarly, Saijo *et al.* collected data by the Japanese version of Maslach Burnout Inventory General Survey.<sup>22</sup> One study used the Chinese version of Copenhagen Burnout Inventory by assessing personal, work related and patient related burnout.<sup>34</sup>

The consequences of burnout include both individual and organizational effects. The individual effects of burnout include sleep disorders, lack of appetite, depression, body pain and daily alcohol consumption,<sup>14,24</sup> diminished quality of life,<sup>16</sup> lower perspective taking and lower empathic concern,<sup>19,39</sup> medical mistakes like harming patients and medication errors.<sup>40</sup> Whereas, the organizational effects of burnout consist of job dissatisfaction,<sup>15,23,41</sup> intentions to leave job,<sup>20,29,42</sup> diminished organizational commitment and job performance.<sup>35,43</sup> The details are given in Table II.

## DISCUSSION

This review aimed at examining the different causes and effects of physician burnout in published literature. Following the thematic analysis, certain demographic factors like age, gender, marital status, number of children, specialty, working experience and job position were found to be related with physician burnout. Moreover, different types of causes and consequences of physician burnout were also identified. It is one of the unique studies which examined a broad range of causes and effects of burnout among physicians from 14 countries with large sample sizes, diverse age groups, genders, and reliable study designs. Therefore, the findings of this review can be generalized among the physicians worldwide. Figure 2 shows the causes and effects of physician burnout that appeared most frequently in the existing literature. It should be noted that the causes and effects of burnout are interrelated with each other.

This review identified that female physicians had to perform multiple work and family roles, resultantly being more physically and emotionally exhausted, were more likely to experience burnout.<sup>44</sup> Age-wise, young physicians were reported to have a high burnout level. Young physicians are more prone to burnout because they are often given more workload (physical work) and they work in odd timings, like during night shifts. Moreover, they face difficulties in their early career progression and also have low stress coping capacities. The marital status and kids were also found to be related to burnout. The previous research shows that marriage and family provides strong social support and better coping skills,<sup>45</sup> therefore physicians who have family and

