

# Burnout among Plastic Surgery Residents in India: An Observational Study

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Indian J Plast Surg;2020;53:387–393

## Abstract

**Introduction** Burnout syndrome can be defined as emotional exhaustion, depersonalization, and perceived lack of personal accomplishment, all of which lead to decreased effectiveness at work. The Medscape burnout and depression report of 2018 suggests that the burnout range across various specialties ranges from 23 to 48%. There are no studies to assess the burnout among plastic surgery residents in India. This study is an attempt to assess the same.

**Materials and Methods** An online survey was conducted in March and April 2019 for plastic surgery residents across India. Various parameters including those related to gender, year of the curriculum, hobbies, exercise, and marital status were assessed. There were multiple sections in the survey, which included the demographic details, stress-related variables, and the abbreviated Maslach Burnout Inventory. The abbreviated Maslach Burnout Inventory is a validated scale that has been used to assess the burnout among plastic surgery residents in India. The three subscales, emotional exhaustion, depersonalization, and personal accomplishment were measured on a Likert scale. Univariable and multivariable analysis of factors associated with burnout was performed.

**Results** Of the 185 respondents, 48.4% experienced moderate-to-high burnout. Of these, 25% ( $n = 46$ ) were above the 75th centile of the overall burnout score, indicating severe burnout. Insufficient faculty involvement, insufficient time allotted for formalized teaching, conflict with colleagues, and lack of adequate support staff correlated with resident burnout on multivariate analysis. Residents who pursued their hobbies or performed physical activities for exercise had significantly lesser burnout.

**Conclusion** The incidence of burnout in plastic surgery residents surveyed in our study was 48.4%. The faculty of the departments and the residents themselves, as well as the governing bodies, all have a role to play to address the issue of burnout among residents. Dedicated and persistent efforts toward improving physical and psychological well-being of plastic surgery residents will positively impact not only the well-being of the residents but also the quality of patient care.

## Keywords

- ▶ burnout
- ▶ professional burnout
- ▶ workplace stress
- ▶ occupational burnout
- ▶ plastic surgery

published online  
November 24, 2020

DOI <https://doi.org/10.1055/s-0040-1719238>  
ISSN 0970-0358.

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Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

## Introduction

Occupational burnout in the medical fraternity is an unwanted outcome of chronic workplace stress. Burnout syndrome can be defined as emotional exhaustion, depersonalization, and perceived lack of personal accomplishment, all of which lead to decreased effectiveness at work.<sup>1</sup> The ramifications of the burnout syndrome can be multiple and devastating at a personal as well as at a professional level. At a personal level, it can lead to depression, anxiety, broken relationships, addictions, and even suicide in extreme conditions.<sup>2</sup> At a professional level, it may lead to a difficult interpersonal relationship with patients and coworkers, diminished commitment to patient care, medical errors, poor judgment in decision-making regarding patient care, and many more.<sup>3</sup>

The Medscape National Physician Burnout and Depression Report of 2018 suggests that burnout range across various specialties is from 23% to 48%, with general surgeons at 43% burnout.<sup>4</sup> In general, surgery trainees are at a high risk of burnout because residency training is intense, involves long working hours, and is stressful. The trainees have to cope up with clinical workload with unpredictable work timings.<sup>5,6</sup> Plastic surgery trainees in India have their distinctive set of problems such as considerable emergency work, a wide spectrum of specialty training with extensive curriculum, and so on. There have been very few studies conducted globally to assess the burnout in plastic surgery residents.<sup>7-10</sup> This study was performed to assess the burnout in plastic surgery residents across India.

## Material and Methods

An online survey to assess burnout was conducted in plastic surgery residents across India in March and April 2019. The survey was conducted after Institutional Ethics Committee clearance and was totally anonymous. There were multiple sections in the survey, which included the demographic details, stress-related variables, and the abbreviated Maslach Burnout Inventory (aMBI). Data were collected in Google forms and then transferred to Excel sheet and analyzed.

The aMBI has nine item scales for assessing burnout, and its validity and reliability has already been established.<sup>6,11</sup> It has three subscales: emotional exhaustion "EE" (emotional depletion due to job demand and continuous work-related stress), depersonalization "DP" (impersonal response toward the recipient of service), and personal accomplishment "PA" (the degree of personal competence, achievement, and satisfaction with work). Each subscale is assessed by three items. For each item, there is a 7-point Likert scale, which ranges from never (0) to every day (6). The score for each item was summed up for each resident. For EE and DP, a higher score means greater burnout. This is inverse for PA. The score of each subscale could range from a minimum 0 to maximum 18. High scores of EE and DP and low score of PA indicate a higher level of burnout.

