Burnout and Resiliency in Perianesthesia Nurses: Findings and Recommendations From a National Study of Members of the American Society of PeriAnesthesia Nurses

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Purpose: *Describe prevalence of burnout in perianesthesia nurses, explore risks, mitigating factors.*
Design: *Cross-sectional descriptive.*
Methods: *Survey containing Maslach Burnout Inventory, Short Form-12, and Social Support and Personal Coping was emailed to American Society of PeriAnesthesia Nurses. Regression analysis examined relationships between burnout and health, social support, personal coping, substance use, and demographics.*
Findings: *Of 2,837 respondents, 18% were currently and 35% were formerly burned out, with lower incidence in those >40 years. Currently burned out nurses had worse health and also perceived a lack of advancement opportunities and organizational investment in the individual. Lower burnout was associated with regular participation in physical ($P < .001$), creative ($P = .004$), or mindfulness hobbies ($P < .001$) and ease in discussing work problems with spouse or partner ($P = .001$).*
Conclusions: *Despite burnout nurses' empathy for their patients is maintained. Interests outside of work, personal and work support, healthy work environment, and regular physical activities can improve burnout.*

Keywords: *burnout, resilience, healthy work environment, perianesthesia nurses.*

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JOB BURNOUT IS an unhealthy relationship with one's work caused by chronic work stressors.[1,2] Graham Greene's 1961 novel "A Burnout Case" advanced description of job burnout, following a brilliant architect who becomes disillusioned, eventually leaving everything to escape to the African jungle. Research on burnout phenomenon started in the 1970s, ignited by Herbert Freudenberg's research and subsequent publication.[3] Burnout was first studied in educators and since expanded to numerous industries and endeavors including, most recently, health care. Psychologist Christina Maslach, a leader in this field, describes job burnout as "prolonged response to chronic emotional and interpersonal stressors on the job."[2] She and her colleagues created the most widely used instrument to measure burnout—the Maslach Burnout Inventory (MBI).

Job burnout occurs more often in occupations that involve "people work," such as social work,[4] education,[5] air traffic control,[6] law enforcement,[7] and health care.[3,8-15] The effects of burnout may manifest as decreased engagement and communication with coworkers.[8] The burned out individual may experience degradations in physiological or psychological health.[8,16] Burned out health care providers are more likely to make medical errors.[17]

Organizations may experience the effects of burnout as a decrease in quality or services, deterioration of morale, absenteeism, and ultimately lower retention rates.[18] Peak performers are at higher risk, and burned out workers may leave their profession altogether.[18,19] Low performers rarely experience burnout.

In health care, the same conditions (chronic emotional and interpersonal stressors and excessive job demands) that contribute to the development of job burnout in the individual can negatively affect patient's safety (medication errors and poor team communication) and satisfaction.[2,7,12,20] When there are perceived threats to one's well-being because of excessive demands, the stress mechanism is activated. Long-term stress can worsen an individual's cognition, decreasing their ability to respond and adapt to environmental demands. This can result in decreased communication skills and ability to collaborate within a complex team to care for an acutely ill hospitalized patient. Many health care professionals who have experienced burnout leave their units or hospitals, some even leave their careers. This is unfortunate because experienced nurses contribute to safe patient outcomes as they can detect early changes in their patients' health status more quickly than inexperienced nurses. Thus, a work environment with a disproportionate percentage of less experienced nurses is likely to have suboptimal patient outcomes.[21] Strategies that retain more experienced nurses contribute to a safer environment.

Burnout has a high financial toll as manifested in the cost of recruiting and training replacements for some of the best and brightest. The cost has been estimated to be as much as $250,000 per physician lost to burnout.[22] Further "job stress"–related costs were estimated in 2003 to include mental health treatment costs of up to $3.2 billion and coronary heart disease management of up to $152 million USD.[23,24] Data from the 2011 United States Census Bureau, the Medical Expenditure Panel Survey Household Component (Agency for Healthcare Research and Quality 2011a), and mortality data published by the Centers for Disease Control and Prevention in 2011 was used by researchers to calculate impact of workplace stress. Results indicated workplace stress contributes to 120,000 deaths annually. The resulting health care costs were almost $190 billion each year. By this calculation, the cost of workplace stress is approximately 5% to 8% of the US national health care spending![25]

A lack of engagement and investment in any work teams caused by burnout may be "contagious" and affect overall productivity through a decrease in morale and an increase in negative feelings.[26] The cost of burnout is magnified by this contagiousness. Thus, there is a high cost to burnout financially and in human capital.

The recent recognition of the unhealthy impact of burnout on the medical profession has led to a call to examine factors that may reduce or prevent development of job burnout in health care workers. Ideally, this should include strategies to increase resilience and create a healthy work environment. This charge has been fostered by the American Nurses Association's (ANA) Year of the Healthy Nurse Campaign and by initiatives of the

National Institute of Occupational Safety and Health.[27,28] The National Academy of Medicine, with the sponsorship of numerous national health care organizations, is developing evidence-based recommendations to enhance clinician well-being (https://nam.edu/establishing-clinician-well-national-priority-july-2017-meeting-summary/).

