

Burnout Among Respiratory Therapists in a Tertiary Hospital in Saudi Arabia

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BACKGROUND: Respiratory therapists (RTs) provide many types of patient care in different clinical settings. Burnout can have an undesirable effect on RTs and their patients. Managing the COVID-19 pandemic, specifically in hospitals, could induce stress in RTs and increase the likelihood of burnout. Therefore, this study aimed to measure the level of burnout among RTs during the COVID-19 pandemic. **METHODS:** A validated cross-sectional questionnaire was used to identify the prevalence and characteristics of burnout among RTs. The questionnaire was administered by the respiratory care department of a tertiary health care center in Riyadh, Saudi Arabia. The data analysis included descriptive, inferential, and correlational tests. **RESULTS:** The survey was distributed among 100 RTs, with a response rate of 66%. Most respondents reported high burnout levels in the 3 domains of burnout: 77% reported emotional exhaustion; 98% reported depersonalization, and 73% reported low personal achievement. Univariate analysis revealed that emotional exhaustion was significantly higher among RTs who were male, married, or working in critical care settings. Female RTs and those working in general care settings reported feelings of reduced personal achievement. Furthermore, the analysis revealed a moderate positive correlation between the years of experience and emotional exhaustion ($r = 0.6$, $P < .001$). **CONCLUSIONS:** A high prevalence of burnout was observed among RTs in one Saudi tertiary hospital. Burnout is associated with several factors, and interventions should target all domains of burnout. RT management and staff are responsible for addressing their needs and collaboratively working together to overcome burnout. Further investigations focusing on techniques and strategies to alleviate burnout are required. *Key words: burnout; respiratory therapist; critical care; well-being.* [Respir Care 0;0(0):1–●. © Daedalus Enterprises]

Introduction

Burnout was first defined by Freudenberg in 1974 to characterize the response to persistent stress among workers in jobs that require many relational interactions.¹ Burnout is a psychological syndrome that presents significant challenges in health care settings, such as hindering patient safety, increase in staff resignation rates, and under-performance.² Burnout syndrome has been defined by 3 domains: depersonalization, emotional exhaustion, and reduced personal accomplishment.³

Working in critical care settings affects clinicians and is associated with burnout. Working during the COVID-19 pandemic has worsened the impact of this syndrome.⁴ The high prevalence of burnout among critical care workers could be driven primarily by their highly stressful work

environment particularly during an unprecedented health care crisis such as the COVID-19 pandemic in which they contribute on the first-lines of health care services.

In the last decade, several studies have been conducted to evaluate burnout among health care professionals in Saudi Arabia. These studies have consistently reported high levels of burnout.⁵⁻⁷ The reported risk factors for burnout in these studies include years of experience, the negative impact of work on social life, and lack of management support. Although these studies concentrated on physicians and nurses, no studies in Saudi Arabia have investigated burnout among respiratory therapists (RTs), who are in the first-line of response, specifically in critical care.

RTs provide care to acute and chronic patients diagnosed with lung diseases in ICUs. Due to this work environment,

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RTs are exposed to high levels of stress while providing optimal care and communicating with patients.⁸ However, burnout and job dissatisfaction can negatively impact the productivity of RTs.

A recent study conducted in the United States to investigate burnout among RTs showed that 79% of RTs reported burnout, with over 40% experiencing moderate and severe burnout. The study also reported that increased work loads, staffing shortages, working in ICUs, and frequent contact with patients with COVID-19 are common causes of burnout among RTs.⁸ Another study evaluating the resources of burnout in American respiratory care departments reported that approximately 70% of RTs experienced burnout.⁹ In Saudi Arabia, studies on burnout among RTs are limited. Therefore, the current study aimed to examine the level of burnout among RTs and the associated risk factors in a Saudi hospital.

