

Stress and Burnout in Nurse Anesthesia

Anthony Chipas, CRNA, PhD

Dennis McKenna, CRNA, MSNA

This study was designed to determine the current level of stress and its physical manifestations in Certified Registered Nurse Anesthetists (CRNAs) and student registered nurse anesthetists. It also looked at coping mechanisms individuals commonly employ to combat the effects of stress. The study used data collected between February and May 2008 using a Stress and Burnout Survey on an online survey tool (SurveyMonkey). The fiscal year 2008 president of the

American Association of Nurse Anesthetists, Wanda Wilson, CRNA, PhD, distributed a link to this survey in 2 electronic requests to approximately 28,000 nurse anesthesia providers. The response rate was 26.9% (N = 7,537). Based on responses and comments, recommendations can be made for future wellness interventions for the Association and for individuals.

Keywords: Burnout, stress, stressors, symptoms.

The American Association of Nurse Anesthetists (AANA) established its Wellness Program in 2004 with the objective of developing and implementing functional strategies of health promotion and the elements of wellness, balance, and self-care into the lives of nurse anesthetists. Prior to the push by the AANA for wellness, the professions for the last 25 years had been served by a group of dedicated peer advisors who attempted to enlighten members about the dangers of stress and substance abuse. Unfortunately, many nurse anesthetists still envision the concept of wellness in our profession as peer assistance activities such as being able to avoid or deal with the consequences of substance abuse. Wellness goes much further than peer assistance; it involves a balance within us, including our mental, emotional, spiritual, and physical well-being. It means caring for ourselves as much as we care for our patients.

All anesthesia providers know the effects of the surgical stress response on patients. This response protects the patient and leads to increased heart rate, blood glucose levels, blood pressure, and metabolism, while suppressing vital functions such as immune responses. These are normal biological and psychological functions mediated by hormones released by activation of the hypothalamic-pituitary-adrenal (HPA) axis to help cope with challenging physical events.¹

According to Sandra Tunajek, CRNA, DNP, and former executive director of the Council for Public Interest in Anesthesia, "Nurse Anesthetists spend endless hours dedicated to the workplace, where they are constantly exposed to a variety of stressors. Studies note that protracted stress has significant physical and mental consequences for healthcare professionals that can affect health, sometimes to the point of disability, and may even affect patient care. Stress can result in disruption in relationships, fatigue, headaches, gastrointestinal disturbances, weight loss or gain, insomnia, depression, even addictive behavior."²

Often, Certified Registered Nurse Anesthetists (CRNAs) do not recognize that the same stress response we count on and acknowledge in our patients is also at work in our own bodies because of stress both on the job and in our personal lives. Stress is the body's way of reacting to different situations, both good and bad. Chances are that if we are feeling stress at work we are likely to experience stress in other aspects of our lives.

Background

Stressors, or events that evoke stress in an individual, vary among all of us. What may provoke stress in one individual may not in another; furthermore, we each have different built-in abilities to adapt to stress. The knowledge, skills, and administration of anesthesia are learned and practiced in a stressful environment. In the classroom, students are bombarded with lectures, skill challenges, and the emotional experience of being no longer the expert in the nursing unit but a novice in a new environment. In the surgical setting, the actions that we take or those that result from the actions others take can cause changes in our patient that ultimately lead to increased stress in ourselves. Our ancestors used the responses of "fight or flight" to cope with the daily pressures of survival. Unfortunately, nurse anesthetists cannot adopt these same responses to cope with school, their jobs, or everyday life. Fighting or fleeing is not an option. Coping, negotiating, acquiescing, and reconciling are the more frequent and demanding choices.

Stress is unavoidable but is not all bad. Too little stress leads to sleep and boredom, whereas too much stress gives us a sense of panic and tension. Acute stress is the most common form of stress. It comes from demands and pressures of the recent past and anticipated demands and pressures of the near future, such as our job of providing anesthetics or attending nurse anesthesia school. Fortunately, most people recognize acute stress symptoms. Because it is short term, acute stress does not

have enough time to do the extensive damage associated with long-term stress. The most common symptoms of acute stress include the following: emotional distress, manifested as anger, irritability, or depression; muscular problems, including tension headache, back pain, and jaw pain; stomach, gut, and bowel problems; and physical symptoms such as elevated blood pressure, rapid heartbeat, sweaty palms, heart palpitations, dizziness, migraine headaches, cold hands or feet, shortness of breath, and chest pain.³