An interdisciplinary research team was formed at the Vanderbilt University Medical Center to study burnout in perioperative clinicians. In an initial literature review, we considered many factors that could mitigate burnout, including the amount of social support (work supervisors, coworkers, peers, friends, and family) and personal coping style.[29] We hypothesized that certain types of personal coping style and a strong personal support system may negate the emotional exhaustion one is experiencing. This was tested successfully in the perioperative setting at a single site and again with a group of anesthesiologists who attended a webinar at the American Society of Anesthesiologists national conference in 2011.[8,28]

The present study seeks to investigate the prevalence and factors affecting job burnout in a national sample of perianesthesia nurses. Building on prior findings of a relationship between strong social support and personal coping, we sought to examine this in our present study. Additional study aims included exploring whether feelings of personal accomplishments obtained from external activities (e.g., hobbies, mindfulness practice) were protective in the face of feeling lack of personal work accomplishments and whether burnout negatively affected physical and mental health. The Burnout Status Survey was used to examine residual effects after the burnout episode had resolved. In this study, the team was able to analyze differences between those who self-reported as (1) currently experiencing burnout, (2) formerly experienced burnout that has resolved, or (3) never experienced burnout. How are those previously or currently experiencing burnout different from those who have never experienced burnout? Are there risk factors and strategies to be learned through comparing these three groups? Because little data exist on the relationship between substance use and burnout, we also sought to determine if such a relationship existed within our sample. The final aim of this project was to use the research findings to explore strategies that organizations, leaders, and individuals could implement to create a healthier work environment and decrease burnout.

Methods

A cross-sectional survey design was used to investigate the prevalence and factors affecting burnout in a national sample of perianesthesia nurses using several valid and reliable instruments. The voluntary anonymous survey was delivered electronically via REDCap, a secure web-based data repository. The Institutional Review Board at the Vanderbilt University Medical Center approved this study.

Measures

DEMOGRAPHIC VARIABLES. Demographic data were collected on factors such as age, gender, education, type of work environment, and the last three digits of the workplace zip code to compare state of residence to the members of the American Society of PeriAnesthesia Nurses (ASPAN) professional organization.

BURNOUT. The MBI,[30] consisting of 22 questions, measured the components and prevalence of burnout. The MBI measures the three key components of burnout: emotional exhaustion (EE, scale: 0 - 54), depersonalization (DP, scale: 0 - 30), and personal accomplishment (PA, scale: 0 - 48). EE can be described as feeling overwhelmed, fatigued, and emotionally drained from stressors in life. EE develops gradually, often undetected by the person experiencing it until high levels of EE are reached. Those experiencing EE may perceive a lack of control over their life or inability to correctly balance self-care with life's demands. DP defined as withdrawal from relationships accompanied by a negative, cynical, or callous attitude. Those experiencing DP treat themselves or others as objects, losing the human connection perspective. Feelings of PA are a positive work experience and may be protective. However, for our study, the PA scale is reverse coded, resulting in a lack of personal accomplishment (LPA) measure, so that each scale can be scored in the same direction (ie, the higher the value, the greater the burnout). MBI scores are reported as high, medium, or low. A global burnout score (scale: 0 – 132) was calculated by

summing the three component scores. The MBI is a valid and reliable instrument with extensive use in different professions (including nursing),[6-9,15,30] thus providing normative population data for comparison.

BURNOUT STATUS. A newly developed Burnout Status Survey used branching logic to administer up to four questions. Face validity was established with a group of experts. Responses allowed differentiation of respondents into three groups: those currently experiencing burnout (current), those who had experienced burnout in the past but are no longer experiencing (former), and those who had never experienced an episode of job burnout (never). The differentiation of these groups allowed for identification of resiliency in the former group who journeyed through burnout and remained in their profession. This is the first study to report burnout findings with this insight.

HEALTH STATUS (12-ITEM SHORT FORM HEALTH SURVEY). The 12-item Short Form Health Survey (SF-12) consists of 12 questions examining health status and function, with subscales for both physical and mental health. The SF-12 is a valid and reliable instrument with normative data.[31] Prior psychometric testing has been completed with nurses.[32,33] Responses are in yes/no and 3-, 5-, or 6-point Likert scale, which ranges from never to every day or from all the time to none of the time. Physical composite score (PCS) and mental composite score (MCS) range from 0 (worst health state) to 100 (best health state). Composite scores are standardized to national norms; scores below 50 indicate worse health state relative to the population average and vice versa. SF-12 results will be compared to burnout status and national norms.[34] Our data were calculated using the software QualityMetric, SF-12v2 Health Survey, Third Edition.

SOCIAL SUPPORT AND PERSONAL COPING. The Social Support and Personal Coping (SSPC) survey contains 25 items exploring perceptions of support, work environment, and personal coping. Response formats include a 7-point Likert scale, which ranges from strongly disagree to strongly agree; a visual analog scale, from 0 (strongly disagree) to 100 (strongly agree); or a count of the number of support people identified. The SSPC is summarized into four measures: work satisfaction, personal support, work control, and professional support. The hobby inventory was a single-item checklist that categorized hobbies as high, moderate, or low physical activities; distraction activities, mindful practice, and creative activities. Face and content validity of this investigator-developed instrument were confirmed by a group of experts. Construct validity is supported by the relationships found in a single-site study[29] and a large national study,[8] both involving perioperative clinicians.

SUBSTANCE USE (NATIONAL SURVEY ON DRUG USE AND HEALTH). The National Survey on Drug Use and Health (NSDUH) was the last instrument in the survey due to the sensitive nature of the questions.[35] This valid and reliable instrument was created to screen for substance use and contains up to 63 questions. The first question asks the respondent if they have ever (even once) used any of the following substances: tobacco products, alcohol, marijuana or hashish, tranquilizers, cocaine, hallucinogens, inhalants, prescription pain relievers, prescription sedatives or sleeping pills, none, or other. If "none" is selected, no other questions of this survey open; however, for each of the substances selected, additional questions open. Question format ranges from yes/no to a 5-point Likert scale examining the frequency of use from never to four or more times a week. This survey also covers substance use in three timeframes: ever in a lifetime, within the past year, and within the past 30 days. To examine the relationship, we focused on the data for the past 30 days.

Procedure

ASPAN national office emailed the invitation to all current ASPAN members who had an email address on file. A live link to the anonymous survey was included in the invitation. Three reminders were sent before the survey link was closed.

