

BURNOUT AND COPING AMONGST ANESTHESIOLOGISTS IN A US METROPOLITAN AREA: A PILOT STUDY

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Abstract

Background: Anesthesiology is technically complex, caring for sicker patients with growing production pressure on clinicians. Wellbeing and a balanced lifestyle to prevent clinician burnout and improve patient safety have been increasingly recognized. This study assesses burnout and coping strategies in anesthesiologists in a metropolitan area of the Northeastern US.

Methods: An anonymous online questionnaire including the Maslach Burnout Inventory and assessment of coping strategies was distributed via email to Boston area anesthesiologists. Correlations between burnout, demographic variables, and coping strategies were examined.

Results: Of 57 respondents to the survey, moderate to high degrees of burnout were found (61.4% emotional exhaustion, 31.6% depersonalization, 64.9% low personal achievement) and associated with avoidant and emotion-focused coping behaviors. Significant relationships existed between burnout and demographics including age, number of years in practice, perceived workload, and academic versus private practice.

Conclusions: Burnout by anesthesiologists in this study is mainly characterized by emotional exhaustion and low personal achievement. An association with severe workload, young age, and moderate number of years in practice (5-15 years) was found. Positive coping strategies which involved planning and reassessment of stressors as a source of personal growth were utilized by older, more experienced and less burned out anesthesiologists.

Keywords: burnout, professional; stress, psychological; anesthesiologist; coping

Introduction

Burnout, described as emotional exhaustion, depersonalization and lack of personal accomplishment in response to chronic occupational stress, occurs in many professions including health care¹, where it is associated with adverse patient outcomes and an increase in medical errors^{2,3}. Multiple studies have identified greater work load, longer work hours and/or increased number of monthly calls as contributing to work stress^{4,13}. However, burnout in and of itself increases error rate³, though for anesthesiology specifically this has not been well studied¹⁴. Burnout may be an independent performance risk factor that can be targeted to improve clinician wellbeing, patient safety and work place quality. We conducted a pilot study to evaluate the extent of burnout and its potential sources in private and academic medical centers in a metropolitan area in the Northeastern United States (Boston). We evaluated correlations between burnout and demographic data including

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age, gender, marital status, number of years in practice, perceived workload and prior work experience. The role of personal burnout coping strategies on the work related stress experience was investigated. Our results are discussed in the context of the current literature and may contribute to design interventions to reduce burnout and improve patient safety.

Methods

Study Design and Participants

Following IRB approval, chairpersons at Boston area private and academic anesthesiology departments were contacted with an explanatory e-mail and asked to forward a survey link to their staff for study participation. Anesthesiologists, residents and fellows were invited to complete an anonymous questionnaire with demographic questions, the validated Maslach Burnout Inventory-Human Services Survey (MBI-HSS) and coping strategy questions.

Assessment Tools

The MBI-HSS (Consulting Psychologists Press, Inc., Mountain View, CA), examines three subscales of burnout. The emotional exhaustion scale measures emotional fatigue and overextension generated by work place stressors. The depersonalization scale assesses dehumanization of and impersonal feelings towards the patient. The personal achievement scale explores confidence and accomplishment in the workplace and specifically in working with patients. The MBI is an instrument originally developed and validated for assessing the burnout syndrome in health care workers. We computed the Chronbach alpha, which measures the reliability of the assessment tool, for each scale to both confirm it as a reasonable tool for anesthesiologists and to explore certain questions that may behave differently in this responder group.

Nine coping questions were modeled on the Ways of Coping Scale by Lazarus and Folkman¹⁵ using a 7-point Likert scale and divided into two categories to identify active, problem-oriented versus passive, emotion-focused or avoidant coping patterns. Active patterns included planning, feelings of personal growth, and exercise. Passive or avoidant patterns included wishful thinking, detachment, seeking of

emotional support, negative self talk, avoidance, and tension reduction with destructive behaviors.

