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M. Catherine Sargent
Johns Hopkins University

Wayne Sotile
Real Talk, Inc.

Mary O. Sotile
Real Talk, Inc.

Harry Rubash
Massachusetts General Hospital

Peter S. Vezeridis
Massachusetts General Hospital

See next page for additional authors

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Authors

M. Catherine Sargent, Wayne Sotile, Mary O. Sotile, Harry Rubash, Peter S. Vezeridis, Larry Harmon, and Robert L. Barrack



THE AMERICAN ORTHOPAEDIC ASSOCIATION

Leadership in Orthopaedics since 1887

AOA Critical Issues

Managing Stress in the Orthopaedic Family

Avoiding Burnout, Achieving Resilience*

By M. Catherine Sargent, MD, Wayne Sotile, PhD, Mary O. Sotile, MA, Harry Rubash, MD,
Peter S. Vezeridis, MD, Larry Harmon, PhD, and Robert L. Barrack, MD

Stress is a double-edged sword. When managed appropriately, it can lead to peak performance in high-pressure professions, while the potential negative effects of stress are well documented, being directly related to seven of the ten leading causes of death in industrialized nations^{1,2}.

A major psychological manifestation of stress is burnout. Validated assessment tools, such as the Maslach Burnout Inventory, can be utilized to quantify the three components of burnout: emotional exhaustion, depersonalization, and a decreased sense of personal accomplishment^{3,4}. Early signs of burnout, described by Quick et al., include declining professional performance and morale, physical and somatic symptoms, and behavioral changes. More advanced signs include self-medication and serious self-doubt¹.

In 2006, the results of a national survey of orthopaedic leaders (past, current, and acting chairs of orthopaedic departments, in addition to program directors) were presented to the American Orthopaedic Association (AOA) by Saleh et al.⁵. Numerous job stressors were identified, and the impact of these stressors was rated as moderate to severe in 70% of the leaders responding. High levels of emotional exhaustion and depersonalization were noted. A number of disturbing trends were identified. Only 15% were satisfied with their personal-professional

life balance, and the percent dissatisfied with their job was increasing with time. Thirty-seven percent stated that they were moderately, very, or extremely likely to step down from their chair position within two years⁵.

Stress and burnout have a substantial impact on patient care, especially an increase in medical errors. Fifty percent of physicians and 70% of the public believe that overwork, stress, and fatigue contribute to medical errors⁶. A recent survey of members of the American College of Surgeons assessed burnout among 7905 responding surgeons, 700 (8.9%) of whom reported committing a recent major medical error⁷. The commission of a major error correlated statistically with all three major burnout domains. Each 1-point increase in the depersonalization score raised the risk of error by 11%, and each 1-point increase in emotional exhaustion raised the risk of error by 5%. In addition, surgeons committing errors were twice as likely to have findings indicating depression. Factors frequently thought to be major drivers of medical errors, such as number of hours worked, frequency of night call, practice setting, and compensation, showed no statistical correlation with the likelihood of committing a major medical error⁷.

In the years since the topic of stress had been discussed by the AOA, the relevance of the topic has only increased in importance. From 2007 to 2009, the Department of Justice investigation of orthopaedic device manufacturers resulted in a negative public image of the orthopaedic specialty and was the source of immense scrutiny and stress among many orthopaedic

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surgeons and leaders dealing with the aftermath⁸. On the heels of the Department of Justice investigation, the redefining of health care in the United States is another major issue for most surgeons. Many of the stressors identified by orthopaedic leaders in the survey by Saleh et al., such as workload, overhead, and budget deficits⁵, are anticipated to increase in the new system. Fundamentally, lack of control is a major contributor to burnout and dysfunction among individuals who work in high-stress environments⁹.

A national survey of sixty-four residency programs with 648 respondents (41% were faculty and 59% were residents) was recently completed¹⁰. The sample size was large enough to objectively comment on timely key issues identified by the American Academy of Orthopaedic Surgeons (AAOS) such as stress and burnout among women and minorities. In addition, orthopaedic spouses were surveyed for the first time.

Stress and Coping: A National Survey of Orthopaedic Residents, Faculty, and Spouses

Through a grant from the Orthopaedic Research and Education Foundation, a nationwide survey was conducted to determine the quality of life of orthopaedic residents, faculty, and their spouses or significant others (hereafter referred to as spouses, inclusively).

With the assistance of the Association of Residency Coordinators in Orthopaedic Surgery, sixty-four orthopaedic surgery resident training programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) distributed our survey instruments to residents, faculty, and spouses.

Our survey instruments consisted of question sets assessing demographic information, job satisfaction, perceptions

of harassment, stress, and coping mechanisms, as well as three validated instruments: the Maslach Burnout Inventory, the General Psychological Health Questionnaire (GHQ)-12, and the Revised Dyadic Adjustment Scale. The Maslach Burnout Inventory evaluates three subscales of burnout: emotional exhaustion, depersonalization, and personal achievement. Emotional exhaustion is a drained, depleted feeling arising because of excessive psychological and emotional demands. Depersonalization is the tendency to view others in an excessively detached, impersonal, cynical manner. Personal achievement is a sense of competence or accomplishment. Emotional exhaustion and depersonalization correlate with, while personal achievement is inversely proportional to, burnout⁴. The GHQ-12 is a validated mental disorder screening instrument that detects depression, social dysfunction, anxiety, and somatic symptoms¹¹⁻¹³. The Revised Dyadic Adjustment Scale is a validated instrument assessing marital distress¹⁴. Inquiries were also included about perceptions of gender and racial harassment, discrimination, and marginalization. Marginalization was defined as the respondent's perception of having been ignored because of race or sex.

Three hundred and eighty-four orthopaedic residents and 264 full-time orthopaedic faculty completed our voluntary, anonymous questionnaire. Two hundred and fifty-nine spouses of orthopaedic residents and 169 spouses of full-time orthopaedic faculty completed a similar survey tailored to examine issues affecting them.

Twelve percent of resident and 7% of faculty respondents were female. Racial characteristics and marital status results are depicted in Figure 1 and Figures 2-A and 2-B, respectively.