As described by Shaikh et al,<sup>12</sup> we combined the scores of EE and DP to calculate the overall burnout score. For EE and DP, subscale score of 0 to 9 was regarded as "no-to-low burnout" and subscale score of 10 to 18 was regarded as "moderate-to-severe burnout." It was opposite for PA because higher PA scores indicate lesser burnout.<sup>6</sup> Frequencies and percentages were calculated for various variables.

## Statistical Analysis

For the analysis, burnout scores were categorized as <19 or ≥19. Categorical variables were summarized using percentages and frequencies and compared using Fisher's exact Test. Univariable analysis and multivariable modelling were performed on those variables that were significant. The significance level was set at  $p < 0.05$ .

Logistic regression analysis was used to find the association between burnout and factors influencing it. The logit link function, the calculated odds ratio (OR), and a 95% confidence interval for the OR were considered to determine whether the association between burnout and the factors was statistically significant. The significance level was again set at  $p < 0.05$ .

## Results

There were in all 185 responses from various states ranging from Kashmir to Kerala. Of the responders, 88.1% opted for plastic surgery by choice. However, on the subsequent question of whether they would opt for plastic surgery again if given a choice, only 74.5% responded positively. On the subsequent question of whether they would like to pursue the curriculum in their own institute, the percentage further dropped to 45.7%. Year of training was identified as an independent factor for burnout, with 63% of first-year residents experiencing moderate-to-high burnout, which dropped to 43% in the second year of training and 41% in the third year of training. Of the female trainees, 52% were analyzed to be experiencing moderate-to-high burnout, which was comparable to 47% of male trainees experiencing moderate-to-high burnout. The overall burnout scores as per the aMBI were plotted on a bar graph (► Fig. 1). However, this difference was not statistically significant.

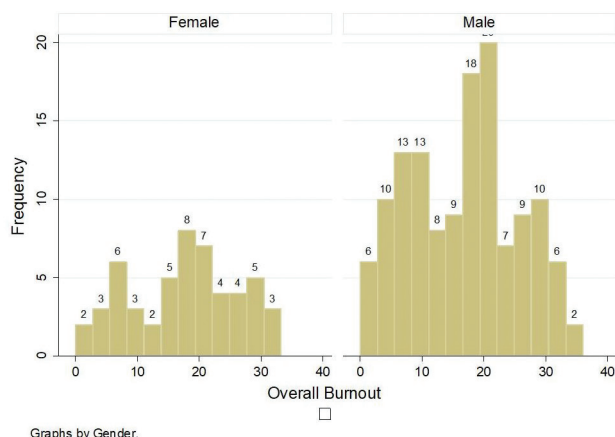


Fig. 1 Gender distribution of responders.

Attempt was made to identify the common stressors by asking participants to respond to general statements regarding the stressors; 33% responders were stressed “a lot” because of a large overall volume of work and 3.3% participants were stressed “a lot” because of too less overall volume of work. Having a large volume of work was an independent factor for burnout, whereas not having enough work did not correlate with resident burnout. Overall, 77.3% of the responders were dealing with variable levels of stress because of angry or blaming patients, and 49.7% responders were stressed “a lot” because of poor pay scale. However, this factor did not correlate with higher levels of burnout among residents. Insufficient faculty involvement, insufficient time allotted for formalized teaching, conflict with colleagues, and lack of adequate support staff correlated with resident burnout. Residents who pursued their hobbies or performed physical activities for exercise had significantly lesser burnout. Details of univariable analysis of factors associated with burnout are mentioned in ►Table 1. Details of multivariable model for independent factors associated with burnout are mentioned in ►Table 2.

We found that 25% of responders had moderate-to-high burnout regarding DP, which rose to 64% on the questions relating to EE. However, 90% of the trainees had a no to low burnout score in PA.

For EE and DP, a higher score means greater burnout. This is inverse for PA. Overall, 48.4% of candidates experienced moderate-to-high burnout. Of these, 25% ( $n = 46$ ) were above the 75th centile of the overall burnout score, indicating severe burnout (►Table 3).