Statistical Analyses

Data for each survey question were summarized and distributions examined to assess data quality and missing values. The MBI-HSS scales were calculated and categorized as high, moderate, and low burnout using the MBI Scoring key². In cases of the missing scale items, values were imputed as the mean of non-missing items before total score summing as long as at least half of the scale items were non-missing. Distributions of anesthesiologists demographics and responses were compared between the high, mid, and low burnout groupings within the MBI-HSS subscales to examine unadjusted relationships using chi-square tests for categorical variables, Kruskal-Wallis tests for scales and ordinal variables, and Analysis of Variance for continuous variables. Pearson correlations were used for associations with the MBI-HSS in its continuous form.

To further explore factors associated with burnout, as quantified by the MBI-HSS subscales in their continuous form, multivariable linear regression models were constructed using a combination of stepwise regression and best subsets regression. Variables with p-values for the unadjusted associations with the outcomes of ≤ 0.25 were considered as candidates for initial stages of the model building process. The fit and stability of the final model for each of the three MBI-HSS burnout items was examined by looking at the residuals and sequentially removing influential points and possible outliers to check the impact on the model parameters (SAS version 9.2, 2002-2008, Windows, SAS Institute Inc., Cary, NC). A p-value of < 0.05 was considered statistically significant.

Results

Demographics

Sixty-one surveys were accessed and 57 were completed. Table 1 summarizes demographics and perceived workload of participants. Demographics of our study compared to prior anesthesia burnout studies are shown in Table 2.

Table 1

Demographics of Work Stress Survey Responders (N = 57)

Age	45.6 ± 12.0 (54)
Male	66.7% (38/57)
Type of institution	N = 57
Academic	57.9% (33)
Both	33.3% (19)
Private	8.8% (5)
Position	N = 56
Attending	80.4% (45)
Junior Resident	7.1% (4)
Senior Resident	12.5% (7)
Years of practice	N = 57
Current resident/fellow	14.0% (8)
1-5	28.1% (16)
6-10	14.0% (8)
11-15	3.5% (2)
15-20	12.3% (7)
>20	28.1% (16)
Marital status	N = 56
Married/partnership	82.1% (46)
Single	17.9% (10)
Race	N = 56
Asian/Pacific Islander	10.7% (6)
Black (not Hispanic)	1.8% (1)
Hispanic	7.1% (4)
Other	7.1% (4)
White (not Hispanic)	73.2% (41)
Have children, % yes	70.9% (39/55)
Live alone, % yes	12.7% (7/55)
Full time (vs. part time), %	94.5% (52/55)
Workload	N = 56
Light-moderate	3.6% (2)
Moderate	32.1% (18)
Moderate-severe	50.0% (28)
Severe	14.3% (8)

N: number of participants

Table 2

Comparison demographics to prior studies (Anesthesiology)

	Morais et al. (2006) ²¹	Kinzl et al. (2007) ²³	Nyssen et al. (2003) ¹⁷	Kluger et al. (2003) ¹¹
Sample Size	236	86	151	422
Age (average or most frequent)	46.7	31-40	32	41-50
M:F	84:179	53:33	98:53	349:73
Single:partnership	56:207	20:69	-	-
Children (yes:no)	215:48	38:51	-	-
Staff vs. resident	-	38:51	139:32	-

Burnout

Burnout scores demonstrated moderate to high degree of emotional exhaustion in anesthesiologists (Table 3, 4). A high degree of depersonalization towards patients was infrequent, but less than 40% of responders had a moderate or high sense of personal work related accomplishment. Significant relationships existed for demographics, coping questions, and specific subsets of the MBI-HSS.