**Table I:** Details of demographic information.

Study	Location	Population/sample	Study design	Gender (n)		Age (years)
				Male	Female	
Shanafelt et al., 2015	United States	Time one (n)=6880 Time two (n)=7288	Longitudinal	T1=4497 T2= 5242	T1=2383 T2=2046	35 to 65
Shanafelt et al., 2016	United States	Time one (n)=339 Time two (n)=466	Longitudinal	T1=115 T2= 191	T1=224 T2= 275	35 to 55
Zubairi & Noordin, 2016	Pakistan	n=82	Cross-sectional	44	37	Not given
Garcia et al., 2015	United States	n=121	Cross-sectional	61	60	Mean age=51.7
Dyrbye et al., 2013	United States	n=7123	Cross-sectional	5121	2002	Mean age=49.3
Williams & Zipp, 2014	United States	n=1149	Exploratory descriptive	943	206	20 to 71
Blanchard et al., 2010	France	n=204	Cross-sectional	82	122	Mean age=28.25
Howard, 2013	United States	n=532	Descriptive survey	204	333	25 to 65
Ciammella et al., 2013	Italy	n=112	Cross-sectional	39	73	25 to 39
Yao et al., 2015	China	n=345	Cross-sectional	119	226	30 to 40
Lue, Chen, Wang, Cheng, & Chen, 2010	Taiwan	n=555	Descriptive survey	376	179	Mean age=29.35
Lin, Lin, & Cheng, 2013	Taiwan	n=310	Not given	168	142	25 to 55
Passalacqua & Segrin, 2012	United States	n=93	Descriptive survey	62	31	25 to 40
Tourigny, Baba, Han, & Wang, 2013	China	n=453	Cross-sectional	195	258	Mean age=33.20
Pantenburg, Lupp, König, & Riedel-Heller, 2016	Germany	n=1784	Cross-sectional	698	1086	25 to 40
Kimo Takayesu et al., 2014	United States	n=218	Cross-sectional	129	89	25 to 45
Wang et al., 2014	China	n=457	Cross-sectional	185	272	Mean age=39.13
Jalili, Roodsari, & Nia, 2013	Iran	n=165	Cross-sectional	151	14	Mean age=33.6
Wu et al., 2013	China	n=1202	Cross-sectional	555	647	30 to 51
Al-Dubai, Ganasegeran, Perianayagam, & Rampal, 2013	Malaysia	n=191	Cross-sectional	85	106	23 to 33
Wu et al., 2012	China	n=2721	Cross-sectional	1024	1697	Mean age=33
Siu, Yuen, & Cheung, 2012	Hongkong	n=226	Cross-sectional	156	70	Mean age=37
Al-Dubai & Rampal, 2010	Yemen	n=563	Cross-sectional	335	228	25 to 55
Zhang & Feng, 2011	China	n=1451	Cross-sectional	960	491	30 to 51
Cooke, Doust, & Steele, 2013	Australia	n=101	Cross-sectional	33	68	20 to 50
Lamothe, Boujut, Zenasni, & Sultan, 2014	France	n=294	Cross-sectional	151	143	Mean age=51
Saijo et al., 2014	Japan	n=488	Cross-sectional	391	97	29 to 50
Wang, Liu, Wang, & Wang, 2012	China	n=1011	Cross-sectional	447	564	Mean age=37.8
Vedsted, Sokolowski, & Olesen, 2013	Denmark	n=374	Cross-sectional	228	146	45 to 59
Chen et al., 2013	Taiwan	n=809	Cross-sectional	642	167	20 to 51
Wen et al., 2016	China	n=1537	Cross-sectional	896	641	Mean age=36.5

spouse are in a better position to combat burnout. One of the interesting findings of this review is that certain personality traits (e.g. neuroticism) of physicians are positively related with burnout. Such findings have filled the gaps of previous systematic reviews, which stated that there was shortage of literature on the relationship between personality and physician burnout. The causes of burnout are mostly dependent on the working conditions inside the hospital. For example, if the physicians are given more workload and they have to perform multiple roles by engaging with their colleagues and patients, then they will feel exhausted. Similarly, if there is lack of promotion with less career progression then physicians will have diminish self-accomplishment. The burnout stricken physicians are not satisfied with their jobs, are less committed to the job and have turnover intentions. Therefore, the prevalence of burnout among physicians globally is mostly due to the unfavorable working environment that ratchet up the pressure on physicians.<sup>46</sup>

The current review has certain limitations; for example, problems may arise while generalizing the findings of studies from different countries as the external validity of such findings is reduced with cultural variations and

changes in demographics. Moreover, selection bias may arise because only English-language studies were selected, so there are chances of missing important information published in other languages. Finally, this review was particularly on the physicians, hence there is a possibility of omitting important findings from studies on other healthcare professionals like paramedics. This review found an overall shortage of research studies examining the direct causation among causes, symptoms, and effects of physician burnout. It is also evident from the fact that most of selected studies have used Maslach Burnout Inventory, which is self-administered tool for assessing burnout subjectively. Therefore, in such case, direct causation was difficult to determine. Burnout is a dynamic and complex phenomenon, however, most of the studies utilized cross-sectional designs; therefore, changes in nature of burnout over time could not be determined. In order to truly comprehend the nature of physician burnout, the future researchers are recommended to conduct comprehensive meta-analysis by adding studies that are published in other languages; studies conducted on other healthcare professionals, like paramedics; and studies that have determined causation and objective measurement of physician burnout.