Statistical Analysis

Continuous variables were summarized using the median (25th and 75th percentile), while categorical variables were summarized using percentages. The Kruskal-Wallis test and the Pearson chi-square test were used, as appropriate, to compare groups.

An ordinary linear regression model was used to examine associations between the mean MBI burnout score (EE, DP, LPA, and global burnout) and the prespecified risk factors such as participant's age, gender, education, substance use in the past 30 days, SSPC (work satisfaction, personal support, work control, and professional support), SF-12 (PCS and MCS), and hobbies and activities. MBI mean subscale scores and their 95% confidence interval (CI) were presented as well for the purpose of comparing to the normative data. MBI subscale scores were derived by averaging across responses from a set of items that each scored from 0 to 6. According to the central limit theorem, it satisfied the normal distribution assumption. For all other variables, we only showed median and the 25th, 75th percentiles for between-group comparisons. The linear effect of continuous variables (PCS and MCS) was examined. The adjusted effect estimates (95% CIs and *P* values) were reported. Using SPSS crosstabs, we compared the nurses with undergraduate, diploma, or associate degrees to those with advanced degrees (graduate or doctoral prepared) to see if level of education had a marginal relationship with burnout. Our SF-12 data were calculated using the software QualityMetric, SF-12v2 Health Survey.[34] The Spearman's correlation coefficients between the self report Burnout Status Survey and the MBI subscale scores and between self-reported Burnout Status Survey and health status (SF-12) were calculated to examine the construct validity. To compare normative data and our sample data, normatives were compared to our sample mean and 95% CIs. The SSPC was summarized into four measures: work satisfaction is the average of 4 items and each items scores 1 (worst) to 7 (best). Personal support has 3 items, work control has 3 items, and professional support has 8 items. The range of SSPC components is 1-7.

All analyses were performed using R version 3.3.0, and two-sided significance levels of 0.05 were used to define statistical significance.

Results

ASPAN membership at the time of this study was approximately 15,000. The invitation to participate in the survey was successfully emailed to 13,429 members. Of these, 5,171 ASPAN members opened the email invitation, and 2,837 of these completed the survey. Response rates, therefore, were 21% of the total sample emailed, and 54% of those who opened the email invitation.

The study sample demographics closely reflect the demographics of the ASPAN membership as a whole (Table 1).

Burnout and Demographic Variables

A regression analysis was performed to examine if a relationship exists between each of the risk factors and the components of MBI burnout. After controlling for all other covariates, the results are displayed in Table 2. Compared with participants in the highest age category (60 to 80 years), those in the lowest age category (21 to 40 years) tended to have higher DP, LPA, and total burnout (all $P <$ .01). Participants in the middle two age categories (41 to 50 years and 51 to 60 years) tended to have lower EE ($P = .01$, $P = .01$) but higher DP ($P <$ .01, $P = .03$). Men had higher DP ($P < .01$) than women.

Education Level

We compared the nurses with diploma or associate degree in nursing to those with a bachelor of science in nursing degree, with no significant differences found regarding prevalence of burnout. We found the rates of burnout were similar in this group; however, the advanced degree nurses felt more control over what they do at work ($P = .001$) and less control over their workload ($P = .008$). Advanced degree nurses also perceived more support from their supervisor ($P = .004$) and felt valued more for their professional skills ($P =$ .03) than nurses with undergraduate degrees. However, undergraduate educated nurses perceived their colleagues helped them more than the advanced degree nurses ($P = .001$), and the advanced degree nurses felt they did not accomplish as much as they would have liked ($P = .009$).

Burnout Status Survey Prevalence and MBI Scores

Overall, 17.6% (N = 493) of the participants self-reported they were currently experiencing, 35% (981) had formerly experienced, and 47.4% (1329) had never experienced burnout

via the Burnout Status Survey. Individual and overall MBI scores positively correlated with self-reported burnout status. Respondents currently experiencing burnout scored the highest for overall MBI and all three subscales ($P < .01$). The Spearman's correlation coefficient for the Burnout Status Survey versus the MBI scores ranged from 0.28 to 0.50 with all $P < .001$.

In our sample, EE was the highest (ie, worst) score, followed by lack of PA. The lowest score in this sample was for DP.

Collection of Burnout Status allowed for comparison between those who were currently experiencing burnout (current), those who had experienced an episode in the past (former), and those who had never experienced burnout (never). The analysis of the MBI subscales revealed that while the former group scored lower than the current group, former scores remained higher than those in the never group (Figure 1, Table 3).

Those in our sample who never or formerly experienced burnout had significantly lower MBI subscale scores than the normative data. Those who were currently experiencing burnout had significantly higher EE. The normative data for EE was below the lower limit of the 95% CI of our sample mean (Figure 1).

Burnout and Health Status

Data obtained from the SF-12 were compared to the Burnout Status Survey. Those currently experiencing burnout were more likely to report "pain interfering with everyday activities" and "fatigue" than those in the former or never groups ($P < .001$). Fatigue and "drained status" correlated with burnout status (fatigue R = 0.43, drained R = 0.36, $P < .001$). Fatigue and burnout status correlated with less physically strenuous activities/hobbies (fatigue R = 0.13, burnout R = 0.06 ($P < .001$).

Participants who reported being currently burned out had lower PCS (poorer physical health or < 50) and lower MCS (poorer mental health or < 50) compared with the other two groups ($P < .01$, Table 4). Lower PCS and MCS were significantly associated with higher EE, DP, LPA, and global burnout after adjustment for other covariates (all $P < .01$).