Methods

This study was a quantitative cross-sectional survey and was approved by the institutional review board of the King Abdullah International Medical Research Center (SP21R/222/05), Riyadh, Saudi Arabia. The survey was conducted at a tertiary hospital in the capital city of Saudi Arabia. The hospital has a cumulative capacity of 1,200 beds and total of 165 RTs. All RTs were eligible to participate. A power analysis was performed to identify the level of burnout according to its 3 domains among RTs, and a minimum of 100 responses was required. Therefore, a license to reproduce 100 copies of the Maslach Burnout Inventory-Human Services Survey for Medical Personnel (MBI-HSS [MP]) was obtained from the publisher Mind Garden. The survey was conducted between September 2021–November 2021 and administered electronically using Google Forms (Google, Mountain View, California). The survey was shared with the respiratory care service department to be randomly distributed to 100 RTs. Nonprobability convenience sampling was used for practicality and feasibility. Consent was obtained from the participants prior to enrolling in the study.

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QUICK LOOK

Current knowledge

Burnout is a serious condition that affects health care providers and is linked with undesirable outcomes. The prevalence of burnout among respiratory therapists (RTs) is high in developed countries. However, there is limited knowledge regarding burnout among RTs in Saudi Arabia.

What this paper contributes to our knowledge

The prevalence of burnout among RTs in Saudi Arabia was as high as in the United States, despite differences in religious beliefs and culture. Emotional exhaustion was positively correlated with the number of years of experience.

MBI-HSS (MP) was used to evaluate the burnout levels among RTs during the COVID-19 pandemic. The inventory consists of 22 self-reported items that ask respondents to report their specific feelings during work on a 7-point Likert scale. The MBI-HSS (MP) consists of 3 domains: 9 items measuring emotional exhaustion, 5 items measuring depersonalization, and 8 items measuring personal achievement. In total, 100 copies of the survey were distributed. The survey also included questions to identify the respondents' demographic characteristics, including sex, age, marital status, time of shift, years of experience, and whether they worked in critical or general care. No personally identifiable information was obtained.

Burnout was measured by adding the responses to the inventory items for each domain and using the sum as the scale score. High burnout is characterized by achieving high scores in the emotional exhaustion and depersonalization domains and low scores in the personal achievement domain.³ Maslach and Jackson (1981) defined high-level burnout as a score ≥ 27 for emotional exhaustion, ≥ 10 for depersonalization, and ≤ 33 for personal achievement. They defined moderate burnout as a score of 19–26 for emotional exhaustion, 6–9 for depersonalization, and 34–39 for personal achievement. Low burnout was defined as ≤ 18 for emotional exhaustion, ≤ 5 for depersonalization, and ≥ 40 for personal achievement.

Descriptive statistics were calculated and presented as frequency (%) for the categorical variables of sex, age group, marital status, working settings, time of shift, and level of burnout. The variables for each domain were analyzed using non-parametric tests to identify the significant differences between the 2 subgroups. The Kruskal-Wallis rank test was used to determine the statistically significant differences among the 3 age subgroups. A correlation coefficient was generated to determine the correlations

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Table 1. Respondent Characteristics

Characteristics	<i>n</i> (%)
Sex	
Male	53 (80)
Female	13 (20)
Marital Status	
Unmarried	27 (41)
Married	39 (59)
Age	
< 30 y	41 (62)
30–40 y	21 (32)
> 40 y	4 (6)
Area of Work	
General care	21 (32)
Critical care	45 (68)
Time of Shift	
Day shift	52 (79)
Night shift	14 (21)

between the different domains of burnout and years of experience. Statistical analyses were conducted using Stata v. 17 (StataCorp, College Station, Texas). Statistical significance was set at *P* < .05.

Results

Sixty-six RTs completed the inventory, with a response rate of 66%. Most respondents were male (*n* = 53, 80%), married (*n* = 39, 59%), younger than 30 y old (*n* = 41, 62%), and working in a critical care setting (*n* = 45, 68%). Additional respondent characteristics are presented in Table 1.