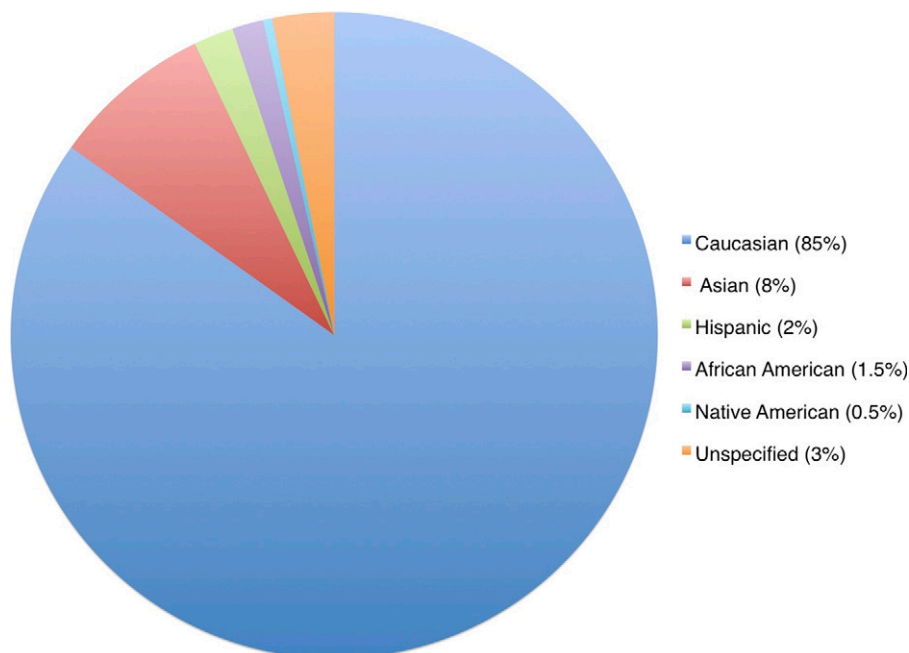


Fig. 1
Racial characteristics of respondents.

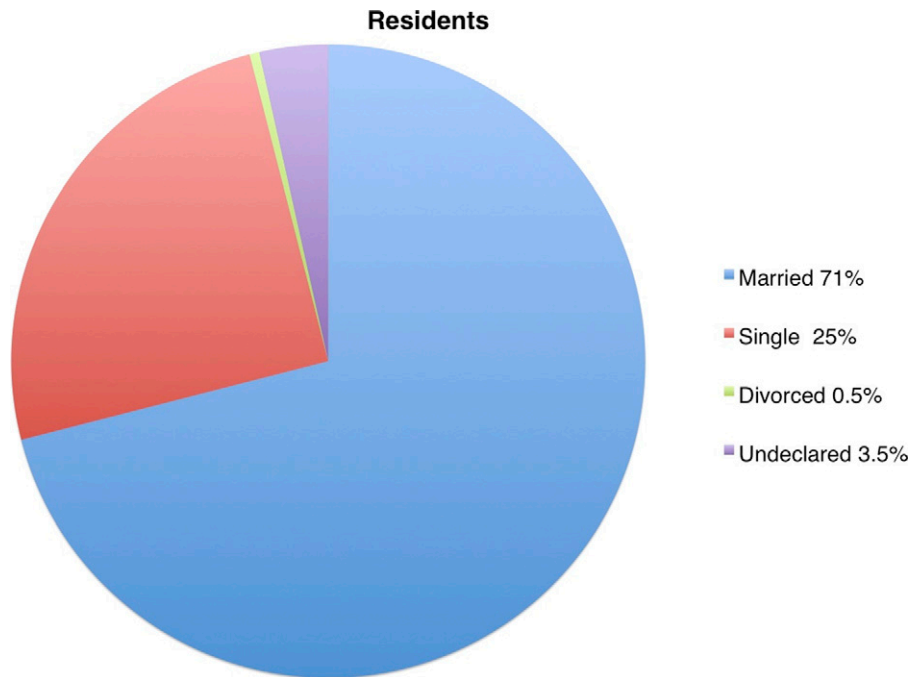
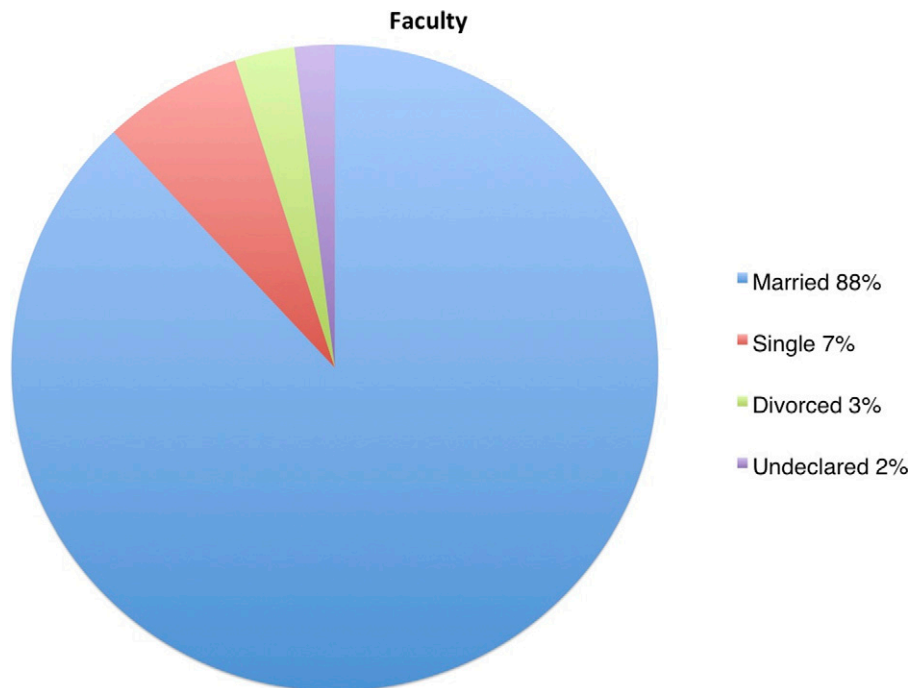


Fig. 2-A

Fig. 2-B
Marital status of respondents.

High levels of burnout were seen in 56% of residents, 30% of working resident spouses, 28% of faculty, and 13% of working faculty spouses. Burnout results are depicted in Figure 3. Among resident respondents, burnout risk was greatest among residents in postgraduate year (PGY)-2, female residents, and those in training programs with six or more residents per postgraduate year.

Sixteen percent of residents, 18% of resident spouses, 17% of faculty, and 10% of faculty spouses showed elevated levels of psychological distress on the GHQ-12. This is in sharp contrast to the findings of our pilot study done before implementation of the work-hour restriction policy, which found one-third of residents and only 8% of faculty to be affected³. Eighty-six percent of residents, 95% of resident spouses, 77%

of faculty, and 95% of faculty spouses showed nondistressed relationships according to the Revised Dyadic Adjustment Scale.