Table 3

Mean burnout scores in anesthesiologists in the greater Boston area compared to average North American values. (mean, SD, range)

MBI-HSS Subscale (range)	Greater Boston Area (n = 57)	North America (n = 1104)
Emotional Exhaustion (0-54)	21.3 (10.8) (3-45)	22.2 (9.5)
Depersonalization (0-30)	5.7 (5.3) (0-22)	7.1 (5.2)
Personal Accomplishment (0-48)	40.0 (5.4) (25-48)	36.5 (7.3)

SD: standard deviation

Table 4

Burnout Scores by Subscale

Emotional Exhaustion		N = 57
1.HIGH: 27+		29.8% (17)
2.MOD: 17-26		31.6% (18)
3.LOW: 0-16		38.6% (22)
Depersonalization		N = 57
1.HIGH: 13+		10.5% (6)
2.MOD: 7-12		21.1% (12)
3.LOW: 0-6		68.4% (39)
Sense of Personal Accomplishment		N = 57
1.HIGH: 0-31		7.0% (4)
2.MOD: 32-38		28.1% (16)
1.LOW: 39+		64.9% (37)

N: number of participants

Coping

Anesthesiologists engaged predominantly in active coping patterns rather passive ones (Table 5). The most common strategies were active resolution of stressful situations and professional growth from overcoming the stressor. Least common strategies

involved isolation and activities perceived as negative or destructive.

Table 5
Mean responses to coping questions

Question	Mean (SD)	N
I make a plan and follow it.	4.92 ± 1.48	52
I wish the situation or problem would go away and would not happen.	2.81 ± 1.89	52
I try to forget the situation.	2.10 ± 1.95	51
I talk to someone about how I feel.	3.74 ± 1.79	54
I am growing as a professional and as a person.	4.83 ± 1.49	52
I criticize and lecture myself.	3.51 ± 1.70	51
I avoid people and avoid talking about it.	1.29 ± 1.52	52
I exercise.	4.11 ± 1.76	52
I make myself feel better by engaging in activities that I later regret.	0.47 ± 0.88	51

Response options: 0 = never, 1 = a few times a year, 2 = once a month or less,

3 = a few times a month, 4 = once a week, 5 = a few times a week, 6 = every day

SD: *standard deviation*, N: *number of participants*

Emotional Exhaustion Subscale

Moderate and high emotional exhaustion was strongly associated with perceived severe and moderate-severe workload ($P = 0.0001$). Less emotionally exhausted anesthesiologists reported fewer incidences of trying to forget the situation (detachment) ($P = 0.005$), and of avoiding people or avoiding discussion of the situation (avoidance) ($P = 0.02$), but rather were growing professionally and personally ($P = 0.04$). Highly emotionally exhausted participants were more likely to feel detached ($P = 0.04$) and depersonalized ($P = 0.003$). Older age was associated with less emotional exhaustion ($P = 0.002$).

Depersonalization Subscale

Anesthesiologists just starting practice (1-5 years) or with long-term experience (>20) had a low level of depersonalization ($P = 0.0009$). High depersonalization scores were significantly related to high emotional exhaustion scores ($P = 0.003$). Participants demonstrating low depersonalization were less likely to engage in detachment ($P = 0.02$) and more likely to cope by planning ($P = 0.02$). All participants

with high depersonalization scores engaged in a significant degree of negative self talk (self criticism/lecturing), $P = 0.02$).

Sense of Personal Accomplishment Subscale

Academic practice resulted in a decreased sense of personal accomplishment compared to private settings ($P = 0.009$). Anesthesiologists with a high sense of personal accomplishment were more likely to plan ($P = 0.03$) and experience personal and professional growth ($P = 0.0007$).

The multivariable linear regression of burnout confirmed univariate analyses results. Avoidance was strongly associated with greater emotional exhaustion and higher workload. Older age was predictive of less emotional exhaustion. Coping strategies that involved detachment and avoidance were associated with higher depersonalization scores whereas planning was associated with less depersonalization. The perception of growing as a professional was predictive of a stronger sense of personal accomplishment. An academic career was associated with a decreased sense of personal accomplishment.

Discussion

Since Maslach described the relationship of workplace environmental factors and the subjective experience of burnout and fatigue in health professionals¹, research in this area has evolved. The acuity and intensity of challenges in a work environment such as anesthesiology, which is stressful at baseline, may lead to a high degree of burnout¹⁶. Despite this conclusion, burnout levels in anesthesiologists compared with those of other specialties did not indicate a disproportionately high anesthesiology burnout rate¹⁷. Indeed, a Dutch study of residents revealed higher burnout rates in psychiatry than in any other medical specialty in the study¹⁸, and a Spanish investigation of anesthesia clinicians determined their burnout levels to be lower than in other medical specialties, but comparable to anesthesiologists in other nations¹⁹.