Table 1. Comparison of ASPAN Membership Demographics With Study Sample Demographics

Characteristics	ASPAN Members (N = 13,429) Percentages	Survey Participants (N = 2837) Percentages
Age		
under 39 y	7.8	7.2
40-49 y	17.1	15.3
50-59 y	50.7	41.7
60 y and over	24.4	35.9
Gender		
Female	95.9	96.2
Male	4.1	3.8
Area employed		
Hospital	81.5	84.1
Free-standing surgery center	8.5	14.4
Office-based practice	0.5	0.5
Other	9.6	1.0
Highest degree		
Diploma/ADN	26.3	29.8
BSN	53.4	53.0
MSN/DNP/PhD	20.3	17.2

ASPAN, American Society of PeriAnesthesia Nurses; ADN, associate degree in nursing; BSN, bachelor of science in nursing; MSN, master of science in nursing; DNP, doctor of nursing practice; PhD, doctorate.

ASPAN National Office shared membership characteristic for analysis.

Burnout Relationship to Social Support and Coping

There were significant differences among burnout status groups and the SSPC components of work environment, work control, professional support, and personal support. Currently, burned out participants felt less support ($P < .01$), perceived less opportunity for advancement ($P < .01$), reported less control over their work and workload ($P < .01$), were less satisfied economically ($P = .03$), and had lower job satisfaction and appreciation ($P < .01$) than those who reported a burnout status of former or never (Table 5). Those who were currently burned out had fewer support people (≤3) than the other groups and were less likely

Table 2. Association Between Burnout and Participant Demographics, Substance Use, Coping Strategies, Health Status, and Hobbies and Activities (Multivariate Regression Analysis)

	EE		DP		LPA		Global Burnout	
	Point Estimate (95% CI)	*P*	Point Estimate (95% CI)	*P*	Point Estimate (95% CI)	*P*	Point Estimate (95% CI)	*P*
Age (vs. [60, 80]), y								
(21, 40)	0.03 (-0.11, 0.18)	.67	0.45 (0.31, 0.59)	< .01	0.24 (0.13, 0.35)	< .01	0.24 (0.15, 0.33)	< .01
(41, 50)	−0.13 (−0.24, 0.03)	.01	0.15 (0.05, 0.25)	< .01	0.08 (0.00, 0.16)	.06	0.03 (−0.04, 0.10)	.36
(51, 60)	−0.10 (−0.18, −0.02)	.01	0.08 (0.01, 0.15)	.03	0.02 (−0.04, 0.07)	.57	0.00 (−0.05, 0.05)	.97
Male (vs. female)	−0.05 (−0.22, 0.13)	.60	0.22 (0.06, 0.39)	< .01	−0.03 (−0.16, 0.10)	.65	0.05 (−0.06, 0.16)	.37
Education (vs. BSN)								
Diploma	−0.07 (−0.15, 0.00)	.06	−0.04 (−0.12, 0.03)	.23	−0.02 (−0.08, 0.04)	.44	−0.04 (−0.09, 0.00)	.08
MSN	−0.01 (−0.12, 0.11)	.90	−0.02 (−0.13, 0.09)	.71	0.05 (−0.04, 0.14)	.28	0.00 (−0.07, 0.08)	.9
PhD/DNP/DNSc	−0.03 (−0.16, 0.10)	.64	−0.06 (−0.18, 0.06)	.33	0.08 (−0.02, 0.18)	.12	−0.01 (−0.09, 0.07)	.85
Substance use (NSDUH)								
Tobacco	0.02 (−0.14, 0.19)	.77	0.11 (−0.04, 0.26)	.16	−0.07 (−0.19, 0.05)	.25	0.02 (−0.08, 0.12)	.67
Alcohol	0.06 (−0.01, 0.13)	.08	0.05 (−0.01, 0.12)	.11	0.03 (−0.03, 0.08)	.32	0.05 (0.00, 0.09)	.03
Marijuana	−0.32 (−0.68, 0.04)	.08	−0.09 (−0.43, 0.24)	.58	0.22 (−0.06, 0.49)	.12	−0.07 (−0.29, 0.16)	.55
Prescribed pain medications	0.05 (−0.28, 0.37)	.78	−0.10 (−0.40, 0.20)	.53	0.04 (−0.21, 0.28)	.76	0.00 (−0.20, 0.20)	.97
Coping strategies (SSPC)								
Work satisfaction	−0.15 (−0.18, −0.12)	< .01	−0.07 (−0.10, −0.04)	< .01	−0.06 (−0.09, −0.04)	< .01	−0.10 (−0.12, −0.08)	< .01
Personal support	−0.11 (−0.14, −0.09)	< .01	−0.02 (−0.04, 0.00)	.03	0.00 (−0.01, 0.02)	.76	−0.04 (−0.06, −0.03)	< .01
Work control	−0.12 (−0.14, −0.09)	< .01	−0.03 (−0.06, −0.01)	< .01	−0.03 (−0.05, −0.02)	< .01	−0.06 (−0.08, −0.05)	< .01
Professional support	−0.08 (−0.12, −0.04)	< .01	−0.04 (−0.08, 0.00)	.06	−0.07 (−0.10, −0.04)	< .01	−0.06 (−0.09, −0.04)	< .01
Health status (SF-12)								
PCS	−0.03 (−0.03, −0.02)	< .01	−0.01 (−0.01, −0.01)	< .01	−0.01 (−0.02, −0.01)	< .01	−0.02 (−0.02, −0.01)	< .01
MCS	−0.06 (−0.06, −0.05)	< .01	−0.03 (−0.04, −0.03)	< .01	−0.02 (−0.02, −0.02)	< .01	−0.04 (−0.04, −0.04)	< .01
Hobbies and activities								
Active	0.00 (−0.10, 0.09)	.93	0.00 (−0.08, 0.09)	.94	−0.10 (−0.17, −0.03)	< .01	−0.03 (−0.09, 0.03)	.32
Distractive	0.03 (−0.13, 0.20)	.68	0.15 (0.00, 0.30)	.05	0.13 (0.01, 0.25)	.04	0.10 (0.00, 0.21)	.05
Creative	0.02 (−0.05, 0.09)	.53	−0.06 (−0.12, 0.01)	.08	−0.12 (−0.17, −0.07)	< .01	−0.05 (−0.09, −0.01)	.02

CI, confidence interval; EE, emotional exhaustion; DP, depersonalization; LPA, lack of personal accomplishment; BSN, bachelor of science in nursing; MSN, master of science in nursing; DNSc, doctor of nursing science; NSDUH, National Survey on Drug Use and Health; SSPC, social support and personal coping; SF-12, 12-item Short Form Health Survey; PCS, physical composite score; MCS, mental composite score.

