

Recognizing and Preventing Burnout among Orthopaedic Leaders

Khaled J. Saleh MD, MSc, FRCSC, FACS,
James Campbell Quick, Wesley E. Sime,
Wendy M. Novicoff PhD, Thomas A. Einhorn MD

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Abstract Stress, emotional exhaustion, and burnout are widespread in the medical profession in general and in orthopaedic surgery in particular. We attempted to identify variables associated with burnout as assessed by validated instruments. Surveys were sent to 282 leaders from orthopaedic surgery academic departments in the United States by e-mail and mail. Responses were received from 195 leaders for a response rate of 69%. The average surgeon worked 68.3 hours per week and more than ½ of this time

was allocated to patient care. Highest stressors included excessive workload, increasing overhead, departmental budget deficits, tenure and promotion, disputes with the dean, and loss of key faculty. Personal-professional life imbalance was identified as an important risk factor for emotional exhaustion. Withdrawal, irritability, and family disagreements are early warning indicators of burnout and emotional exhaustion. Orthopaedic leaders can learn, and potentially model, ways to mitigate stress from other high-stress professions. Building on the strength of marital and family bonds, improving stress management skills and self-regulation, and improving efficiency and productivity can combine to assist the orthopaedic surgery leader in preventing burnout and emotional exhaustion.

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K. J. Saleh (✉), W. M. Novicoff
Department of Orthopaedic Surgery, University of Virginia,
PO Box 800159, Charlottesville, VA 22908-0159, USA
e-mail: kjs3x@virginia.edu

J. C. Quick
The University of Texas at Arlington, Goolsby Leadership
Academy, Arlington, TX, USA

J. C. Quick
Lancaster University School of Management, Lancaster, UK

W. E. Sime
Department of Health and Human Performance, University of
Nebraska Lincoln, Lincoln, NE, USA

T. A. Einhorn
Boston University Medical Center, Boston, MA, USA

Introduction

The prevalence and impact of burnout have been investigated in various medical specialties, including orthopaedic surgery [22], with the conclusion that burnout is present and widespread in the medical profession. Burnout is physical, emotional, or mental exhaustion, especially in one's job or career, accompanied by decreased motivation, lowered performance, and negative attitudes toward self and others [28]. The primary component of burnout is emotional exhaustion and a principle cause is job stress [11].

The American Institute of Stress indicates job stress has reached epidemic proportions in the United States, the United Kingdom, and other industrialized nations and suggests people working in almost every sector in the United States are overworked, negatively affecting job performance [25]. Although it is unclear if there is sufficient evidence that stress and burnout are at epidemic

proportions in medicine in general or in orthopaedic surgery in particular, there are important advantages in preventing burnout among leaders in the medical profession. Prevention is always the preferred mode of intervention for diseases and disorders that may become epidemics [21]. Preventive stress management and the associated stages of primary, secondary, and tertiary prevention are key concepts accepted in the lexicon of psychology and the behavioral sciences [11, 28].

It is not necessary to settle for tradeoffs between stress and performance or between health and productivity [10]. These conditions and attributes should compliment each other and, in the long run, be mutually reinforcing. Therefore, traits and risk factors that lead to burnout should be identifiable and potentially modifiable. Leiter and Maslach [11] reported the most extensive research on burnout and its prevention worldwide, and their methods can be adapted for the practicing orthopaedic surgeon.

A previous study of orthopaedic leaders showed high levels of stress and burnout (as measured by standardized instruments) among department chairs and program directors, with the highest stressors being excessive workload, budgetary concerns, disputes with hospital and medical school administration, and night and weekend work hours [27]. These stressors can lead to medical errors and stress-related illness and ultimately have led some physicians to leave the practice of orthopaedic surgery [15, 22]. Because all of these results of stress are unacceptable, we hypothesized potential risk factors that lead to burnout can be identified, and there are prevention and coping strategies that can avert the onset of burnout before negative manifestations arise.

We therefore examined the relationships between emotional exhaustion, as defined by a standardized behavioral assessment, and self-reported satisfaction with key personal indicators to describe the experiences of orthopaedic leaders and help to provide insight into the key drivers of burnout. We presumed using an emotional exhaustion scale as a marker for potential severe burnout would help define strategies to mitigate negative effects before irreversible burnout occurs. We specifically report on (1) the degree of emotional exhaustion felt by orthopaedic leaders, and (2) compare how that emotional exhaustion is enhanced or decreased based on the respondents' perceptions of family support (especially spousal support) and personal actions.