**Table II: Details about causes, symptoms and effects of burnout.**

Study	Demographic Variables	Causes of Burnout	Symptoms of Burnout	Outcomes of Burnout
Shanafelt, <i>et al.</i> , 2015	Gender, age, relationship status, specialty	Hours worked per week	Emotional exhaustion depersonalization and personal accomplishment	Decline in job satisfaction
Shanafelt, <i>et al.</i> , 2016	Gender, age, specialty	Nil	Emotional exhaustion depersonalization	Decline in job satisfaction and professional work effort
Zubairi and Noordin, 2016	Gender, age, specialty, marital status, residential status	Workload, length or work hours, relationship with co-workers, lack of autonomy	Emotional exhaustion depersonalization and personal accomplishment	
Garcia, <i>et al.</i> , 2015	Gender, age, specialty, marital status, years of practice	Not feeling part of a coherent team, insufficient resources, unfair treatment by supervisors, workload	Cynicism, exhaustion, and professional efficacy	Intentions to leave job
Dyrbye <i>et al.</i> , 2013	Gender, age, specialty	Work-home conflicts, work load, over night duty	Emotional exhaustion depersonalization and personal accomplishment	Decline in Job satisfaction Intentions to leave job
Williams and Zipp, 2014	Gender, age, marital status, years of practice	Administrative duties, hours work per week	Emotional exhaustion depersonalization and personal accomplishment	
Blanchard, <i>et al.</i> , 2010	Gender, marital status	Poor rewards system, emotional load, workload, demands of patients, disagreement with therapeutic choices, absence of communication between colleagues	Emotional exhaustion depersonalization and personal accomplishment	Intentions to leave job, Antidepressant intake, anxiolytics intake
Howard, 2013	Age, gender, marital status, presence of children	Workload, schedule inflexibility, complexity of tasks, over time, reward-effort imbalance, personality types	Emotional exhaustion depersonalization and personal accomplishment	Poor eating, depression, body pain, Alcohol and drug use
Ciammella, <i>et al.</i> , 2013	Age, gender, marital status, No. of children, professional status, work experience	Work hours per week, lack of cooperation with colleagues, lack of opportunities for professional development, uncertainties on working perspectives	Emotional exhaustion depersonalization and Personal accomplishment	Sleep disorders, lack of appetite, other health complains, daily alcohol consumption
Yao, <i>et al.</i> , 2015	Gender, age, marital status, education level, work experience, Annual personal income	Daily working hours, Years of teaching	Emotional exhaustion depersonalization and Personal accomplishment	Diminished quality of life
Lue, Chen, Wang, Cheng, and Chen, 2010	Age, gender	Working situational stress, demands from patients, clinical skill stress, dealing with family, personality types	Personal burnout, work-related burnout, patient-related burnout	
Lin, Lin, and Cheng, 2013	Age, gender, marital status, No. of children, education level, monthly income, work experience	Workload, job insecurity, working environment	Emotional exhaustion depersonalization and Personal accomplishment	Diminished organizational commitment
Passalacqua and Segrin, 2012	Age, gender	Perceived stress	Emotional exhaustion depersonalization and personal accomplishment	Decline empathy towards patients, lower patient centered communication
Tourigny, Baba, Han, and Wang, 2013	Age, gender		Emotional exhaustion	Diminished organizational commitment, diminished job performance, turnover intentions
Pantenburg, Lupp, König, and Riedel-Heller, 2016	Age, gender, marital status, work experience, specialty	Workload, working environment, patient care	Emotional exhaustion depersonalization and personal accomplishment	Intentions to leave job
Kimo Takayesu, <i>et al.</i> , 2014	Age, gender, marital status, children, education, work experience	Lack of administrative autonomy, lack of clinical autonomy, working environment, challenges associated with job	Emotional exhaustion depersonalization and Personal accomplishment	
Wang, <i>et al.</i> , 2014	Age, gender, work experience	High-risk imbalance state under high demand and low self-control	Emotional exhaustion depersonalization and personal accomplishment	