## Discussion

The analysis of burnout in medicine, students, physicians, and surgeons has been studied to a great extent.<sup>5,11,13,14</sup> It is well known that burnout is the highest during residency training and subsequently decreases with increasing seniority.<sup>13,15</sup> However, studies in plastic surgery are very less, and to the best of our knowledge, this is the first of its kind study to assess burnout in plastic surgery residents across India. Plastic surgery training in India has its own set of challenges: very few training institutes, a long grueling path to be a plastic surgery trainee, considerable emergency work, and a wide spectrum of specialty training with limited exposure to the entire spectrum at most places to name a few.

As residents in plastic surgery, there is constant exposure to an environment of traumatic events requiring long-term and complex wound care and management. It has been shown that exposure to chronic and critically ill patients has a higher risk of burnout as compared with other disciplines of medicine.<sup>16</sup>

Ribeiro et al<sup>8</sup> performed a systematic literature review and meta-analysis to analyze the prevalence of burnout among plastic surgeons and residents in plastic surgery. Their study showed burnout prevalence rates of 32.32% among plastic surgeons and 36.66% among residents. They inferred that personal characteristics do not seem to have much influence

on burnout as the characteristics of employment are essentially similar, both in plastic surgeons<sup>17-19</sup> and residents in plastic surgery.<sup>16,20</sup>

Chaput et al<sup>7</sup> in their study of plastic surgery residents in France showed that their burnout level was approximately 28.8%. They noted that the personal characteristics including age, marital status, and involvement in sports activities or leisure showed less influence on the development of burnout. The factors with the highest positive correlation were professional and included being in the first year of training, being dissatisfied with career plans, and working in units not visited weekly by senior surgeons or where staff meetings do not occur.

Aldrees et al<sup>9</sup> conducted a national survey among plastic surgery residents in Saudi Arabia. They noted that approximately half of plastic surgery trainees in the Kingdom of Saudi Arabia had signs of professional burnout. However, only 5% were dissatisfied with plastic surgery specialty as a career, and 69% would choose the same specialty again. They noted that workload was not found to play a significant role in the development of burnout.

The burnout rates of plastic surgery residents in India are comparable to those of the Kingdom of Saudi Arabia and are higher than that of France. The burnout rates are around 50% in India, 50% in Saudi Arabia, and 28.5% in France. The studies by both Chaput et al<sup>7</sup> and Aldrees et al<sup>9</sup> have used the Maslach Burnout Inventory. We have used the aMBI for the analysis of burnout.

Our training programs in India at most centers are not structured in a fashion to have fixed 8-hour duties for residents. Our training program is structured in a fashion that the on-call emergency duties and the inpatient duties decrease as the resident progresses from the first year to the third year. Thus, the burden of the collective years of training is balanced with the progressive decrease in workload from the first year to the third year of residency. That also might be an important reason for increased burnout in the first-year residents as compared with second- and third-year residents, as observed in our study.

It also has been documented that the most susceptible for burnout appear to be those doctors who are most dedicated, conscientious, responsible, and motivated.<sup>18</sup> Thus, the same characters that define a good surgeon or a good resident also place them at a greater risk of burnout.<sup>18,19,21</sup> It would be prudent to assume that the residents who are pursuing super specialty training are a dedicated lot and might be at a higher risk of burnout.

Our survey included an open-ended question: “Any other causes of stress at your workplace which you would like to mention?” The responses were varied and ranged from food, language, accommodation, duty hours, and less pay scale, among others. Faculty and social environment were also among the causes of stress mentioned. The social environment of the workplace and the organizational structure are very important and particularly relevant contributing factors to burnout and compassion fatigue.<sup>1</sup> Unstable work routine, high workload, reduced time for family and leisure, and difficulty in seeking professional help are also the factors that