Chronic stress is insidious and ultimately more devastating than acute stress. This type of stress does not let up. Our bodies are continually bathed in the “stress hormones” from the HPA axis.¹ These stress hormones affect us on a daily basis and may ultimately destroy minds, bodies, and lives. As we get used to chronic or long-term stress, we tend to forget it is there because it is not new. Chronic stress does not get our attention until its damage is done. Personal resources, both mental and physical, become depleted, leading to illnesses such as obesity, hypertension, heart attack and stroke, ulcers, violence, depression, substance abuse, and decreased ability to concentrate and learn. These physical, mental, and emotional reactions result in exhaustion—when a person’s individual threshold is breached. The complex causes of chronic stress may include factors from work or home. These stressors may stem from financial pressures; interpersonal relationships, including anger management issues; or a nonsupportive environment, emotional or physical. Any or all of these may lead to a lack of self-care. All too often, self-care becomes the lowest priority in our already demanding lives.

One of the unfortunate consequences of chronic personal and professional stress is burnout. Burnout is a state of physical, emotional, and mental exhaustion caused by long-term exposure to demanding work situations, or the cumulative result of stress. Cordes and Doutherty,⁴ in their study of healthcare employees, found that workers who have frequent intense or emotionally charged interactions with others are more susceptible to burnout.

You may be more prone to burnout if⁴:

- You identify so strongly with work that you lack a reasonable balance between work and your personal life.
- You try to be everything to everyone.
- Your job is monotonous.

The first 2 are characteristic of the typical alpha individual drawn to our profession. As nurses we are engaged, empathetic, and attached to our patients. As nurse anesthetists, our overachiever personality drives us to excel, to be in control in not only the classroom but also in the operating room and in our personal lives. Over time, our fast-paced cases may eventually give way to automatic pilot and boredom. Our focused lives become complicated with children, mortgages, aging parents, and frustrations with coworkers and administration. As the stressful routine becomes the norm, burnout becomes a

likely consequence. When there is no “me” time, balance is upset. When catastrophic events such as cancer, divorce, litigation, and bankruptcy occur, it is no longer possible to be everything to everybody.

Given the highly charged and stressful nature of our profession, how susceptible are we to stress, how do we cope, and what are the costs? This study was designed to determine the current level of stress and its physical manifestations in CRNAs and student registered nurse anesthetists (SRNAs). It also looked at coping mechanisms of these individuals reported as commonly employed to combat the effects of stress. Based on responses and comments, strategies may be developed and recommendations can be made for future wellness initiatives, for individuals and for the profession.

Methods

After approval by the institutional review board of the Medical University of South Carolina, a multifactorial questionnaire⁵⁻⁷ was undertaken using a survey (www.SurveyMonkey.com). An electronic invitation to participate in the survey was distributed by Wanda Wilson, CRNA, PhD, president of the American Association of Nurse Anesthetists (AANA). The invitation was sent to approximately 28,000 CRNAs and SRNAs who had email addresses on file with the AANA. Data were collected between February and May 2008. There were 7,537 respondents, or 26.9% of all eligible anesthesia providers.

The survey was a self-assessment that contained:

- Demographic questions that included age, gender, employment descriptions, years in anesthesia practice, ethnicity, and marital status.
- Manifestations of stress, including symptoms, life changes in the last year, self-assessment of stress levels, satisfaction with work and life, stress coping assessment, and, at the request of the AANA Foundation, an assessment of chronic illnesses.
- Suggestions for how the AANA Wellness Program, managed by the Council for Public Interest in Anesthesia, can help decrease stress and promote wellness of the AANA members.

This survey was the work of the authors, with input from Sandra Tunajek, CRNA, DNP, and past executive director of the Council for Public Interest in Anesthesia, and Lorraine Jordan, CRNA, PhD, executive director, AANA Foundation.

Results

Although the response rate was less than 27%, the resulting sample size was 7,537, and respondents reflected the demographics of the AANA population based on the most recent membership profile data. Most respondents were AANA members (85%), while 15% were associate or student members. This allowed us to generalize the responses to those of practicing CRNAs.