In the greater Boston area, our study identified a moderate degree of burnout in anesthesiologists and anesthesiology residents which was characterized by

lack of personal accomplishment (67%) and emotional exhaustion (61%) more than by depersonalization (31%). Boston anesthesiologists reported a greater sense of personal accomplishment than North American averages but were equivalent in other domains of burnout¹¹ and, compared to an Australian study¹¹, experienced greater emotional exhaustion but also a greater sense of personal accomplishment. Lack of recognition¹¹ and having patients question the physician's abilities⁸ were predictors of burnout and emotional exhaustion^{8,11}. Of the factors identified in our study, the most significant one linked to emotional exhaustion was workload though coping styles involving detachment and depersonalization also contributed. Older anesthesiologists displayed less emotional exhaustion, but the reason for this finding is unclear. Peak burnout during mid-career in emergency physicians, for example, indicated either a "survivor" effect due to early retirement of those burned out or the development of effective coping skills in those continuing in their profession²⁰. A similar interpretation may explain our result. Similarly, the number of years in practice (more than 5 but less than 15 years) rather than age was more significantly related to the domain of depersonalization burnout. Negative coping strategies (avoidance, detachment, negative self-talk, and tension reduction with destructive behaviors), but not workload, also contributed to depersonalization.

We found a greater sense of accomplishment in anesthesiologists who are single and without children which supports earlier research suggesting that clinicians with families or partners experience more stress and burnout than singles^{4,8,10,21}. In addition, women reportedly experience higher burnout rates than men^{5,6,11,21,22,23} particularly if they had more children²¹. Only one study suggested fewer or comparable burnout symptoms in women with versus those without children, but this was attributed to more perceived control over their work place²⁴, as a lack thereof of control^{8,17,23,24,25,26} and a lack of administrative, technical and emotional support^{27,28,29} correlate with higher burnout rates. A trend of increased feelings of personal accomplishment in private practice versus academic centers in our study was surprising, considering physicians' greater work stress experience in smaller community hospitals^{6,21} and its association with production pressures and perceived health care

commercialization that could fuel burnout¹⁶. If part time work, which was reported more frequently by our private practice responders, provides a sense of greater work environment control, this could explain the result in our study sample.

Positive coping strategies including planning and perception of stress as an opportunity for personal growth, were more often employed by participants that had a high sense of personal accomplishment in our study. Perception of an adverse event or critical development as a challenge that can be mastered rather than a stressor to which the clinician is subjected reduces work stress³⁰. Emotion-focused coping²⁷, disengagement¹², passivity, isolation, avoidance or underestimation of the stressor^{31,32}, reduced exercise and increased alcohol consumption²⁰ have been associated with burnout. Personality characteristics such as introversion, conscientiousness, and negative affect are specific risk factors for burnout^{12,33}, as well as a decreased sense of self efficacy¹⁰ and decreased perceived capability²³. Thus, Bandura's concept of self efficacy, i.e. the perception that one can effectively carry out a task, is vital burnout protection³⁴. Additional protection from burnout or its resolution can be expected from leadership and involvement in work environment modification, both of which have been shown to reduce stress levels²¹. Clearly, problem-oriented coping mechanisms are more effective for long-term stress relief than more passive, emotion-focused and disengaged/avoidant strategies³⁵.

Our study is limited to a small number of respondents, and a separate assessment of residents versus attendings would be desirable. However, our results indicate a continued need to systematically address burnout prevention and resolution strategies for anesthesiologists. A link between anesthesiologist burnout and patient outcomes should be studied on a national level. Additionally, departmental, institutional and organizational research and development is needed to facilitate identification, effective treatment and future prevention of health clinician burnout, as well as recognition of contributing system factors that could be modified.

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