Prevalence of Burnout

The majority of RTs in the screened hospital reported high levels of burnout. Table 2 illustrates the prevalence of burnout subscales by dimension: 77% of respondents were highly emotionally exhausted; 98% of respondents reported elevated levels of depersonalization, and 73% of respondents reported reduced personal accomplishment.

Table 2. Prevalence of Burnout by Levels According to Domains

Burnout Level	Emotional Exhaustion	Depersonalization	Reduced Personal Accomplishment
High	51 (77)	65 (98)	48 (73)
Moderate	12 (18)	1 (2)	11 (17)
Low	3 (5)	0 (0)	7 (10)

Data are presented as *n* (%).

Table 3. Level of Burnout in Each Domain by Respondent Characteristics and Work Types

Burnout Dimensions	Sociodemographic Characteristics and Job Category		<i>P</i>
	Sex		
	Male	Female	
Emotional exhaustion	34 [29–39]	27 [25–31]	.003
Depersonalization	21 [16–24]	19 [16–21]	.33
Reduced personal accomplishment	31 [24–35]	25 [22–28]	.02
	Marital status		
	Unmarried	Married	
Emotional exhaustion	27 [22–31]	35 [31–40]	< .001
Depersonalization	21 [16–23]	21 [16–24]	.85
Reduced personal accomplishment	26 [18–33]	29 [24–34]	.19
	Time of shift		
	Day shift	Night shift	
Emotional exhaustion	33.0 [27.5–38.5]	31.5 [26.0–37.0]	.56
Depersonalization	21 [16–24]	19 [14–22]	.09
Reduced personal accomplishment	29.0 [23.5–34.0]	28.5 [23.0–37.0]	.81
	Working area		
	Critical care settings	General care settings	
Emotional exhaustion	34 [31–39]	28 [24–31]	< .001
Depersonalization	21 [16–24]	19 [15–23]	.26
Reduced personal accomplishment	31 [25–35]	26 [18–31]	.03

Data are presented as median [interquartile range].
Statistical comparison conducted with the Mann-Whitney U test.

Level of Burnout by Dimension Among RTs

Table 3 demonstrates the variations in the results for different burnout dimensions among the respondents according to their sociodemographic characteristics and job categories. Higher burnout levels were observed in male than in females, characterized by a significant increase in emotional exhaustion and a significant reduction in personal accomplishment. In addition, respondents who worked in critical care settings had significantly higher emotional exhaustion and lower personal accomplishments than those working in general care settings. Married respondents had significantly higher levels of emotional exhaustion.

Respondents were classified into 3 age subgroups: younger than 30 y old (*n* = 41), between 30–40 y old (*n* = 21), and older than 40 y old (*n* = 4). There was a statistically significant difference between these age groups in emotional exhaustion, as determined by the Kruskal-Wallis test (*P* < .001) (Table 4). Dunn test was performed for pairwise comparison and revealed that this significant difference was

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Table 4. Level of Burnout in Each Dimension by Age Groups

Burnout Dimensions	< 30 y old	30–40 y old	> 40 y old	<i>P</i>
Emotional exhaustion	30 [25–33]	39 [34–42]	33.5 [30.5–40.0]	< .001
Depersonalization	21 [16–23]	22 [16–24]	18.5 [16.0–20.5]	.57
Reduced personal accomplishment	29 [22–33]	31 [26–38]	26.0 [23.5–31.0]	.28

Data presented as median [interquartile range].

Statistical comparison conducted using a Kruskal-Wallis test.

primarily between those younger than 30 y old and those between 30–40 y old. No statistically significant differences were observed between the other groups.

Correlation Between Burnout and Years of Experience

Pearson correlation coefficient was used to assess the correlation between all burnout dimensions and years of experience. There was a moderate positive correlation between the years of experience and emotional exhaustion ($r = 0.6$, $P < .001$) (Fig. 1). However, no significant correlations were found between years of experience and depersonalization or personal achievement.