Jalili, Roodsari, and Nia, 2013	Marital status, age, gender	Work environment, shortage of equipment, relationship with colleagues, lack of organizational support, patient overload, difficulties in personal and work life, performance appraisal	Emotional exhaustion depersonalization and Personal accomplishment	
Wu, <i>et al.</i> , 2013	Marital status, age, gender, education level, job position	Dissatisfaction with doctor-patient relationship, working >40 hours per week, low reward, and high psychological job demands, low decision authority, low supervisor support	Emotional exhaustion, cynicism, professional efficacy	
Al-Dubai, Ganasegeran, Perianayagam, and Rampal, 2013	Marital status, age, gender, ethnicity, education level, work experience, specialty	Fear of making mistakes, working with uncooperative and incompetent colleagues, lack of adequate comfortable rest rooms and other facilities, lack of incentives and promotions	Emotional Burnout	
Wu, <i>et al.</i> , 2012	Marital status, age, gender, education level, family income	Role stressors, physical working conditions, interpersonal stressors	Cynicism, exhaustion, and professional efficacy	
Siu, Yuen, and Cheung, 2012	Age, marital status, number of children, work experience, job position,	Working hours per week, workload, insufficient reward, job insecurity	Emotional exhaustion depersonalization and Personal accomplishment	Lower Job Satisfaction
Al-Dubai and Rampal, 2010	Marital status, age, gender, education level, work experience, monthly income	Psychological Morbidity, dealing problematic patients, job insecurity, poor physical working environment, lack of reward, workload, family-work conflict, long working hours	Emotional exhaustion depersonalization and personal accomplishment	
Zhang and Feng, 2011	Marital status, age, gender, education level, work experience, specialty, monthly income	Working environment, reward system, organization management system	Emotional exhaustion depersonalization and personal accomplishment	Turnover intentions
Cooke, Doust, and Steele, 2013	Age, gender, work experience	Intolerance of uncertainty, anxiety due to clinical uncertainty and reluctance to disclose uncertainty to patients	Emotional exhaustion, frustration at work, diminished energy	
Lamothe, Boujut, Zenasni, and Sultan, 2014	Age, gender, marital status, working experience	Number of consultation per week, Length of consultation	Emotional exhaustion depersonalization and personal accomplishment	Lower perspective taking, lower empathic concern
Saijo, <i>et al.</i> , 2014	Gender, age, marital status, clinical experience, clinical specialty, hospital location	Working hours, night duty, time constraints, lack of communication with colleagues	Emotional exhaustion depersonalization and personal accomplishment	
Wang, Liu Wang, and Wang, 2012	Gender, age, marital status, education,	Work interfering family conflict, Family interfering work conflict	Cynicism, exhaustion, and professional efficacy	
Vedsted, Sokolowski, and Olesen, 2013	Gender, age, marital status	Number of patients per day, Number of consultations per day, weekly working hours	Emotional exhaustion depersonalization and personal accomplishment	
Chen, <i>et al.</i> , 2013	Gender, age, marital status, job position, work experience, specialty	Number of patients serviced per shift, hours worked per shift, total work hours per week, number of times on call per week	Emotional exhaustion depersonalization and personal accomplishment	Lower Job satisfaction
Wen, <i>et al.</i> , 2016	Gender, age, marital status, job position, education	Work hours per week, patient number of daily service	Emotional exhaustion depersonalization and personal accomplishment	Medical mistakes like patient was harmed, medication errors, treatment delayed, incomplete or incorrect item in patient's record

## CONCLUSION

The physician burnout is a recognized workplace hazard and serious threat to the social and professional lives of the physicians. Therefore, it should be handled in a proactive way by taking effective interventions at individual and institutional levels. At the individual level, physicians should adopt a healthy lifestyle to prevent burnout. Institutionally, the management of hospital should provide a conducive working environment to the physicians. Policy-makers in the healthcare sector should formulate policies for allocating proper funds and other resources to the hospitals.

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