When asked about overall job satisfaction, the majority of residents reported being “fairly satisfied” while the faculty were “extremely satisfied.” More than 80% of the residents and faculty felt that “the sacrifices required for a life in medicine are worthwhile.” However, 23% of residents and 15% of faculty would not choose a career in medicine again if they had it to do over.

Residents reported working an average (and standard deviation) of 74.2 ± 20.2 hours per week. Faculty reported working an average of 62.8 ± 18.2 hours per week. While physician work hours did not directly correlate with marital satisfaction, we found correlations with other aspects of the spouses’ satisfaction. For both resident and faculty spouses, as physician work hours increased, spouse satisfaction with their life in medicine, their mate’s involvement in family, their work-family balance, and the quality of their sex life all decreased ($p < 0.001$).

Our heavy workloads are not just a problem for our spouses. Ninety-two percent of residents and 79% of faculty reported sleep deprivation. All measures of distress were associated with increases in sleep deprivation: increased burnout ($p < 0.0001$), increased psychological distress ($p < 0.0001$), and lowered marital satisfaction ($p < 0.0001$).

In analyzing our results, we evaluated the impact of training program size, postgraduate training year, faculty age and time in practice, sex, and race or minority status and identified some interesting correlations.

TABLE I Results for Residents at Larger Programs Compared with Peers at Smaller Programs

	P Value
Higher burnout	<0.01
Financial concerns	<0.003
More stressed and angry	<0.001 and <0.08
Irritable after work	<0.04
Personal concerns interfere at work	<0.04
Less likely to sacrifice for mate’s career	<0.01
Less conflict between work and non-work lives	<0.01

We defined *larger programs* as those with six or more residents per training year. In comparison with their peers at smaller programs, residents in larger programs showed higher rates of burnout ($p < 0.01$) as well as a number of other concerning associations that are detailed in Table I. Faculty in larger programs reported more loneliness ($p < 0.05$) and were more likely to have sought marriage counseling ($p < 0.03$).

Stage of education or career also has a significant impact on well-being. We noted variations across resident training years with all indicators of distress peaking in PGY-2, a finding that we reported in our initial pilot study as well³. One-third of the faculty respondents were within ten years of graduation and showed more emotional exhaustion ($p < 0.04$) and a trend

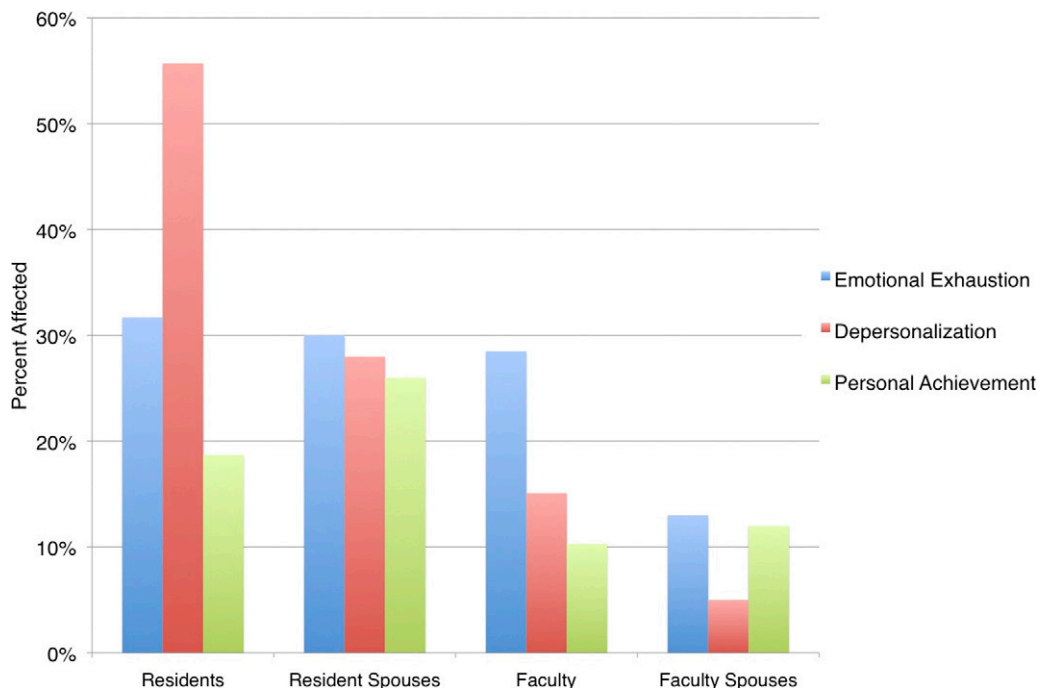


Fig. 3
Burnout results.

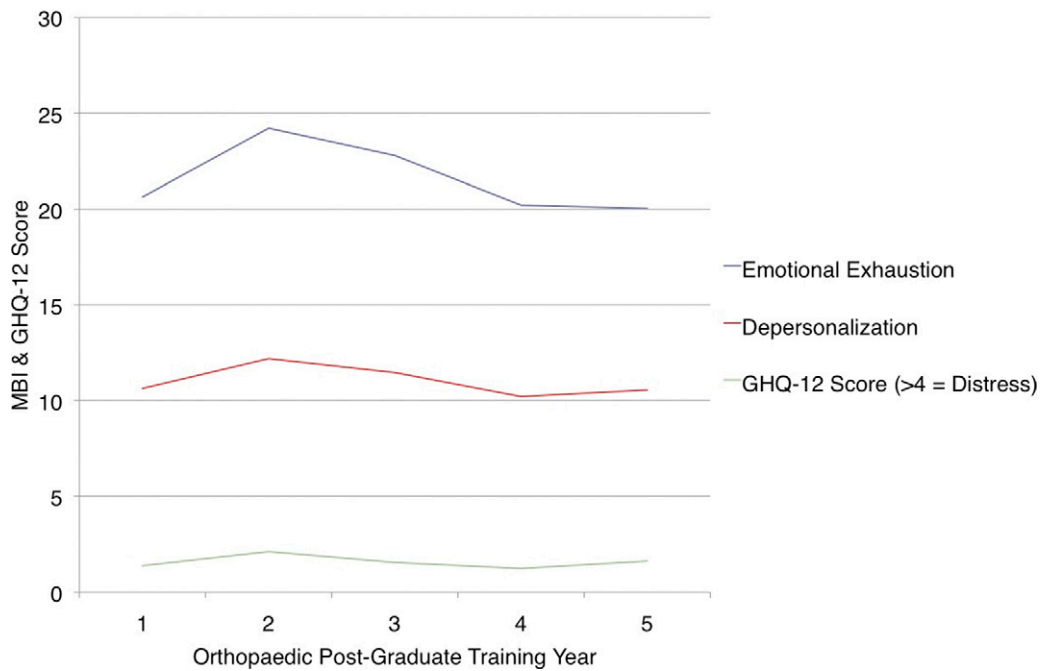


Fig. 4

Variations in resident burnout and psychological distress across residency training years. The blue and red lines indicate the mean scores on the Maslach Burnout Inventory (MBI) and the green line represents the mean scores on the General Psychological Health Questionnaire (GHQ).

toward more psychological dysfunction ($p < 0.07$) than their more experienced colleagues. These findings are depicted in Figures 4 and 5, respectively.