The demographics of the AANA members responding

Age group (y)	CRNAs (%)	Students (%)
< 25	0	2.7
25-29	3.2	32.4
30-34	8.9	27.1
35-39	12.1	19.2
40-44	12.1	11.2
45-49	15.5	5.6
50-54	19.2	1.8
55-59	16.0	0
60-64	9.3	0
> 64	3.7	0

Table 1. Age Distribution of Survey Respondents

Ethnicity/race	CRNAs (%)	Students (%)
White	93.7	87.4
Black	2.3	4.5
Hispanic	2.3	3.0
Native Hawaiian/ Pacific Islander	0.5	0.6
American Indian	0.4	0.8
Asian	0.8	3.7

Table 2. Ethnicity of Survey Respondents

Stressor	CRNAs (%)	Students (%)	Total (%)
Started school	2.5	75.4	77.9
Change jobs	27.8	24.7	52.5
Quit job	8.5	43.8	52.3
Moved	23.2	43.8	47.0
Death of other family member ^a	23.1	20.6	43.7
Personal illness/injury	21.5	12.7	34.2
Caretaker of loved one	21.9	8.8	30.7
Bankruptcy	5.1	9.7	14.8
Regulatory audit	11.7	2.8	14.5
Birth of child	7.0	5.3	12.3
Marriage/partner separation	4.5	6.7	11.2
Pregnancy	6.1	3.1	9.2
Military deployment— significant other	3.2	5.0	8.2
Promotion	5.0	0.9	5.9
Medical malpractice lawsuit	3.8	0.8	4.6
Marriage/partner reconciliation	2.3	2.2	4.5
Divorce	3.1	3.0	6.1
Military deployment—self	2.8	0.5	3.3
Death of spouse/partner/child	1.1	0.8	1.9
Retirement	1.6	0	1.6
Demotion	1.2	0.1	1.3

Table 3. Personal Stressors

^a Other than spouse, partner, or child.

were very similar to that of the AANA general membership. Of the CRNAs responding, 40% were male and 60% females. Associate members had a higher response rate for females, at 70%. The members' primary professional roles included: staff CRNAs, 65%; associate members (students), 14%; administrators, 13%; locum tenens, 6%; and educators, 2%. Age of CRNAs and SRNAs is compared in Table 1. Ethnicity or race was primarily white

(Table 2), at approximately 90% for both CRNAs and associate members.

Data from stress category responses were subjective and consisted primarily of noncategorical "other" answers; therefore, this is a descriptive study only. However, these voluntary answers fell into easily documented categories and allowed the authors to categorize symptoms of stress and individual coping strategies.

Symptom	Weekly (%)	Monthly (%)	Intermittent (%)	NA (%)
Agitation	47.2	19.9	27.5	5.4
Trivial annoyances	38.6	22.1	32.8	6.5
Impatient	22.1	24.0	39.4	14.5
Cravings	18.6	15.9	29.3	36.1
Nail biting	14.5	6.9	14.8	63.7
Headache	13.5	18.1	31.3	37.1
Hypertension	12.9	4.2	12.9	70.0
Inability to concentrate	12.4	15.8	39.7	32.1
Teeth grinding	11.6	7.6	14.4	66.3
Digestive problems	10.0	14.1	25.5	40.4
Cardiac arrhythmia	6.8	7.1	18.6	67.5
Confusion	3.9	5.5	18.2	72.4
Overuse of alcohol	3.1	6.2	17.5	73.3
Substance abuse	2.0	4.0	2.4	91.6
Infertility	1.7	0.9	1.8	95.0

Table 4. Stress Symptoms

NA indicates not applicable.

Satisfaction	Educator (%)	Administrator (%)	Staff CRNA (%)	Military (%)	Student (%)
Career	95.6	95.4	93.3	93.0	80.4
Job/workplace	79.0	78.6	73.0	69.0	55.0

Table 5. Satisfaction With Career/Job

Indicates a response of "Extremely satisfied" or "Satisfied."

Most practitioners, whether they were seasoned CRNAs or SRNAs, had numerous stressors. The survey asked them to identify events that happened during the last 12 months. Research has shown that even positive events and situations can add to our stress⁸ (Table 3).

Stress can manifest itself in many ways. The respondents were presented with a list of known stress symptoms and asked to choose the frequency that these presented. Table 4 reports the important findings on the AANA members and associate members.

Respondents were asked to rate on a 10-point Likert scale their level of stress on an average day. The AANA members reported an average stress level of 4.7, with the associate members (students) reporting their average stress as 7.2. We next asked what percentage of their stress they attribute to work. The members indicated that 48% was associated with work, whereas students attributed 67% of their stress to their work (school).

When asked about their decision to choose a career in anesthesia, AANA members were much more satisfied than students, with 93.6% of members being either "Extremely Satisfied" or "Satisfied" with their career, while only 80% of the associate members responded positively to that question (Table 5).