Age category (a, b) denotes age interval that is inclusive of a, but exclusive of b.

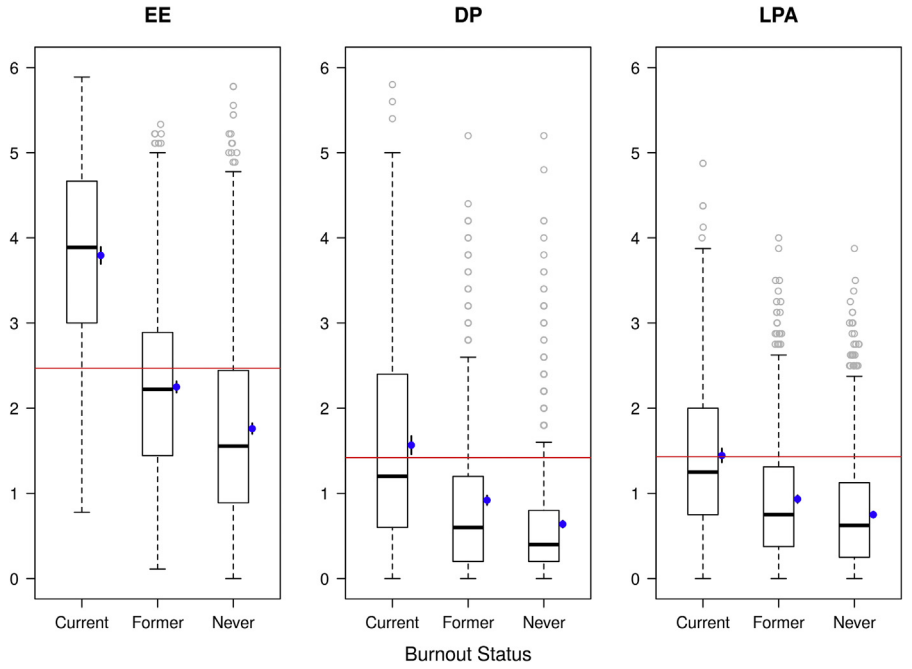

Figure 1. Boxplots show the distribution of Maslach Burnout Inventory (MBI) subscale scores (EE, DP, LPA) by burnout status compared with a population normative sample. Those in our study sample (box-and-whisker plot) had lower burnout scores on all three dimensions than those shown from population normative data. The upper, middle, and bottom lines represent the 75th, 50th, and 25th percentiles, respectively. Blue dots are mean and 95% confidence intervals. Red lines indicate population normative data. EE, emotional exhaustion; DP, depersonalization; LPA, lack of personal accomplishment. This figure is available in color online at www.jopan.org.

to discuss work problems with a spouse or partner ($P < .01$). After adjusting for covariates, there was insufficient evidence of reduced DP with personal or professional support or reduced LPA with personal support; however, all other SSPC components were significantly associated with the global MBI score and each component score (Table 5).

The SSPC hobby data indicated that strenuous and moderate physical hobbies/activities correlated with fatigue and drained status (both fatigue and drained status correlated with burnout). Regular strenuous or moderate physical activities were associated with lower LPA ($P < .01$). Distraction activities correlated with less DP ($P < .05$). Members of the study sample

Table 3. MBI Scores by Burnout Status Score

Respondent's Burnout Status	EE (25th, 50th, 75th Percentiles)	DP (25th, 50th, 75th Percentiles)	LPA (25th, 50th, 75th Percentiles)	Global Burnout (SUM) (25th, 50th, 75th Percentiles)
Never (N = 1,329)	8, **14**, 22	1, **2**, 4	2, **5**, 9	13, **22**, 33
Former (N = 981)	13, **20**, 26	1, **3**, 6	3, **6**, 10.5	21, **31**,42
Current (N = 493)	35, **27**, 42	3, **6**, 12	6, **10**, 16	53, **41**, 65
Spearman's correlation coefficient	0.49	0.32	0.28	0.50

N, number; EE, emotional exhaustion scale 0 (best) to 54 (worst); DP, depersonalization scale 0 (best) to 30 (worst); LPA, lack of personal accomplishment scale 0 (best) to 48 (worst); SUM, all subscales of the MBI were summed to create a global burnout score.

Data are shown as the 25th, **50th** (bold), and 75th percentiles. All *P* values from the Kruskal-Wallis test and Spearman's correlation coefficient were $< .001$.

Table 4. Physical Component Scores (PCS) and Mental Component Score (MCS) by Burnout Status

Respondent's Burnout Status	PCS (25th, 50th, 75th percentiles)	MCS (25th, 50th, 75th percentiles)
Current	40.3, **49.7**, 55.9	31.1, **36.9**, 45.6
Former	45.6, **52.4**, 56.3	42.4, **50.8**, 55.9
Never	49.3, **54.1**, 56.7	47.2, **54.7**, 57.8

Data are shown as the 25th, **50th** (bold), and 75th percentiles. All *P* values from the Kruskal-Wallis test and Spearman's correlation coefficient were < .001. The current burnout group had median PCS and MCS lower than 50 (normative value for PCS and MCS); however, only the MCS was statistically significantly less than 50, indicating worse health, both physical and mental.

reporting participation in creative (art, music) or mindfulness (yoga, meditation, prayer) activities reported lower LPA ($P < .01$) and total burnout ($P = .02$) than those not engaging in these hobbies. There was no significant association between the number of activities or hobbies and burnout.