Sex was also an influential factor. Female respondents were more frequently affected and showed greater burnout than their male colleagues ($p < 0.0001$). Variations in burnout

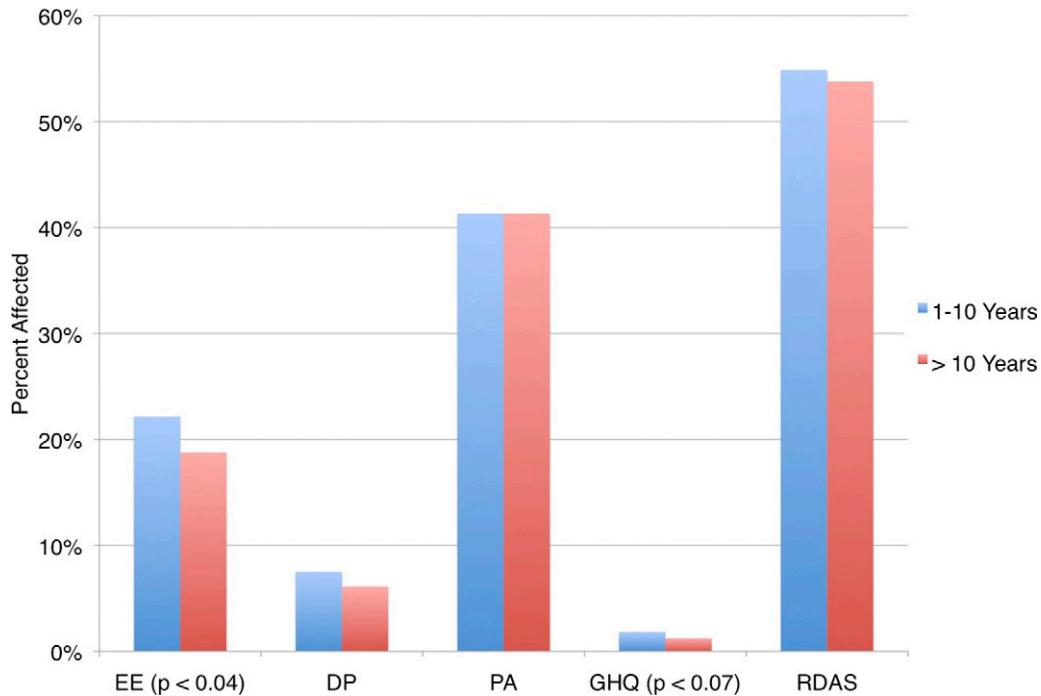


Fig. 5

Stress and burnout variation across faculty years in practice. EE = emotional exhaustion, DP = depersonalization, PA = personal achievement, GHQ = General Psychological Health Questionnaire, and RDAS = Revised Dyadic Adjustment Scale.

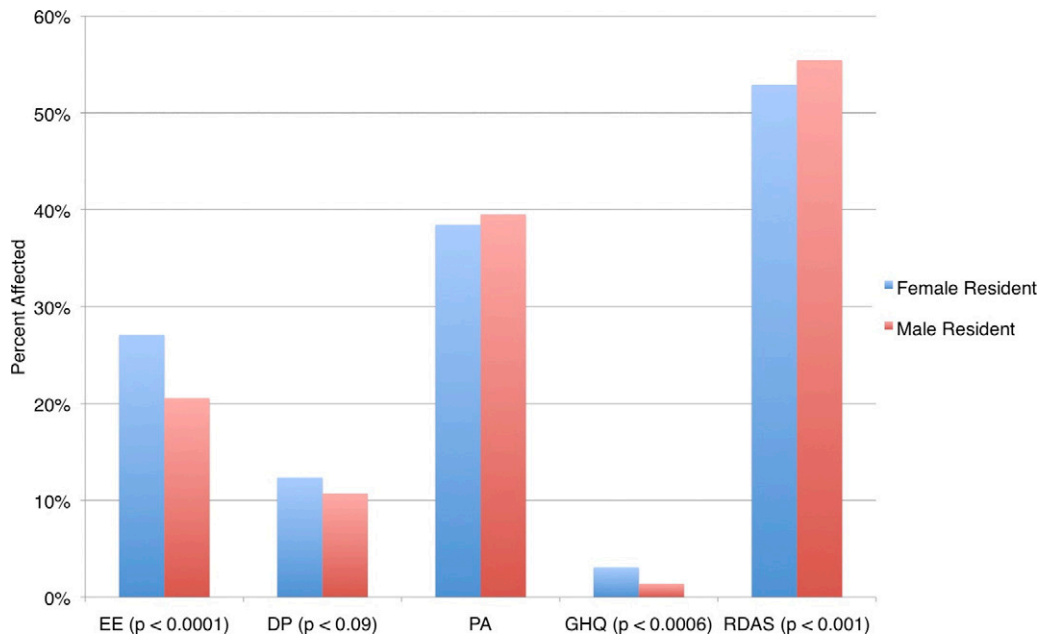


Fig. 6

Comparison of burnout variation by resident gender. EE = emotional exhaustion, DP = depersonalization, PA = personal achievement, GHQ = General Psychological Health Questionnaire, and RDAS = Revised Dyadic Adjustment Scale.

between male and female residents and faculty are depicted in Figures 6 and 7, respectively. Female residents also showed more psychological distress ($p < 0.0006$) and lower marital harmony ($p < 0.001$). Approximately one-quarter of female respondents perceived sexual harassment. Twenty-seven per-

cent of female residents and 45% of female faculty perceived sexual discrimination, and 37% of female residents and 50% of female faculty perceived that they had been ignored in the workplace because of their sex. Being affected by these issues was associated with decreased marital harmony, increased