Materials and Methods

We used data from a cross-sectional questionnaire-based survey of past, current, and acting chairs, division chiefs, and residency program directors from academic departments of orthopaedic surgery as designated by the

2004–2005 directory of the American Orthopaedic Association. After receiving approval from the University of Virginia Institutional Review Board (2005-0193-00), 282 surveys were distributed by e-mail and regular postal mail by a third-party survey group (Leever Research Services Inc, Naperville, IL). An academic department was defined as an orthopaedic unit associated with an approved orthopaedic surgery training program. The responses were kept confidential and the data double-entered into a password-protected computer file. We removed control numbers from the data file at the time of analyses, and the hard copy surveys were destroyed. The demographic and incidence rates from this sample were reported previously [27]. For the entire survey, 195 final data records from the 282 surveys were received and processed, representing a final response rate of 69%. Because response rates to the Maslach Burnout Inventory–Human Services Survey (MBI-HSS) [14] questions (see below) were low in the program directors group and with division chiefs ($n = 85$) and because the distribution of respondents in each emotional exhaustion category were statistically similar between respondent types, we focused on the data from department chairs (which includes current, acting, and former chairs) to help predict risk factors for severe burnout. One hundred ten of 169 surveys originally sent to department chairs were returned for a response rate of 65%. The number of valid responses on individual questions ranged from 102 to 104 of a possible 110 completed and returned surveys.

The questionnaire was developed and validated using a format similar to that used by Gabbe et al. [6] for the American Gynecological and Obstetrical Society. The eight-page questionnaire was divided into six sections and included 30 major questions. (Editors note: the holder of the copyright of this questionnaire, CPP, Inc., Mountain View, CA, does not permit reproduction of the actual survey questions and therefore the questions are not included; however a sample of the types of questions included in the MBI-HSS was provided by CPP, Inc, and is available for viewing as supplemental material with the online version of CORR.) A letter accompanied the questionnaire requesting the participation of each individual and although the letter expressed the principal investigator's concerns about the well-being of orthopaedic leaders in academic departments, the word burnout was not used. The first 17 questions collected information about program size, demographics, income, the orthopaedic leader's subspecialty, and hours worked per week. The second portion asked the respondents to select from a list of 19 stressors and to grade them on a 5-point Likert scale from "not at all" to "extreme amount" and an open-ended question at the end asking how these affected them [6]. Other sections included questions about job satisfaction, family life,

work-family balance, family and spousal support, and how the individual dealt with stress. The questionnaire also asked if the institution where the individual worked had a support group for departmental leaders and for a personal appraisal of his or her professional life and reported self-efficacy. The questionnaire included 22 questions from the MBI-HSS [14]: nine for emotional exhaustion, five for depersonalization, and eight for personal accomplishments. We calculated a subscale for each of the three components. To further examine the relationships between emotional exhaustion and severe burnout, we categorized the orthopaedic chair responses based on their overall scores on the emotional exhaustion component of the MBI-HSS of low (scoring less than 17 points), medium (scoring between 17 and 27 points), and high (scoring more than 27 points).

The results for individual survey questions were tabulated and standard confidence interval formulas for proportions were used. We used chi square tests to compare responses among leaders in the different burnout categories with a focus on exploring relationships between the emotional exhaustion component of the MBI and answers to other questions. Correlations were used to assess associations between burnout scores and other questions.

Results

On average, the orthopaedic leaders had held faculty positions at two prior institutions before becoming a chairperson or program director. The average surgeon worked 68.3 hours per week (range, 10–120 hours/week), and on average, more than 55% of this time was allocated to patient care.

Among current or acting department chairs 22% reported low emotional exhaustion, 39% reported moderate emotional exhaustion, and 38% reported high emotional exhaustion. The lack of personal-professional life balance is correlated with emotional exhaustion (Table 1). More frequent withdrawal from family, irritability, and disagreements with spouse and family members were associated with higher levels of emotional exhaustion (Tables 2–4).

We observed no relationship between how the department chairs rated their spouses' willingness to listen to these leaders' work-related problems and emotional exhaustion (Table 5). We also found no relationship between the department chairs' perceptions regarding whether their spouses understand about of the extra hours

Table 1. Correlation between dissatisfaction with personal-professional life balance and emotional exhaustion*

Satisfaction level	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Very dissatisfied	1	4.3%	0	0.0%	11	27.5%
Somewhat dissatisfied	5	21.7%	12	29.3%	19	47.5%
Neutral	1	4.3%	8	19.5%	6	15.0%
Somewhat satisfied	9	39.1%	13	31.7%	3	7.5%
Very satisfied	7	30.4%	8	19.5%	1	2.5%
Total	23	100%	41	100%	40	100%

* Chi square test, $p < 0.0001$.