Burnout Status and Substance Use

Participants who reported never experiencing burnout per the burnout status questionnaire also reported lower alcohol consumption ($P = .01$) and lower use of prescribed pain relievers ($P < .001$) within 30 days than those who had never or had formerly experienced burnout. Alcohol consumption was the only factor that was associated with lower burnout scores ($P = .03$) after adjusting for other covariates. There were no other statistically significant effects of substance use.

Multiple Regression Analysis

The adjusted analysis results examined the association between MBI and participant demographics, SF-12, SSPC, substance use, and hobby or activities (Table 2). After adjusting for the other covariates, older age (>40 years) was associated with decreased levels of EE, DP, and global burnout. Both the PCS and the MCS of the SF-12 were negatively associated with EE ($P < .01$), DP ($P < .01$), LPA ($P < .01$), and global burnout score ($P < .01$). Both the PCS and MCS were associated with all dimensions of burnout ($P < .001$). Personal support, professional support, work control, and work satisfaction were significantly associated with decreased levels of EE ($P < .01$) and global burnout score ($P < .01$) after adjusting for respondent demographics and other risk factors. Professional support was associated with less DP ($P = .03$). Personal support, professional support, and work control were associated with global burnout ($P < .01$, $P < .01$, and $P = .02$, respectively). Tobacco was associated with less EE ($P < .01$), but not with global burnout. In contrast, alcohol use was associated with global burnout but not with the three dimensions of the MBI. Active, distractive, and creative activities were associated with less LPA ($P < .01$, $P = .04$, $P < .01$). Distractive and creative activities were also associated with less global burnout ($P = .05$, $P = .02$). Distractive activities were

Table 5. Social Support and Personal Coping Components by Burnout Status

Burnout Status	Work Satisfaction (25th, 50th, 75th Percentiles)	Personal Support (25th, 50th, 75th Percentiles)	Work Control (25th, 50th, 75th Percentiles)	Professional Support (25th, 50th, 75th Percentiles)
Current	2.8, **3.8**, 4.5	2.0, **4.0**, 6.0	1.5, **2.5**, 4.0	3.9, **4.6**, 5.4
Former	4.0, **4.8**, 5.5	3.0, **6.0**, 6.0	2.5, **4.0**, 5.5	4.8, **5.4**, 6.0
Never	4.0, **5.0**, 5.8	4.0, **6.0**, 6.0	3.0, **4.5**, 6.0	4.9, **5.5**, 6.1

Data are shown as the 25th, **50th** (bold), and 75th percentiles. All *P* values from the Kruskal-Wallis test and Spearman's correlation coefficient were < .001.

associated with less LPA ($P = .04$) but not with EE or DP.

Discussion

This study is the first to report on the prevalence of burnout in a national sample of perianesthesia nurses. Use of the Burnout Status Survey allowed for comparisons between groups (those never experienced, formerly experienced, and currently experiencing burnout) with some interesting findings. While the rate of current burnout is relatively low (18%), the rate of current burnout combined with the rate of former burnout represents over half of the sample (53%). For this sample of nurses, EE was the highest response to job burnout (measured by the MBI). Regression analyses revealed a number of factors associated with burnout:

- Physical and mental health status, including fatigue
- Perceived work conditions
- Perceived personal and professional support
- Tobacco and alcohol consumption
- Age.

Because of the cross-sectional nature of the study design, causality cannot be determined. However, there are some strategies, drawn from these data, that may prevent, mitigate, or treat the occurrence of burnout in perianesthesia nurses.

Demographic Data and Burnout

Interestingly, when we corrected for age and gender (regression analysis), we found age is protective (>40 years). The older we get, the less likely we are to experience burnout. This makes sense; as we become older, we know ourselves and our limitations better, and we are more likely to establish boundaries. This finding offers a potential strategy for organizations to educate employees on signs and symptoms of burnout and support the importance of self-care (setting healthy boundaries and expectations and so forth). We also found differences in gender and expression of burnout, with men more likely to experience DP ($P < .001$) and women, EE ($P = .03$). This finding is consistent with prior findings in Hyman's 2010 American Society of Anesthesiologists study in which the sample was primarily male (74%) and experienced mostly DP ($P < .01$) followed by LPA ($P = .03$).[8] Level of education was approaching statistical significance ($P = .06$), with diploma nurses experiencing more EE than bachelor's prepared nurses. This finding makes sense, as many health care organizations pursuing or retaining Magnet Designation with the American Nurses Credentialing Center have limitations for career advancement for those without an undergraduate degree. The advanced degree nurses' perception of lack of control over workload offers insight for organizations to focus on improving this. The focus perhaps should be on how much work can be done well and safely rather than on how much work can be done. Clear, evidence-based guidelines on staffing or work burden do not exist currently.[36] This should be a focus for future research.

Burnout Status and MBI

The MBI components showed lower burnout prevalence on all three scales (EE, DP, and LPA) than the normative data. In our sample, EE was the most frequent response to burnout, followed by LPA and DP (Table 3). Given that nurses are the health care professionals who consistently offer support and empathy to and assess needs of the patients and their families, it is not surprising that a heavy emotional toll is detected in our data.

We compared the self-reported burnout status scores to the MBI scores and found the status of burnout correlated with higher scores in the components and global MBI (Table 5). Hence, our burnout status survey appeared to measure burnout reliably within this population.