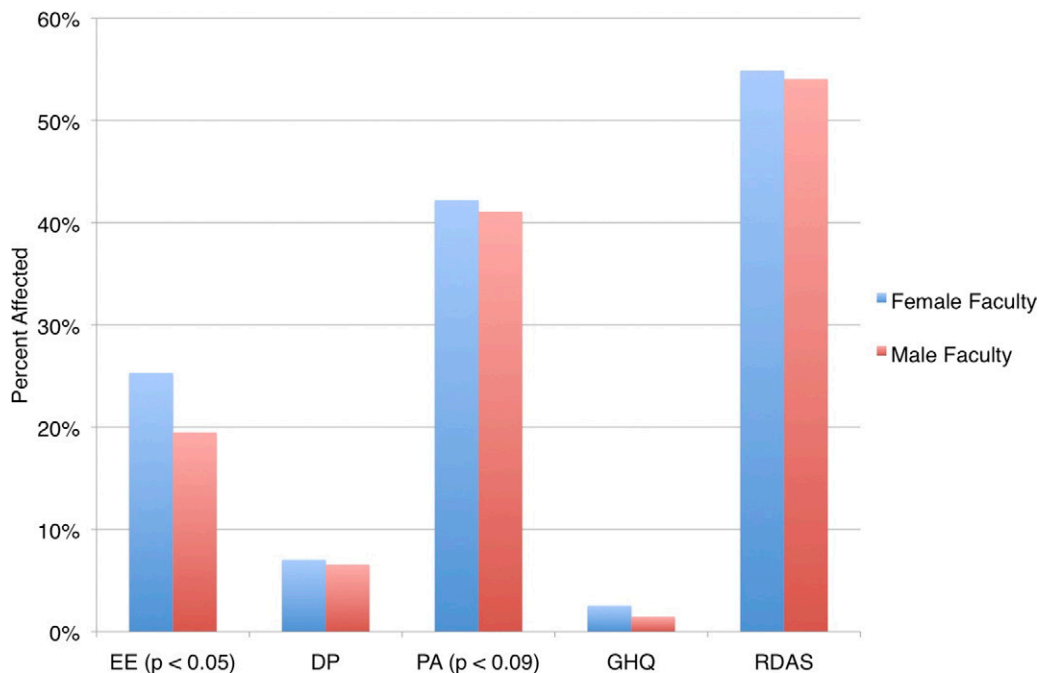


Fig. 7

Comparison of burnout variation by faculty gender. EE = emotional exhaustion, DP = depersonalization, PA = personal achievement, GHQ = General Psychological Health Questionnaire, and RDAS = Revised Dyadic Adjustment Scale.

burnout, and greater psychological distress ($p < 0.001$ for all).

Nineteen percent of residents and 9% of faculty respondents identified themselves as racial minorities. Racial minority residents scored lower on the personal accomplishment component of burnout ($p < 0.05$). Fourteen percent of minority orthopaedic residents and 8% of minority faculty perceived racial harassment. Eight percent of minority residents and 17% of minority faculty felt that they had been subjected to racial discrimination. Respondents who perceived problems due to racial issues showed a lowered sense of personal accomplishment on the Maslach Burnout Inventory.

Overall, our results showed that orthopaedic trainees and their spouses are at considerable risk for burnout. Faculty and their spouses fared better by comparison. A concerning number of residents, resident spouses, and faculty, more than one in six, are experiencing psychological distress. Certain groups appear to be at particular risk, including second-year residents, young faculty, residents in larger training programs, female residents, female faculty, and resident spouses.

Recognition of, and Intervention Strategies for, the Impaired Resident or Faculty Member

Definition of Physician Impairment and Background

The competent physician is one who is able to habitually and judiciously use “communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection” in daily practice for the benefit of the patient¹⁵. High stress in combination with the challenges of balancing a professional and personal life may lead to physician impairment. The American Medical Association (AMA) Council on Mental Health has defined physician impairment as “the inability to practice medicine with reasonable skill and safety to patients by reasons of physical or mental illness, including alcoholism or drug dependence.”¹⁶ Physician impairment is a problem with serious implications for patients and physicians. In 2002, 0.5% of practicing physicians in the U.S. were disciplined, and 1739 lost their licenses¹⁷. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has taken notice of this problem. In 2001, JCAHO created a standard specifying that hospitals maintain separate physician health records, provide education to recognize impairment, and facilitate the confidential diagnosis, treatment, and rehabilitation of impaired physicians¹⁸. It is essential to develop strategies to identify physicians who are impaired or at risk of impairment to prevent poor patient care and to intervene in potentially remediable physician problems.

Residency is an intense period of training, and approximately 10% of physicians become seriously impaired during this time^{19,20}. Approximately 3% to 4.5% of orthopaedic surgery residents become seriously impaired during training²¹. Residency often places emphasis on professional development at the expense of personal growth²². Obsessive-compulsive traits that commonly exist in residents as well as financial pressures due to medical school debts may magnify personal problems. Moreover, residents may begin assuming the responsibilities of

marriage and parenthood during this time in their lives²². Because residents may find it difficult to ask for help, it is important for residency programs and faculty to be cognizant and supportive of residents who are at risk. The ACGME now mandates that each institution have written policies that describe how it will address physician impairment and “ensure that residents participate in an educational program regarding physician impairment, including substance abuse and sleep deprivation.”²³ A recent study demonstrated that residents are receptive to education regarding physician impairment²⁴.

Warning Signs of Physician Impairment

A stressful work environment in conjunction with lack of support leads to risks for physician impairment. Serious risks for the impaired physician include burnout, depression, substance abuse, and disruptive behavior, all major contributors to medical errors.

Depression

A recent epidemiological study estimated the prevalence of depression to be 16% in the general population²⁵. The prevalence of depression may be higher in physicians than in the general population²⁶. Depression is common in the physician in training, with 33% to 35% of interns and 29% of residents meeting the clinical criteria for this disorder, although depression is likely underreported in the resident population²⁷. Fortunately, this is typically a treatable illness, which emphasizes the importance of early diagnosis and referral for treatment. It is vital for faculty to support any trainee who seeks help, reinforcing the attitude that it is a sign of strength to ask for help.