Table 2. Correlation between withdrawal from family and emotional exhaustion*

Withdrawal frequency	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Never	4	17.4%	1	2.4%	1	2.6%
Once in a while	15	65.2%	18	43.9%	4	10.3%
Sometimes	2	8.7%	17	41.5%	14	35.9%
Frequently	2	8.7%	5	12.2%	20	51.3%
Always	0	0.0%	0	0.0%	0	0.0%
Total	23	100%	41	100%	39	100%

* Chi square test, $p < 0.0001$.

Table 3. Correlation between irritability with family and emotional exhaustion*

Irritability frequency	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Never	3	13.0%	2	4.9%	2	5.1%
Once in a while	13	56.5%	24	58.5%	7	17.9%
Sometimes	6	26.1%	14	34.1%	21	53.8%
Frequently	1	4.3%	1	2.4%	9	23.1%
Always	0	0.0%	0	0.0%	0	0.0%
Total	23	100%	41	100%	39	100%

* Chi square test, $p < 0.0007$.**Table 4.** Correlation between disagreements with family and emotional exhaustion*

Disagreement frequency	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Never	3	13.0%	8	19.5%	4	10.3%
Once in a while	14	60.9%	15	36.6%	11	28.2%
Sometimes	5	21.7%	13	31.7%	11	28.2%
Frequently	1	4.3%	5	12.2%	9	23.1%
Always	0	0.0%	0	0.0%	4	10.3%
Total	23	100%	41	100%	39	100%

* Chi square test, $p = 0.04$.**Table 5.** Correlation between spouses' willingness to listen to work-related problems and emotional exhaustion*

Spouses' willingness to listen frequency	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Never	0	0.0%	0	0.0%	0	0.0%
Once in a while	2	8.7%	2	5.0%	3	7.7%
Sometimes	4	17.4%	8	20.0%	9	23.1%
Frequently	8	34.8%	18	45.0%	10	25.6%
Always	9	39.1%	12	30.0%	17	43.6%
Total	23	100%	40	100%	39	100%

* Chi square test, $p = 0.71$.

leaders may have to work in their jobs and the leaders' emotional exhaustion (Table 6). We did observe a relationship between the chairs' perception of spousal encouragement for the leaders to take advantage of professional opportunities and emotional exhaustion (Table 7); when chairs reported their spouses were more encouraging of them taking on new opportunities they more often reported low or medium emotional exhaustion, and conversely higher emotional exhaustion was related to

a perception of less frequent spousal encouragement. The chairs' overall satisfaction with family life was not related to emotional exhaustion (Table 8).

Discussion

Preventing burnout in orthopaedic surgeons in general, and their leaders in particular, should be an important priority

Table 6. Correlation between spouses' understanding of working extra hours and emotional exhaustion*

Frequency of spouses' understanding of working extra hours	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Never	0	0.0%	0	0.0%	1	2.6%
Once in a while	1	4.3%	4	10.0%	6	15.4%
Sometimes	1	4.3%	6	15.0%	7	17.9%
Frequently	9	39.1%	20	50.0%	10	25.6%
Always	12	52.2%	10	25.0%	15	38.5%
Total	23	100%	40	100%	39	100%

* Chi square test, $p = 0.18$.

Table 7. Correlation between spousal encouragement and discouragement for professional opportunities and emotional exhaustion*

Frequency of spouses' encouragement and discouragement	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Never	2	8.7%	2	5.0%	5	12.8%
Once in a while	1	4.3%	4	10.0%	10	25.6%
Sometimes	6	26.1%	12	30.0%	12	30.8%
Frequently	10	43.5%	18	45.0%	3	7.7%
Always	4	17.4%	4	10.0%	9	23.1%
Total	23	100%	40	100%	39	100%

* Chi square test, $p = 0.012$.