The stress survey identified individuals' stress by their primary roles (Table 6). The least stressed were the

staff nurse anesthetists, who had a mean score of 4.25, with 50% reporting that their main source of stress was their jobs. The most stressed were the associate members, with a mean stress score of 7.2 and 90% of stress coming from work (school). Of the individuals who were CRNAs, the educators were the most stressed, with an average daily stress score of 6.15 and 90% of that stress from their jobs. The military nurse anesthetists who were deployed showed a mean increase in stress score by 0.3 to a score of 5.2, with 85% of their stress attributed to work. Those nurse anesthetists who had a friend or relative deployed had an average increase in their stress by 1 point, from 4.25 to 5.3; 70% of their stress came from outside work.

Chronic illness can be caused by many things, stress being one of the possible causes. The survey asked AANA members and associate members about the incidence of chronic illnesses they may have. When reporting these conditions, some reported the incidence of more than 1 condition. The responses indicated a variety of illnesses (Table 7).

Despite the numerous physical and emotional symptoms that practicing and student anesthetists admitted having, the overwhelming majority (83.7%) reported taking 2 or fewer sick days per year. For 41.3%, their last sick day was more than 2 years ago. Almost half (48.2%) reported taking a vacation within the last 3 months. Most

Primary role	Mean stress score ^a	% of stress from work	No. of respondents
Student	7.2	90	1,094
Educator	6.2	90	433
Administrator	5.1	70	593
Military	4.9	75	109
Staff CRNA	4.3	50	2,193

Table 6. Average Daily Stress by Primary Role

^a On a 10-point Likert scale.

Illness class	No.	%	Illness (No. of respondents)
Gastrointestinal	2,657	35.2	Celiac sprue, ulcerative colitis, "hyperactive colon," constipation, Crohn disease, diverticulitis, eating disorders (720), gastritis, gastroparesis, gastroesophageal reflux disease (1,351), interstitial cystitis, obesity (body mass index over 28 kg/m ² ; 1,052)
Orthopedic	2,098	27.8	Amputation, arthritis, back spasm, back surgery, carpal tunnel (200), chronic pain, disc herniation, spicondylitis, hip dysplasia, hip replacement, jaw pain, peripheral neuropathy (349), spinal stenosis, tendinitis
Miscellaneous	1,835	24.3	Alopecia, anemia, B ₁₂ deficiency, chronic dry eye, coagulation disorders, dermatitis including eczema and psoriasis, vertigo (550), glaucoma, gout, herpes zoster, impotence, latex sensitivity (150), Löfgren syndrome, low libido (884), lymphedema, Ménière disease, protein deficiency, proteinuria
Psychiatric	1,709	22.6	Addiction (alcohol recovery), addiction (drug recovery), addiction (substance abuse), addiction (prescription medications), agitation (3,500), alcohol overuse, anxiety/panic disorder (300), depression (700), borderline personality disorder, bulimia, confusion, cravings (1,381), eating disorders, chronic fatigue, forgetfulness, hives, insomnia (1,038), mental stress (relationships), migraine headaches, mood swings (994), nervousness, night sweats/terror, obsessive compulsive disorder (1,090), nail biting, seasonal affective disorder, smoking (excessive), suicide ideation (325), teeth grinding (890), tremors
Cardiovascular	1,440	19.0	Angina, aortic insufficiency, coronary artery disease, congenital heart defects, heart irregularities including palpitations and arrhythmias (500), hypertension (1,350), mitral valve prolapse, Raynaud disease, peripheral vascular disease
Neurologic	1,041	13.8	Headaches (1,000), fibromyalgia, multiple sclerosis, cervical myopathy, narcolepsy, trigeminal neuralgia, treatment-related myopathy, Parkinson disease, postpolio syndrome, seizure disorders, spondylolisthesis
Gynecologic	798	10.5	Dysmenorrhea (600), endometriosis, fibroid tumors, infertility (180), menopause, premenstrual syndrome, pregnancy complications
Endocrine disease	294	4.0	Cushing syndrome, diabetes (200), Graves disease, hyperparathyroidism, hypoglycemia, insulin resistance, pancreatic disorders, Hashimoto's disease
Respiratory disease	172	1.9	Allergic rhinitis, asthma, chronic obstructive pulmonary disease (62), hypoventilation syndrome, pulmonary disease (unspecified), sleep apnea
Autoimmune	97	1.0	Epstein-Barr virus, immunodeficiency, polymyalgia rheumaticus, rheumatoid arthritis (73), scleroderma, systemic lupus
Cancer	44	< .01	Breast, colon, esophagus, lung, melanoma, non-Hodgkin lymphoma, prostate, meningioma, sarcoidosis
Renal	11	< .01	Prostate surgery, polycystic kidney disease, kidney stones, renal insufficiency, kidney transplant
Liver disease	7	< .01	Gallbladder, cancer, hepatitis C, liver transplant

Table 7. Chronic Illnesses Reported by Certified Registered Nurse Anesthetists and Student Registered Nurse Anesthetists

had a physical examination within the last 2 years (85%) and had seen a dentist within the last 2 years (94.6%).