Early clues of depression and physician impairment include decreased performance, tardiness, weight loss or weight gain, and behavior changes such as loss of motor skills²⁸. Psychomotor retardation or agitation may be recognized by deterioration of performance in the operating room. Changes in sleep patterns in depression include insomnia or hypersomnia, resulting in tardiness or somnolence during clinical and educational responsibilities. Depression may manifest as changes in appetite and changes in weight. Diminished ability to concentrate and indecisiveness are additional signs. Thoughts of death or suicidal ideations are obviously concerning symptoms that necessitate urgent psychiatric referral. The early clinical and behavioral signs of depression are difficult to recognize in the context of residency training, when stress and multiple responsibilities often lead to decreased sleep and fatigue. The early signs are often first identified by peers and by family members of the affected resident²⁹. Prompt referral for treatment is essential.

Depression is the most common underlying diagnosis in physicians who commit suicide, with >75% of physician suicides being attributable to depression or substance abuse. There is a modestly elevated suicide rate among male physicians and a substantially elevated suicide rate among female physicians compared with the general population³⁰. Approximately 60% of physician suicides are associated with drug and

alcohol use³¹. Potential preventive measures include maintaining vigilance for symptoms of depression and substance abuse, developing an open and supportive attitude for physicians who need referral for evaluation and treatment, working closely with the residency program director, and having particular vigilance for female physicians who are at increased risk for suicide.

Burnout

Burnout is a syndrome of emotional exhaustion, depersonalization, and a sense of low personal accomplishment⁴. This syndrome leads to detachment, frustration at work, and loss of compassion. Moreover, burnout in physicians may lead to a decreased quality of patient care³²⁻³⁴. A literature review demonstrated high rates of burnout among residents and suggested that resident burnout is associated with depression and problematic patient care³⁵. Our recent study demonstrated that orthopaedic surgery residents show considerable burnout with high levels of emotional exhaustion and depersonalization and an average level of personal achievement^{3,10}. Furthermore, orthopaedic residents are significantly more likely to experience burnout compared with faculty members^{3,10}.

Research in medical specialties outside orthopaedic surgery has identified multiple characteristics of residency training that contribute to stress and burnout. These include financial pressures, sleep deprivation, harassment, lack of free time, time at work, and daily microstressors^{12,36-39}. Burnout among orthopaedic residents is associated with hours worked per week, amount of debt, commitments at work and at home, discord with coworkers, and work-related stress. Protective factors against burnout include being a parent, spending time with one's spouse, having a father who is or was a physician, and deriving satisfaction from speaking about concerns with colleagues, family, and friends^{3,10}. Resident duty-hour limitations have been associated with improved objective measures of burnout in orthopaedic residents⁴⁰. While residents have reported improved quality of life with the new work-hour restrictions, resident attitudes toward these restrictions are mixed⁴¹.

Substance Abuse

There is a high prevalence of alcohol dependence in the general adult population estimated at 8% to 15%⁴²⁻⁴⁵. This prevalence is similar in the physician population at a rate of 14%⁴⁶⁻⁴⁸. The rate of drug abuse in the physician population has been estimated at 6% to 8%⁴⁸. Alcohol and drug abuse is the product of heredity and environment. Physicians with substance abuse often have a positive family history^{46,49,50}. Anxiety, obsessive-compulsive disorder, and perfectionism have been documented as important risk factors for substance abuse^{49,50}. This disorder is commonly characterized by denial or failure to recognize the problem. Fortunately, there has been increased social awareness of substance abuse disorders recently, facilitating proper referral for treatment.

The early warning signs of drug and alcohol abuse may be difficult to recognize. When substance use is intermittent, the physician is typically not yet impaired and overt

manifestations—including the characteristic odors, speech impairment, and gait disturbances—are generally absent²⁹. Clues to the presence of substance abuse include behavioral changes, marital problems, decreased performance, tardiness, and irresponsibility. Anesthesiology, emergency medicine, and psychiatry residents have higher rates of substance abuse compared with residents in other medical specialties⁵¹. Prompt referral for treatment is essential. Approximately 70% of physicians who enter treatment for substance abuse are treated successfully²⁹.

Disruptive Behavior

Disruptive behavior in the workplace is another important risk factor for the impaired physician. This behavior may threaten patient safety and exerts a corrosive effect on the medical team⁵². Disruptive behavior includes verbal attacks, inappropriate language, sexual comments or innuendo, harassment, intimidating and belittling criticism, and public criticism of others⁵³. These actions create a negative and often hostile work environment. Disruptive behavior also encompasses passive-aggressive actions including failure to return calls and inappropriate comments left in patient charts⁵³. Up to 5% of physicians may display disruptive behavior^{54,55}.

The etiology of disruptive behavior differs widely among physicians and for some may stem from personality disorder traits such as narcissism and obsessive-compulsiveness, mismanaged stress, or poor anger management skills⁵⁶. It may also develop secondary to substance abuse or marital dysfunction. However, many disruptive physicians are not impaired physicians in that their main problem is not caused by an underlying disorder but, rather, by the inappropriate conduct they display⁵⁷. Like physicians with substance abuse problems, disruptive physicians often have little insight into the nature and impact of their behaviors, and they self-rate their interpersonal skills similar to nondisruptive physicians⁵⁶. The AAOS has developed "Standards of Professionalism," to establish the minimum standards of acceptable conduct for orthopaedic surgeons regarding professional relationships⁵⁸.

Treatment Algorithm

Recognition of the impaired physician is the first step in the treatment and recovery of the impaired physician. Knowledge of the warning signs of impairment is important, as these signs typically first present in the surgeon's personal life and are often apparent last in the workplace⁵⁹. Clear, unbiased, and specific documentation of behavior is essential⁵⁷.

Formal evaluation is the next step in intervention. Accurately identifying the impairment or conduct issue will allow appropriate therapy. For example, identifying impairment due to substance abuse enables proper referral to an appropriate substance abuse treatment program. Review of records and a formal workplace 360-degree survey assessment can delineate disruptive conduct, identify target behaviors to address, and provide ongoing monitoring of workplace behavior^{56,57}.

Assessment is followed by formal intervention. Impairment is typically treated by psychiatric and/or psychological methods²¹. Referral to the institution's physician assistance

program may be beneficial⁶⁰. Furthermore, physician health programs may provide valuable resources, including grant money to help fund treatment, to the impaired physician undergoing intervention¹⁸. Physician-only inpatient treatment programs are available; however, general treatment programs may be just as effective^{45,61}. All fifty states have programs in place aimed at helping the impaired physician⁴⁸. Physicians as a group appear to respond more favorably to alcohol rehabilitation programs than does the general population^{29,46}. Physician health programs for rehabilitation approach a 75% success rate^{62,63}. Physician health programs sponsored by medical societies are usually independent of state licensing boards⁶⁴.

Conduct, or behavioral, issues are addressed with ongoing feedback and educational programs⁵⁷. If warranted, clinical competency intervention should be personalized and may consist of case review, courses, and mini-fellowships.