Table 8. Correlation between satisfaction with family life and emotional exhaustion*

Satisfaction with family life	Emotional exhaustion subscale					
	Low		Medium		High	
	Number	Percent	Number	Percent	Number	Percent
Very dissatisfied	1	4.3%	0	0.0%	4	10.0%
Somewhat dissatisfied	2	8.7%	4	9.8%	12	30.0%
Neutral	1	4.3%	3	7.3%	2	5.0%
Somewhat satisfied	6	26.1%	19	46.3%	10	25.0%
Very satisfied	13	56.5%	15	36.6%	12	30.0%
Total	23	100%	41	100%	40	100%

* Chi square test, $p = 0.035$.

for healthcare institutions, especially as the demand for orthopaedic services increases [27]. We examined risk factors and early warning signs of burnout and emotional exhaustion among orthopaedic leaders, specifically current department chairs. We also collected data on preventive stress management factors, such as the spouse, family, social support systems, and positive communication attachments. Previously work-home balance was examined and results suggested relationships, and especially family

relationships, can be among the most powerful antidotes to burnout and emotional exhaustion [24]. This becomes an issue of managing energy more than it is an issue of managing time [12].

Readers should keep in mind the following limitations. We had a 69% response rate from department chairs, therefore nonrespondents potentially could lead to bias in the data. Nonetheless, we believe the sample is representative and our results reflect the experiences of orthopaedic

leaders in general. However, we realize the experiences and stressors among leaders may be somewhat different from those of the rank and file surgeon who mostly is treating patients. Perhaps a more extensive study of burnout should be conducted to assess severity and prevalence in the orthopaedic surgery population at large, with the aim of identifying potential risks at earlier stages in the surgeon's career. Starting prevention efforts during residency could lead to great benefits in the future. In addition, the limitation of any survey is that it reflects the perceptions of the respondents, which might be very different from the viewpoints of others intimately involved with the lives of these orthopaedic leaders. We thought it was important to present this information, but we acknowledge that a more global assessment of burnout, including responses from coworkers and spouses, could add to the picture and provide greater insight into the extent of the problem of burnout.

Based on the perception of the chairs who responded to the survey, the data suggest spouses are available and not pushed away when emotional exhaustion gets high for the leader (Tables 5, 6). Therefore, spouses' willingness to listen could be seen as a preventive resource and buffer to burnout and emotional exhaustion. Unfortunately, even when the spouse and family realize what is happening to their loved one and try to seek help, the overstressed or workaholic surgeon may deny there is a problem, which is a behavior often seen in people with substance abuse or other type of addictions [17]. Once the spouse and/or family has exhausted all means of obtaining help for their loved one and sees no hope, the relationship may fall apart. Thus, care and support for the spouse and family as caregivers are central to the health and well-being of orthopaedic leaders. Balance becomes a key in the long-term maintenance and vitality of the marital and family relationships and should be encouraged.

Despite the potentially negative impact of stress, the caveat is well-managed stress can lead to positive effects, such as peak performance and the energy to address legitimate emergencies. However, as a known risk factor, stress is directly linked to heart disease, stroke, injury, suicide, and homicide [30]. No one is immune to the possible adverse health risks that constitute distress in any of its medical (eg, coronary vascular disease), behavioral (eg, substance abuse), or psychological (eg, burnout) forms. Although some individuals are more stress-resistant than others, everyone has one or more vulnerabilities that may be exploited when subjected to stress that is too intense, too chronic, or too frequent. This is known as the Achilles heel, or organ inferiority, hypothesis, which states stress causes the individual to experience illness, disease, or health problems at the weakest and most vulnerable points of their lives [29]. However, before the leader gets to that point,

there are some early warning signs as we have shown. Dissatisfaction with the work-personal life balance, irritability, and withdrawal are the same early warning signs reported in other clinical research with senior executives in health care, manufacturing, the military, and service organizations [14, 19].

From a prevention perspective, early warning signs are powerful and important because they allow for early intervention to avert serious or debilitating disorders, problems, or disease.

Prevention is a highly appropriate response to a health epidemic, and in the case of stress, the approach becomes one of preventive stress management [23]. There are two ways to translate the public health notions from preventive medicine into a stress process framework. One approach focuses on the degree of risk for individuals and groups in a population. In this approach, preventive interventions may be aimed at individuals not at risk (primary), those who are at risk (secondary), or those with health decrements as a result of the disease (tertiary; ie, symptomatic). The other approach to prevention focuses on health risks and the asymptomatic and symptomatic responses to these health risks. We would choose this second approach to prevention in the case of stress. When translated in the case of stress, primary prevention aims to address the source of the stress or the causes of stress, such as job demands. Secondary prevention aims to alter the individual's response to stress, such as thorough reality testing, relaxation, or exercise. Tertiary prevention aims to aid those experiencing distress and therefore includes a range of medical, psychological, and behavioral treatment interventions.