There were distinct differences in the MBI scores among the three burnout status groups (current, former, and never). Despite the fact that former and never groups were not currently burned out, their scores were not the same. Burnout is an intense personal experience, sometimes resulting in individuals leaving their profession.[1-3] Perhaps, it would be more unusual to journey through such an intense personal experience and then return to embrace the same ideas and perceptions about work valued before the experience. Most individuals change and grow through intense experiences; viewing the data through this lens of hermeneutic circularity

interpretation may help explain the differences detected in the three burnout groups.[37]

Burnout and SF-12 Health Impact

Our findings support an inverse relationship between current burnout status and fatigue, poor physical and mental health as measured by the SF-12. This demonstrates the impact burnout can have on health status of the individual. Both mental and physical health are negatively affected by those currently experiencing burnout (Table 3). These findings lend further insight into the heavy physical and mental impact of burnout; there is so much more involved than just attitude. The toll of burnout is absenteeism, a lack of enjoyment of job, calling in due to pain or fatigue, causing stress to the entire team as they are left to work shorthanded.[6-8] This absenteeism is costly, and it is difficult to measure the total impact, both financially and on team efficiency and collaboration. It is important to consider the total financial burden of burnout to an organization which is more than just the cost to hire and train a replacement.[23,24] These findings of poor health and burnout result in increased utilization of resources (e.g., sick days, insurance usage). Although difficult to quantify, the financial burden of burnout is still present.

This impact of poor health due to burnout highlights the need for individuals, organizations, and leaders to explore the current work environment for opportunities to actively strategize, implement, and create a healthier work environment, inclusive of examining current staffing patterns in relationship to patient complexity. The concept of patient complexity encompasses measuring the patient acuity plus nursing tasks that distract, increase work burden, or require additional follow-up. Such an instrument could be useful in balancing staffing patterns to resource utilization more efficiently. For example, a nurse educating a patient and his or her family on indwelling urethral catheter care before discharge increases work burden but is not reflected in patient acuity measurement. However, this activity requires the nurses' time, energy, and focus to ensure the patient will not be readmitted to the hospital due to complications related to poor catheter care, hence an important interaction.

Social Support and Personal Coping

There is ample evidence in the literature that burnout results from a bad relationship between the individual and his or her work environment.[7,28,30] This mismatch between the work environment and the individual's values or beliefs may result in the individual experiencing role conflict or moral distress. As the individual's perception of work environment fairness or justice becomes negative, work attitudes become negative, resulting in burnout.[15,38] Our social support and personal coping data reflect these themes found in burnout status and perceptions of the work environment. Those currently burned out perceived less support, appreciation, or opportunity for advancement in their work environment. Strategies by organizations to improve an individual's perception and experience of the fairness in the work environment could impact and decrease burnout.

SSPC and the Organizational Work Environment

Data from our SSPC found a strong relationship among those currently experiencing burnout having more negative perception of work satisfaction, work control, and professional support (all $P <$ .001.). Likely, these perceptions contributed to an overall feeling of injustice. Literature reporting findings from research focused on employees' perceptions of organizational justice or fairness can give insight into these results and strategies for improvement.[39-42] There are four types of organizational justice:

- Distributive justice: perception of (un)fairness in what the employee receives (e.g., benefits, salary) from the organization[39]
- Procedural justice: perception of (un)fairness in how the organizational outcomes are shared[40]
- Informational justice: the frequency and amount of sharing of organizational information with employees[41]
- Interactional justice: perception of (un)fair treatment from organizational authorities in interpersonal interactions[42]

These forms of justice can affect the relationship between the individual and organization. These same negative perceptions of work fairness were

reflected in our data and vary according to burnout status. Those currently experiencing burnout have a more negative perception, while the formerly and never burned out are more positive in their work attitudes and perceptions. Organizations that actively consider perceptions of organizational justice by their employees may discover opportunity for improvement strategies. Those organizations that have created a structure for employee empowerment through a shared governance model (including all employees in shared decision-making) contribute to a perception of a just and fair environment.

Our SSPC data clearly indicate that employee feelings of leadership support, economic satisfaction, opportunities for advancement, control or recognition of workload, and recognition of work accomplishments are related to burnout. If these perceptions are positive, the individual is less likely to report burnout. This insight offers opportunities for organizations to create a healthier more positive work environment and improve the relationship between the organization and its employees. Organizational opportunities for individuals to advance in their career (nursing clinical ladders) or grow professionally (workshops or ability to volunteer for special projects or committees) can also contribute to perceptions of organizational investment in the individual. Magnet-designated organizations embrace these healthy work environment principles and must produce empirical evidence on a regular basis to indicate ongoing success.[43] (see Table 5)

SSPC and Personal Support

Our data indicate a strong relationship between personal support and burnout status. Those who feel more comfortable talking with a spouse or partner about work problems experience less burnout. In addition, the total number of supportive people an individual has correlates with burnout status. Those who reported having no one ($P < .001$) were more likely to also report being burned out. Having three or more supportive people in one's life correlated with less burnout ($P = .03$). This impact of personal support on burnout status offers an opportunity for organizations and leaders to recognize and support the importance of individuals having time away from work to be with these people. Instituting decreased consecutive hours worked, increasing time away between shifts worked, and ensuring individuals use vacation time for non–work-related activities could assist in accomplishing this. Some European organizations' "out of office" email replies also notify the sender they do not accept any incoming emails during the blocked period, ensuring the employee respite from any work duties during time away, and this practice may be ripe for testing in the United States.[44] Additional strategies could include providing social activities (e.g., employee celebrations; art or talent shows; extramural sports teams; sponsoring museum, art gallery, music, or sport event pass days for employees) and offering obtainable personal support opportunities (providing on site counseling, release time for a break after an unexpected poor patient outcome, or formal mentoring programs and leadership training/opportunities).