**Table 1** Univariable analysis of factors related to resident burnout

Characteristics	Responses	Burnout		OR (95% CI)	p-Value
		<19, n = 95	≥19, n = 90		
Gender, n (%)					
Female	52	25 (48%)	27 (52%)	Ref	–
Male	131	70 (53%)	61 (47%)	0.81 (0.42–1.54)	0.52
Marital status					
Married	145	73 (50%)	72 (50%)	Ref	–
Unmarried	39	21 (54%)	18 (46%)	0.87 (0.43–1.77)	0.70
Curriculum					
DNB	23	11 (48%)	12 (52%)	Ref	–
MCh	159	82 (52%)	77 (48%)	0.86 (0.36–2.07)	0.74
Year of training					
First	57	21 (36%)	36 (63%)	Ref	–
Second	42	24 (57%)	18 (43%)	0.44 (0.19–0.99)	0.047
Third	80	47 (59%)	33 (41%)	0.41 (0.20–0.82)	0.012
Opted for plastic surgery by choice?					
No	22	12 (55%)	10 (45%)	Ref	–
Yes	163	83 (51%)	80 (49%)	1.16 (0.47–2.83)	0.75
If given an option, will you opt for plastic surgery again?					
No	47	23 (49%)	24 (51%)	Ref	–
Yes	137	72 (53%)	65 (47%)	0.86 (0.45–1.68)	0.67
Do you pursue any hobbies at least once in 2 wk?					
No	136	56 (41%)	80 (59%)	Ref	–
Yes	49	39 (80%)	10 (20%)	0.18 (0.08–0.39)	p < 0.001
Do you perform any physical activities for fitness at least once in 2 wk?					
No	121	53 (44%)	68 (56%)	Ref	–
Yes	64	42 (66%)	22 (34%)	0.41 (0.22–0.77)	0.005
Do you have a large volume of work?					
Not at all	12	10 (83%)	2 (17%)	Ref	–
Yes	173	85 (49%)	88 (51%)	5.18 (1.10–24.32)	0.04
Do you have too less volume of work?					
Not at all	125	61 (49%)	64 (51%)	Ref	–
Yes	60	34 (57%)	26 (43%)	0.73 (0.39–1.35)	0.32
Do you feel you are poorly paid?					
Not at all	16	9 (56%)	7 (44%)	Ref	–
Yes	169	86 (51%)	83 (49%)	1.24 (0.44–3.49)	0.68
Any disruption in family life?					
Not at all	10	10 (100%)	0	Ref	0.002
Yes	175	85 (49%)	90 (51%)	Cannot Estimate	
Do you feel there is insufficient formal teaching time?					
Not at all	19	16 (84%)	3 (16%)	Ref	–
Yes	166	79 (48%)	87 (52%)	5.87 (1.65–20.92)	0.006
Is the faculty interested in teaching?					
Not at all	66	46 (70%)	20 (30%)	Ref	–
Yes	119	49 (41%)	70 (59%)	3.29 (1.73–6.23)	p < 0.001

(Continued)

**Table 1** (Continued)

Characteristics	Responses	Burnout		OR (95% CI)	p-Value
		<19, n = 95	≥19, n = 90		
Any conflict with colleagues?					
Not at all	51	39 (76%)	12 (24%)	Ref	–
Yes	134	56 (42%)	78 (58%)	4.53 (2.18–9.42)	p < 0.001
Is there a lack of support staff?					
Not at all	33	22 (67%)	11 (33%)	Ref	–
Yes	152	73 (48%)	79 (52%)	2.16 (0.98–4.77)	0.06
Is there inadequate infrastructure?					
Not at all	33	18 (55%)	15 (45%)	Ref	–
Yes	152	77 (51%)	75 (49%)	1.17 (0.55–2.49)	0.69
Is the quality of accommodation poor?					
Not at all	48	18 (38%)	30 (63%)	Ref	–
Yes	137	77 (56%)	60 (44%)	0.47 (0.24–0.92)	0.03

Abbreviations: DNB, Diplomate in National Board; MCh, Magister of Chirurgiae.