So what does the orthopaedic surgeon do to reduce stress? What can orthopaedic surgeons learn, and potentially model, from other high-stress professions? As an example, air traffic controllers (ATCs) have looked carefully at their work and workloads, including psychological workloads, as a key vehicle for stress management [3, 4, 18]. The effects of high stress manifest epidemiologically in this group; approximately 10% to 15% of ATCs report burnout and stress symptoms from work spillover into their personal lives [31]. In addition, cardiovascular problems, endocrine disorders, and hypertension have been linked to the stresses experienced by the members of this profession [16, 26]. The orthopaedic profession and chairs can, either individually or collectively, benefit from similar review of the work and workload in their profession. This is one preventive stress management that may prove cost-benefit-effective for orthopaedic surgeons. The 80-hour work week is an excellent example of a strategy of moderating the workload. This has naturally led to strategies, such as the introduction of more physician assistants and nurse practitioners, to help fill the gap between what physicians were doing before compared with what they are able to do in the

framework of reduced hours. The key here is to analyze work environment and personal characteristics and try to align them. If these do not align, then this needs to be explored further with superiors, colleagues, and family members.

Orthopaedic surgeons also can learn lessons from astronauts. Known stressors on board spacecrafts include alteration in time sense, problems with sleep, psychosomatic symptoms, interpersonal tension, anger displacement toward outside personnel, and asthenia, or loss of muscle strength [5, 8, 9, 32]. Psychologic countermeasures such as emotional support and psychologic mission preparation are routine elements of preparation for preflight operations [13]. These types of interventions aimed at preventing potential negative outcomes can be a mode for orthopaedic surgeons. It is obvious interpersonal skills and teamwork are important in the preventive management of stress. These are a mixture of soft, process-oriented skills and information, task-oriented skills. Thus, honing these skills can pay dividends in reducing the interpersonal aspects of stress, often the largest component in the stress process. In the process, cultivating interpersonal skills can pay positive dividends in a wide range of professional exchanges and can lead to reduced error rates, surgical mistakes, and lives lost.

Orthopaedic surgeons can benefit from the same types of self-management skills as the professional athlete who is attempting to achieve world-class performance. There is extensive research on emotional stress and coping among elite athletes [2]. Most often, athletes report stress attributable to lack of control, high expectations followed by lesser outcomes, external distractions, overall dissatisfaction, and anger with coaches [20]. Athletes in general show two major types of coping: (1) task-oriented (do it differently); and (2) emotion-focused (deal with the outcomes and the reactions). In the same model, there is the so-called approach versus avoidance element [2]. In general, athletes tend to use active approach methods of coping more than avoidance and equal amounts of task versus emotion coping. Resilient athletes favor coping through problem solving and social support, whereas, by contrast, nonresilient athletes tend to cope through avoidance and blaming others, although this yields nonproductive outcomes [7]. The orthopaedic surgeon hopefully can see the very strong correlations between the stressors inherent in the world of the elite athlete and their own, stress-packed work environment.

Based on the information gleaned from this survey and our observation of how stress is handled in other professions, we recommend that stress-reducing techniques might help alleviate emotional exhaustion, and therefore could be beneficial in reducing severe burnout for orthopaedic leaders. First, we recommend building on the natural

strength of marital and family bonds in the profession. This could be through a stress and marriage workshop, which can be adapted for the healthcare profession [24]. A stress and marriage workshop format that focused on communication, identifies stressors, and examines coping strategies would further strengthen good marital bonds.

Second, improving stress management skills and self-regulation (ie, a psychophysiological form of self-control) can make the orthopaedic surgeon an even better leader. The fact that stress-related issues of burnout and emotional exhaustion are important concerns in our data suggests enhanced skills are warranted. This could be achieved through a mechanism similar to the Climbing the Mediator's Peak Workshop aimed at unlocking the balance between stress and its effects on the autonomic nervous system. The purpose would be to teach self-regulation and performance skills that work with, rather than against, the autonomic nervous system.

Third, we suggest improving efficiency and productivity will help to decrease stress in everyday worklife [1]. This intervention aims at mastering workflow and achieving productivity with fewer resources, and it is one mechanism for reducing the risk of burnout and emotional exhaustion, which proceed from unremitting work activity. To do this requires efficiency and management of financial and other resources. This is achieved by learning, mastering, adapting to the unique issues surrounding the practice of orthopaedic surgery (and surgery in general), and practicing a set of work performance skills.

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