Discussion

This study examined the level of burnout among RTs at a tertiary hospital in Saudi Arabia. The level of burnout was high among RTs, as shown by the overall percentage of RTs

suffering from high emotional exhaustion, high depersonalization, and low personal achievement. Emotional exhaustion was associated with male sex, marriage, and working in critical care settings. In addition, years of experience were positively correlated with emotional exhaustion at a moderate level.

Sex differences in the burnout domains revealed that high levels of emotional exhaustion are prevalent among male RTs, although females also experience a high level of emotional exhaustion. This finding contradicts international studies showing that emotional exhaustion among health care professionals is independent of sex¹⁰ or associated with females more than males.¹¹ However, our finding is consistent with another national study that reported a higher prevalence of emotional exhaustion among males than that among females.¹² Whether the sex of the health care professionals independently impacts emotional exhaustion remains unclear. Therefore, further studies are required to investigate this correlation.

Notably, longer work experience was correlated with emotional exhaustion in the study group. This finding supports the findings of other studies conducted among health care workers, both nationally and internationally.^{10,12,13} Furthermore, this result may be explained by the general vulnerability of health care workers to burnout and their increased perceived stress. Another contributing factor is the greater clinical burden among RTs in the studied hospital as they are responsible for training junior RTs, working as core therapists in specific areas, and functioning as team leaders.

The finding of this study that emotional exhaustion is prevalent in married RTs confirms the findings of other national studies.^{12,14} This finding may be explained by

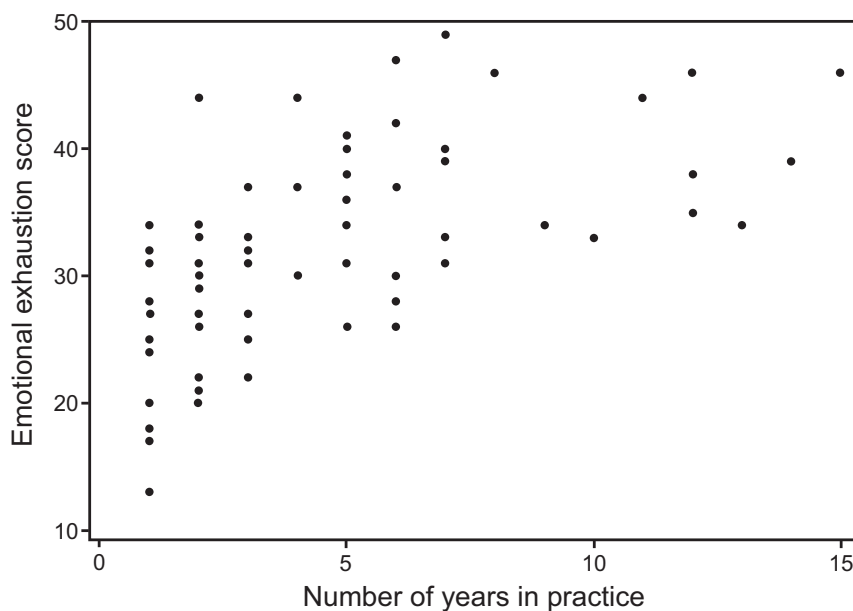


Fig. 1. Correlation between the emotional exhaustion score and years of experience ($n = 66$).

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marriage adding more responsibilities and commitments, specifically in Saudi culture. After marriage, males are responsible for the income, settlement, and safety of the family, and females are responsible for the household. Traditionally, a social commitment to the whole tribe is common after marriage (<https://culturalatlas.sbs.com.au/saudi-arabian-culture>, Accessed July 22, 2022).¹⁵

The prevalence of burnout is linked to working in critical care settings. The present study and a systematic review concluded that working in critical care settings exposed health care professionals to a high level of burnout.¹⁵ Working in critical care settings is associated with high emotional exhaustion and low personal achievement, as reported previously in a study involving nurses and RTs.¹⁶

Emotional exhaustion significantly increased among the middle-age group (ie, between 30–40 y old) compared with that in the younger and older groups in the present study. This is consistent with a previous study showing that emotional exhaustion increases with age.¹⁷ Nonetheless, the number of participants in the older age group was limited to only 4.