**Table 2** Multivariable model for independent factors associated with burnout

Characteristics	Univariable analysis		Multivariable analysis	
	OR (95% CI)	p-Value	OR (95% CI)	p-Value
Year of training				
First	Ref	–	Ref	–
Second	0.44 (0.19–0.99)	0.047	0.43 (0.16–1.18)	0.10
Third	0.41 (0.20–0.82)	0.012	0.36 (0.15–0.85)	0.02
Do you pursue any hobbies at least once in 2 wk?				
No	Ref	–	Ref	–
Yes	0.18 (0.08–0.39)	p < 0.001	0.18 (0.07–0.85)	p < 0.001
Do you perform any physical activities for fitness at least once in 2 wk?				
No	Ref	–	Ref	–
Yes	0.41 (0.22–0.77)	0.005	0.90 (0.38–2.10)	0.82
Do you have a large volume of work?				
Not at all	Ref	–	Ref	–
Yes	5.18 (1.10–24.32)	0.04	5.46 (0.70–42.44)	0.11
Do you feel there is insufficient formal teaching time?				
Not at all	Ref	–	Ref	–
Yes	5.87 (1.65–20.92)	0.006	5.34 (1.17–24.32)	0.03
Is the faculty interested in teaching?				
Not at all	Ref	–	Ref	–
Yes	3.29 (1.73–6.23)	p < 0.001	2.32 (1.01–5.35)	0.047
Any conflict with colleagues?				
Not at all	Ref	–	Ref	–
Yes	4.53 (2.18–9.42)	p < 0.001	4.25 (1.74–10.34)	0.001
Is there a lack of support staff?				
Not at all	Ref	–	Ref	–
Yes	2.16 (0.98–4.77)	0.06	1.61 (0.60–4.29)	0.34
Is the quality of accommodation poor?				
Not at all	Ref	–	Ref	–
Yes	0.47 (0.24–0.92)	0.03	0.38 (0.15–0.93)	0.03

Abbreviations: CI, confidence interval; OR, odds ratio.



**Table 3** aMBI analysis

Scoring parameter	No-to-low burnout (0–9)	Moderate-to-high burnout (10–18)
DP	137 (74.1%)	48 (25.9%)
EE	67 (36.2%)	118 (63.8%)
PA	168 (90.8%)	17 (9.2%)
Overall burnout (aMBI)	95 (51.6%)	90 (48.4%)

predispose to burnout.<sup>11,15–19,22–24</sup> In addition to the deleterious effects on the residents themselves, it can lead to deterioration of the quality of care and worsening of patient outcomes. The social environment and the organizational structure of the department are largely modifiable and depend on the faculty of the department. Introspection is necessary to modify it so as to provide a more suitable and cohesive workplace environment to the residents in plastic surgery.

It is also important to note here that early and regular assessment of burnout among residents is essential, mainly because it is a reversible phenomenon, and can be rectified if due care is taken at the proper time.<sup>24</sup> The American Society of Plastic Surgeons on their website has links to wellness resources as well as a suicide prevention lifeline.<sup>25</sup> After the unfortunate suicide of a resident in Nair Hospital in 2019, the Indian Medical Association has launched an initiative named D4D (Doctors for Doctors) to address burnout and mental health challenges faced by our residents and doctors.<sup>26</sup> Support options and groups like these should be encouraged, where residents can interact with professionals and can be assisted to identify burnout and cope with it.<sup>21</sup> Furthermore, psychological assessments can be used as a tool for screening and prevention of burnout among residents of plastic surgery in India.<sup>9,24</sup>

Each one of us including the residents will have to deal with stressful times in our personal and professional lives. The faculty should attempt to provide a cohesive and amicable work environment to the residents. The residents too must cultivate habits and try to maintain a work–life balance. They must seek professional help when they notice signs of burnout. The Association of Plastic Surgeons of India, the bodies of medical education in India including the National Medical Commission, the National Board of Examinations, and other health universities across India can set strategies and issue advisories to decrease the impact of burnout on plastic surgery residents in India.

## Limitations

Our study has some limitations, and the results should be interpreted in the context of these limitations. India is a huge country with residents migrating to different states to pursue higher education. Responses may vary considering variations in training environment, language barriers, personality, working hours, and even pay scale, which vary from state to state. Surveys like these have the inherent limitation of interpretation bias, social desirability bias, and recall bias.

However, the design of the survey and highly representative sample size across India is unlikely to have caused any impact of findings of this study.

## Conclusion

There is a remarkably high rate of burnout among plastic surgery residents in India. Overall, 48.4% of candidates experienced moderate-to-high burnout. Of these, 25% ( $n = 46$ ) were above the 75th centile of the overall burnout score, indicating severe burnout. The scores are higher for EE and DP and lower for PA.

Given that burnout has got significantly deleterious effects on the overall professional and personal well-being of the residents and may affect patient care too, burnout must be addressed on an urgent basis. Resources must be directed to address burnout on different fronts including prevention, identification, diagnosis, and treatment.

Dedicated and persistent efforts toward improving physical and psychological well-being of plastic surgery residents will positively impact not only the well-being of the residents but also the quality of patient care.

### Conflict of Interest

None declared.

### Acknowledgments

We would like to acknowledge Dr. Nikhil Gupte for assistance with statistical analysis.

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