Of interest, there were no differences between burnout status and nurses' ability to easily understand how their patient's feel about things every day. These data were assessed through comparing the results of the MBI (empathy questions) and the burnout status survey. Although the nurses may be experiencing burnout, or fatigue, or lack of control, or lack of support, they never lose their empathy for their patients. This speaks strongly to nurses' belief in the therapeutic nature of the nurse-patient relationship—being present for the patient every shift and day.

Hobby Status, Fatigue, and Burnout

Fatigue status correlated with decreased strenuous or moderate physical hobbies. There are evidence-based recommendations that exercise can combat fatigue and elevate mood.[45-48] There is evidence that acute physical activity can elevate mood by increasing certain "feel good" neurotransmitters, specifically serotonin,[49] β endorphins and adrenocorticotropic hormone,[50,51] and endocannabinoid.[52] We found, after adjusting for age and gender in a regression analysis, that those who regularly participated in strenuous or moderate physical hobbies had less LPA ($P < .001$). Those who had a creative hobby (making art, music, writing, or cooking) or mindful hobby (Tai Chi, yoga, prayer) had less LPA ($P < .001$) and less total burnout ($P = .02$). Therefore, the feelings of PA obtained through regular

Table 6. Laws Governing Meal and Rest Breaks at Work by State

States With Laws for Meals and Rest Breaks	States With Laws for Meals Only	States Without Laws or Without Established Time Limits for Breaks or Meals
California, Colorado, Illinois, Kentucky, Maryland, Minnesota, Nevada, Oregon, Washington	Connecticut, Delaware, Guam, Maine, Massachusetts, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Puerto Rico, Rhode Island, Tennessee, West Virginia, Wisconsin	Alabama, Alaska, Arizona, Arkansas, Florida, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Louisiana, Michigan, Mississippi, Missouri, Montana, New Jersey, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, Wyoming

participation in physical, creative, or mindful hobbies can also positively affect other areas of the individual's life. Organizations can support the health of individual employees by affording an opportunity for intramural sports, employee discounts at "art or music" schools/classes, gyms, and hosting organizational supported art or talent showcases.

NSDUH Substance Use and Burnout

Prior research has found no or weak relationships between substance use and burnout; our analysis revealed tobacco appears protective against burnout ($P = .04$ EE, $P = .05$ total burnout).[8] However, we believe tobacco use is a surrogate marker for other behaviors. For example, tobacco users and smokers take regular breaks every day, leaving the work area, going outside to smoke multiple times each day. These regular outside breaks are more likely to be what is protective. There has been much published about the positive effect of the outside on our inside—elevated mood and feelings of well-being; our findings support these results as well.[53-55] The successful campaigns to move smoking outside and off premise also set the stage for a culture of coworkers unquestioning when a peer smoker requests them to watch their patient while they take a smoke break. Perhaps, the nonsmokers should have a reciprocal outside break while their smoking colleagues watch the patients. Both the ANA and the National Institute for Occupational Safety and Health call for healthy work environments; they identify supportive environments that value regular breaks, empowered employees (perception of control over work), and healthy work habits. These same factors appear to have potential to decrease burnout in our data. At an individual level, taking regular breaks outside of the work environment and making one's own needs a priority can further decrease burnout. However, 28 states have no laws governing meal breaks or even rest breaks. A lack of these laws devalues the importance of the impact these small things can have on the health of the work environment and the individuals (Table 6).

Policies that clearly outline meal and rest breaks for employees set the stage for an organization that provides the individual release time away from work responsibilities. This would ensure organizations support the employee to successfully take time for his or her own needs and thereby contribute to establishing a healthier work environment and organization.

Conclusion

Preventing burnout decreases costs to organizations, both financially and human capital. Burned out health care workers negatively affect patient safety.[20] Those experiencing burnout are less likely to engage with coworkers (fatigue and less trustful of organizational support and investment, perhaps less invested in the team because of these perceptions). Perianesthesia nurses who are burned out feel unappreciated and unsupported by supervisors, leaders, and their organization.

Colleagues need to be mindful of this when communicating. Leaders and supervisors should model gratitude and appreciation for an individual's contribution to the team and the unit's success and offer opportunities for shared decision-making. Burnout has negative physical and mental health implications; however, strenuous and moderate physical hobbies or activities can decrease fatigue. Self-care (establishment of healthy boundaries, regularly taking breaks, and so forth) and regular physical creative or mindful hobbies or activities need to be incorporated into daily work routines and valued by the organizations. Organizations should invest in individuals by creating a healthy work environment. This can be accomplished by ensuring employees have regular breaks outside of the work area, not engaging in work activities during meal breaks (relief from all duties including call lights, monitor alarms, or telephone calls) or during time away from work (disabling receipt of emails with out of office, not participating in conference calls) Organizations should adhere to evidence-based staffing guidelines to decrease perceived work burden, increase recognition for individuals (awards, opportunities to participate in shared decision-making, or merit-based career advancement), and provide opportunities for social connections. These can be beneficial, perhaps even protective against burnout. Organizations focused on creating a healthy work environment can find additional suggestions on the ANA Web site (http://www.healthynursehealthynation.org/).[56] Just as we are instructed by the airlines to put on our oxygen mask before helping others, we as nurses need to take care of ourselves before we endeavor to care for others.

Healthy expectations of health care workers' limits (total hours worked consecutively, hours off between shifts, regular breaks, opportunity for exposure to sunlight and fresh air) need to be established, recognized, and valued at an institutional level and recognized by states as contributing to a healthy work environment. Regardless of burnout status, we found nurses maintain empathy for their patients!

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