Interestingly, the COVID-19 pandemic was ongoing during the data collection stage of this study. The pandemic and the increased need for ICUs for critically ill patients have put a tremendous burden on health care systems.¹⁸ This burden included shift overload, increased risk of infection, risk of transmitting pathogens to family members, and unexpected changes in organizational structure.¹⁹ Reports of burnout among health care workers are high, especially among those involved in critical care.²⁰ Burnout among health care professionals amid the COVID-19 pandemic in Saudi Arabia is consistent with those reported by other countries around the world.^{8,21} This consistency among different geographical areas shows that despite the differences in the economic resources of each country, religious beliefs, or cultural differences burnout is a rising global health concern due to the COVID-19 pandemic.

Burnout affects the quality of care delivered to patients by increasing the incidence of medical errors.²² In addition, health care workers experiencing burnout are often perceived by patients to have an inappropriate attitude and limited communication.²³ Therefore, strategies to reduce burnout among RTs are highly recommended, especially during unusually stressful situations. Helpful strategies to reduce burnout among health care workers include aerobic exercise, visiting primary care providers, and regular health screenings.²² The managerial staff of respiratory care departments should play a significant role in controlling burnout among their teams, as previous research found that poor leadership, staffing shortage, and high work load are significant predictors of burnout among RTs.⁹ In the present study, management was not evaluated. However, this factor should be considered when managing burnout among health care professionals.

The present study was strengthened by MBI-HSS (MP), which is a valid and reliable instrument to measure burnout. However, this study also had several limitations. First, most respondents were male; therefore, a sex bias cannot be ruled out. Second, most respondents worked in critical care settings, which may explain the significantly high prevalence of burnout reported in the overall results. Third, the questionnaire did not ask whether respondents had any previous or preexisting psychological issues that may affect their reported burnout levels. Fourth, the study was underpowered; of 100 (ie, powered sample), only 66 RTs participated, increasing the chance of a type I error. Lastly, this study was conducted at a single tertiary hospital, and the findings cannot be generalized to all RTs in Saudi Arabia. Therefore, a multi-center study is highly recommended.

Conclusions

The prevalence of burnout among RTs was high, as determined by the different burnout domains, namely emotional exhaustion, depersonalization, and reduced personal accomplishment. High emotional exhaustion is associated with several factors that can worsen burnout. RTs and their management teams are responsible for addressing this issue and developing approaches to alleviate burnout. Further studies at the national level are needed to evaluate the risk factors and formulate strategies to control burnout.

REFERENCES

1. Freudenberger HJ. Burnout. *Loss Grief Care* 1989;3(1–2):1-10.
2. Bakhamis L, Paul DP, Smith H, Coustasse A. Still an epidemic: the burnout syndrome in hospital registered nurses. *Health Care Manag (Frederick)* 2019;38(1):3-10.
3. Maslach C, Jackson SE. The measurement of experienced burnout. *J Organiz Behav* 1981;2(2):99-113.
4. Moll V, Meissen H, Pappas S, Xu K, Rimawi R, Buchman TG, et al. The coronavirus disease 2019 pandemic impacts burnout syndrome differently among multi-professional critical care clinicians—a longitudinal survey study. *Crit Care Med* 2022;50(3):440-448.
5. Aldrees TM, Aleissa S, Zamakhshary M, Badri M, Sadat-Ali M. Physician well-being: prevalence of burnout and associated risk factors in a tertiary hospital, Riyadh, Saudi Arabia. *Ann Saudi Med* 2013;33(5):451-456.
6. Agha A, Mordy A, Anwar E, Saleh N, Rashid I, Saeed M. Burnout among middle-grade doctors of tertiary care hospital in Saudi Arabia. *Work* 2015;51(4):839-847.
7. Bany Hamdan A, Alshammmary S, Javison S, Tamani J, AlHarbi M. Burnout among health care providers in a comprehensive cancer center in Saudi Arabia. *Cureus* 2019;11(1):e3987.
8. Miller AG, Roberts KJ, Smith BJ, Burr KL, Hinkson CR, Hoerr CA, et al. Prevalence of burnout among respiratory therapists amid the COVID-19 pandemic. *Respir Care* 2021;66(11):1639-1648.
9. Miller AG, Roberts KJ, Hinkson CR, Davis G, Strickland SL, Rehder KJ. Resilience and burnout resources in respiratory care departments. *Respir Care* 2021;66(5):715-723.
10. Torppa MA, Kuikka L, Nevalainen M, Pitkälä KH. Emotionally exhausting factors in general practitioners' work. *Scand J Prim Health Care* 2015;33(3):178-183.