In order to maintain a lasting effect of the intervention, an after-care program should be instituted²¹. A care contract may be drafted and signed by the involved physician and treating parties⁶⁵. The consequences of noncompliance must be clearly stated and reinforced⁵⁶. Monitoring is conducted with regular case reviews, random testing, and/or 360-degree reviews.

Disciplinary actions, including suspension, leave of absence, probation, or conditional reappointment, may need to be instituted for impaired physicians who fail formal intervention. These actions may be instituted by a hospital-based committee for impaired physicians^{66,67}. Reporting the physician to the state licensing board is usually not pursued unless the individual is noncompliant with treatment⁶⁴. In certain instances, termination with reporting to the state medical board may be appropriate.

In summary, the medical profession and residency training, in particular, is filled with stresses that may lead to physician impairment. Physicians must develop, acknowledge, and communicate performance standards of behavior and competence at local and national levels. This will facilitate the development of effective assessment and treatment programs for impaired physicians. This will enable us to create an “environment of accountability” to the benefit of patients, the impaired physician, and family members of impaired physicians⁵⁵.

The Impact of Surgeon Stress on the Orthopaedic Family and Achieving and Maintaining Resilience Throughout the Stages of an Orthopaedic Surgeon's Career

“In the classic training program, we have taught how to perform surgery, but we have not taught how to live life as a surgeon.”⁶⁸ These wise words by surgeon Darrell Campbell set the backdrop for our discussion. For more than thirty years, physicians have been counseled, coached, researched, and taught by us about resilience—the ability to get through difficult times and come out from the experience stronger. From the trenches of surgeons' lives and cutting-edge research regarding surgeon well-being and ill-being, we have gleaned the following essentials for sustaining resilience that are necessary, although not sufficient, components of a “resilience toolkit” (Table II).

Accept That Resilience Matters

There are evidence-based concerns about physician resilience that stem from what we know about the consequences of the opposite of resilience—physician burnout. Physician burnout has been found to correlate with increased incidences of medical errors⁶⁹⁻⁷¹ and medical malpractice suits⁷², and diminished levels of patient compliance⁷³ and patient satisfaction^{74,75}.

Accept That You Are at Risk

Resilience matters. But from medical school onward, physician well-being is at substantial risk. Dyrbye et al.⁷⁶ reported a 47% burnout rate among medical students, and Martini et al.⁷⁷ found a 50% rate of burnout among residents, across specialties. As reported by Sargent et al., our own research indicates that burnout is a significant risk for orthopaedic surgeons¹⁰.

Do Not Ignore the Obvious

We invoke the wisdom of C.S. Lewis to make our next point about resilience: we need not so much to be taught as to be reminded⁷⁸. An extraordinary intellect, education, work ethic, and capacity for stamina under stress will not make you immune to the wear-and-tear effects of a mismanaged lifestyle.

Lessons learned from physicians in recovery from personal, health, family, or career setbacks are worth noting here. The foundation of recovery is often similar to the foundation of preventive health maintenance: When an individual

TABLE II Achieving and Maintaining Resilience

Components of Resilience	Effects and Implications
Accept that resilience matters	Patient and physician well-being are intertwined
Accept that you are at risk	Orthopaedic residents, faculty, and leadership are at risk ^{5,10}
Do not ignore the obvious	Mismanaged lifestyles take a toll
Embrace good work	Career satisfaction correlates with personal well-being
Become an ambassador of collaboration and collegiality	Positivity is contagious
Find and protect meaning	Meaning is the antidote to burnout
Accept that life in orthopaedics is a family affair	Positive family relationships boost resilience
Bear through the awkwardness of positive change	Resilience takes ongoing effort

manages his or her mind, body, spirit, and relationships, the small choices that might seem insignificant in the moment create patterns of either wear or replenishment. Research with orthopaedic surgeons documented the protective effects of making time for exercise, participation in hobbies, and meditation, and the advisability of limiting use of alcohol¹⁰.

Embrace Good Work

Surgeon career satisfaction is a predictor of both personal and family well-being. Happiness in medical family life is affected more by the physician's mood on returning home than by the number of hours the physician works⁷⁹. Four factors particularly distinguish "good work" for physicians: engagement in work that matches the physician's values; control over the practice environment; the ability to do that work to the best of one's abilities (i.e., having the tools, support, and collaborators necessary to accomplish one's goals); and reasonable levels of collaboration and collegiality in the workplace^{22,80}. Move beyond new-age guilt about working hard, and accept that good work is good for families⁸¹. Galinsky⁸² surveyed a national sample of second through twelfth graders, asking them: "If you could change the way your mother's or father's work affects your life, what would you change?" Contrary to the parents' predictions that their children would request more of their time, the largest percentage of children indicated that they simply wished for their parents to be less stressed about work when they were home⁸².

Become an Ambassador of Collaboration and Collegiality

The new medical workplace calls for refining cross-disciplinary collaboration, collegiality, and communication. In the long run, this cultural transformation will bolster physician resilience. This same shift, however, will challenge many surgeons who are entrenched in command-and-control styles of communication. The new norm will require surgeons to develop greater leadership flexibility to facilitate effective engagement and communication with diverse populations. For many surgeons, leading dynamic teams falls into the "they did not teach me to do this in medical school" category of stressors that Zuger⁸³ noted to be a threat to physician satisfaction.

Motivate yourself to accept this challenge with two reminders. First, recall that research has shown clearly that intimidating behaviors in the operating room pose considerable risks to patient safety⁸⁴. In addition, unchecked tension and conflict among colleagues are substantial deterrents to orthopaedic surgeon resilience¹⁰.

Second, investing time and energy in fostering a positive workplace culture is one of the most definitive ways of bolstering your own personal well-being, career satisfaction, and resilience²². Research with orthopaedic surgeons has shown that having supportive relationships with orthopaedic colleagues is associated with higher levels of marital happiness and decreased burnout¹⁰. Unfortunately, faculty are less likely than residents to seek support from their colleagues.

Fredrickson and Fazio et al. confirmed the observation that positive moods not only feel good but are also adaptive; they lead to broadened mindsets that produce exploration and

experiential learning^{85,86}. People who regularly experience states of positivity have been found to be more successful in life, as measured by a satisfying marriage, larger salary, and better health^{85,87,88}.

Flourishing is not the same as not feeling bad. Fredrickson argued that it requires a 3:1 ratio of experiencing positive versus negative emotions. She proposed ten forms of positivity—precisely named emotional states that, if experienced regularly, can help to ensure resilience. These are joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love.