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11. Pedersen AF, Andersen CM, Olesen F, Vedsted P. Risk of burnout in Danish GPs and exploration of factors associated with development of burnout: a two-wave panel study. *Int J Family Med* 2013;2013:603713.
12. Al-Ghamdi MA, Nahar S, Siddiqui AF, Al-Saleem SA. Burnout and its correlates in Saudi family medicine residents: an observational study from Aseer, Saudi Arabia. *J Family Med Prim Care* 2021;10(5):1904-1911.
13. Rodrigues H, Cobucci R, Oliveira A, Cabral JV, Medeiros L, Gurgel K, et al. Burnout syndrome among medical residents: a systematic review and meta-analysis. *PLoS ONE* 2018;13(11):e0206840.
14. Hameed TK, Masuadi E, Al Asmary NA, Al-Anzi FG, Al Dubayee MS. A study of resident duty hours and burnout in a sample of Saudi residents. *BMC Med Educ* 2018;18(1):180.
15. Chuang CH, Tseng PC, Lin CY, Lin KH, Chen YY. Burnout in the intensive care unit professionals. *Medicine (Baltimore)* 2016;95(50):e5629
16. Guntupalli KK, Wachtel S, Mallampalli A, Surani S. Burnout in the intensive care unit professionals. *Indian J Crit Care Med Peer Med* 2014;18(3):139-143.
17. Ahola K, Honkonen T, Virtanen M, Aromaa A, Lonnqvist J. Burnout in relation to age in the adult working population. *J Occup Health* 2008;50(4):362-365.
18. Byrne M, Scott TE, Sinclair J, Chockalingam N. COVID-19 and critical care capacity: can we mitigate demand? *Respirology* 2022;27(2):107-108.
19. Denning M, Goh ET, Tan B, Kanneganti A, Almonte M, Scott A, et al. Determinants of burnout and other aspects of psychological well-being in health care workers during the COVID-19 pandemic: a multi-national cross-sectional study. *PloS One* 2021;16(4):e0238666.
20. Wiederhold BK, Cipresso P, Pizzioli D, Wiederhold M, Riva G. Intervention for physician burnout: a systematic review. *Open Med (Wars)* 2018;13:253-263.
21. Khasne RW, Dhakulkar BS, Mahajan HC, Kulkarni AP. Burnout among health care workers during COVID-19 pandemic in India: results of a questionnaire-based survey. *Indian J Crit Care Med* 2020;24(8):664-671.
22. Shanafelt TD, Oreskovich MR, Dyrbye LN, Satele DV, Hanks JB, Sloan JA, et al. Avoiding burnout: the personal health habits and wellness practices of US surgeons. *Ann Surg* 2012;255(4):625-633.
23. Dewa CS, Loong D, Bonato S, Trojanowski L. The relationship between physician burnout and quality of health care in terms of safety and acceptability: a systematic review. *BMJ Open* 2017;7(6):e015141.