Enjoying frequent, small pleasures has been shown to have a greater effect on positive mood than do intense periods of feeling good⁸⁹. Disrupt stress progressions by engaging in small spurts of pleasurable activities throughout the day (Table III).

Find and Protect Meaning

The poet and physician Rachael Naomi Remen echoed the wisdom of many philosophers when she stated that "meaning is the antidote to burnout."⁹⁰ Believe in something bigger than yourself. Belief in a nurturing higher power has been found to correlate with resilience. People who have active spiritual lives are healthier, happier, and more stress-resilient than those who do not⁹¹.

Staying focused on the higher purpose and meaning of their work and of their lives is a distinguishing characteristic of resilient individuals, families of all forms, and surgeons. This might translate into passion about your vocation, your organization, or your personal ideologies. In today's health-care environment, this can be a rather daunting challenge. Beware the pull to participate in the endless grumblings of doomsday prophets and convicted pessimists. Their negative emotions and mindsets are contagious.

Fight to protect time to participate in life and work endeavors you find most meaningful. In a study of faculty physicians in internal medicine, Shanafelt et al.⁹² reported that spending at least 20% of your work time working on the most meaningful aspect of work correlated with decreased burnout.

Accept That Life in Orthopaedics Is a Family Affair

Positive family relationships boost resilience for surgeons in various specialties^{10,93}. Our research found overall high levels of

TABLE III Daily Uplifts

Notice what is going "right" about your day.
Savor interactions and moments that you enjoy.
Use your sense of humor.
Move it! Even little bouts of exercise can boost your parasympathetic calming reactions and dampen your sympathetic arousal.
Avoid the high-stress diet of junk food, caffeine, simple sugars, and other stimulants.
Fill your environment with mood-boosters—lighting, sounds, and scents you like.
Believe in something bigger than yourself.

marital satisfaction in cohorts of orthopaedic residents and their mates as well as orthopaedic faculty and their mates. However, it would be short-sighted to discount the fact that the stresses of a surgical career can negatively impact your loved ones.

To protect the quality of your primary relationship, consider the following guidelines^{10,94}.

- Spend an average of ninety or more minutes each day awake and with your mate. Research suggests that physicians compromise the quality of their family life when they choose to add absences due to non-work-related activities to the already time-challenged work-life balance that stems from their extraordinarily demanding careers⁹⁵.

- Regularly engage your mate in meaningful discussion regarding your reactions to your work experiences. This is quite different from complaining about colleagues or lamenting events that happened at work. Also, beware the relationship passion killer, which is being a physician who drones on and on about technical medical details in which your mate may have little or no interest. The point is to process in conversation with your mate your personal and career insights that are stirred by your work experiences and relationships. Your mate may not be able to relate to the details of your work, but engage his or her interest in the details of your development as a person.

- Honor your mate's role. We have written previously about the fact that you cannot successfully wield authority where you do not own responsibility⁹⁴. Each couple member in a successful marriage voices appreciation for and pride in the contributions that the other spouse brings to their collective life.

- Do not forget to play—with your family. Clinical experience suggests that, too often, family members of surgeons see them rushed, fatigued, worried, focused on performance—or not at all. Be sure to show your family the playful side of yourself. Also, we caution against all-or-nothing thinking. It is far more protective of relationship intimacy to take multiple, brief breaks from your intensive work schedule than it is to work excessively for long stretches and then take lengthy vacations. Remember that harmony in family life requires regular periods of positive emotional engagement that help to refine your communication, friendship, and, where appropriate, romance.

Every couple has a modicum of chronic, unresolved issues. Researchers Gottman and Silver made the astute observation that absence of conflict is not the sine qua non of happy marriages, that is, the presence of deep friendship, trust, and mutual respect⁹⁶. Protect your relationship by learning to communicate clearly, fight fairly, and accept with maturity the fact that there are no perfect couples or families.

Bear Through the Awkwardness of Positive Change

Resilience is shaped by sustained effort, and sustained effort is best motivated by realistic optimism—the mindset that acknowledges the challenges being faced but fosters hope. Repeatedly, we have observed surgeons, their families, and their

organizations seeing change efforts sabotaged because they were motivated by false hope. Beware the shaky foundation of the false hope syndrome⁹⁷, the mindset that underestimates the effort and overestimates the benefits of changing. In truth, hardwiring individual, family, and organizational resilience takes a lifetime of effort and entails confronting the so-called psychological underbelly of the change process: that cauldron of personality-driven coping patterns, thought processes, self-definitions, relationship dynamics, organizational legacies, and comfort zones that often are disrupted by healthy change. No one ever achieves individual or collective perfection.

But herein lies an opportunity for accepting what is good and right about oneself and others, and, in so doing, renewing your resilience. Celebrate what is right about yourself, your family, your team, and your organization. Accept that they, like you, are imperfectly human.

In conclusion, stress and burnout are not new issues. The results of our national survey highlight the continued prevalence of these problems within the academic orthopaedic community. Left unaddressed, burnout and psychological distress can lead to patient care errors, decreased marital harmony, and physician impairment. As physicians, it is our responsibility to recognize and address impairment in our residents, colleagues, spouses, and ourselves. As members of the academic orthopaedic community, it is our responsibility to educate our residents and fellows to recognize and address impairment as well. Our trainees require instruction in self-care, in addition to technical skills and clinical acumen. Taking steps to foster resilience, protect family well-being, and encourage positivity in the workplace can yield substantial benefits for our practices, our patients, and ourselves. ■

M. Catherine Sargent, MD
Department of Orthopaedic Surgery, Johns Hopkins University,
601 North Caroline Street, Room 5254, Baltimore, MD 21287

Wayne Sotile, PhD
Mary O. Sotile, MA
Real Talk, Inc., 1066 West 4th Street, Winston-Salem, NC 27101

Harry Rubash, MD
Peter S. Vezeridis, MD
Department of Orthopaedic Surgery, Massachusetts General Hospital,
55 Fruit Street, WHT 601, Yawkey Building,
Suite 3700, Boston, MA 02114

Larry Harmon, PhD
Physicians Development Program/PULSE Program,
2000 South Dixie Highway, Suite 103, Miami, FL 33133

Robert L. Barrack, MD
Department of Orthopaedic Surgery,
Washington University School of Medicine,
Campus Box 8233, One Barnes-Jewish Hospital Plaza,
11300 West Pavilion, St. Louis, MO 63110.
E-mail address for R. Barrack: barrackr@wustl.edu

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