When asked about how they handle stress, 31% of the members and 27% of the associate members indicated they had sought professional help for their stress. The most frequent methods for handling stress involved interaction with or support from others (eg, movies/TV, going out with family). Of the AANA members, 18.9% indicated they were taking prescription medications to help alleviate stress, and 19.3% of the associate members indicated the same. Some of the commonly prescribed medications reported include paroxetine (Paxil), fluoxetine (Prozac), sertraline (Zoloft), citalopram (Celexa), escitalopram (Lexapro), buspirone (BusPar), clonazepam (Klonopin), and bupropion (Wellbutrin).

Discussion

Wellness requires a balance between mind, spirit and body. The harmony within ourselves allows us to better care for others. If any of these components are out of balance, the individual may suffer. Stress can directly or indirectly affect all components of this triad, rendering the individual unhealthy. This study clearly indicates that our student nurse anesthetists and nurse anesthesia professionals are under considerable stress, recognize the effects of stress in their lives, and seek help in diverse ways. What is also evident in the comments section of the survey is that CRNAs are anxious to receive more information and help from the AANA Wellness Program. There will always be the 30-somethings who thrive on the adrenalin rush of codes and late night trauma call—individuals who abound with energy and physical strength (those who answered “none” to the symptoms question). We applaud their enthusiasm and remember when we were there. The truth is, the profession takes a toll over the years. Time, excess, and the vulnerability of life eventually catch us all—some sooner than later.

The profession of nurse anesthesia has a proud heritage of serving the public by providing safe, cost-effective anesthesia for more than 100 years. Nurse anesthetists serve in all capacities, including staff nurse anesthetists, administrators, business owners, students, and our unsung heroes, the military nurse anesthetists. However, as a population of providers, many appear to be suffering from everyday personal and professional stress as well as the normal aging processes of life. Table 3 details that many members, especially associate members, have undergone many stressful personal events in the past year as well as those imposed by their careers. Table 4 shows the myriad stress symptoms that members reported, such as inability to concentrate, impatience, annoyance at trivial things, headaches, hypertension, and multiple others, all of which decrease the individual's ability to concentrate and learn.

Table 1 shows that 65% of responding AANA members are 45 years of age or older, with 47% having 16 or more years of clinical practice. These Baby Boomers are re-

ferred to as the “sandwich” generation, caught between caring for their children and their aging parents.⁹ If they could leave their stress in the locker room when they came to work, it would be great. Unfortunately, outside stressors often follow these nurse anesthetists into the operating room suite and add to the stress of an already stressful job, sometimes affecting patient safety.

In Table 6, Average Daily Stress by Primary Role, we see that the associate members have higher levels of stress (mean score, 7 for associate members vs 5 members), with more of their stress coming from the job (90% vs 50%, respectively), meaning school. Of the CRNAs, educators have a higher degree of stress than others, with most of their stress coming from their jobs. They are second only to the associate members (students), who likewise have a higher degree of stress coming from their learning environment. Staff CRNAs have the lowest degree of stress. With increasing stress comes that same HPA axis that causes our patients to be bathed with stress hormones, leading to worsening outcomes. Stress causes increased catecholamine release, increased blood glucose levels, and increased capillary permeability, leading to physiological changes that may be detrimental to learning.¹

Stress may be a contributing factor in reported differences in career satisfaction. Table 5 demonstrates that there is a large difference in satisfaction levels between students and practitioners, with 93% of AANA members being Extremely Satisfied to Satisfied with their career choice, whereas only 80% of the associate members feel the same level of satisfaction. Of the CRNAs, the administrators and educators had the highest satisfaction along with the greatest contentment with their places of employment. The military CRNAs had almost an equally high satisfaction with their career choice but were lower in their level of contentment in their jobs, at 69%.

Conclusion

Nurse anesthetists live and work in a stressful environment. The data suggest a need for greater awareness and education concerning professional well-being among the membership. More specifically, wellness information should be integrated into every aspect of membership contact: publications, meetings, presentations, events, and educational materials.

Stress management education should begin ideally in anesthesia school. Many of our students are older, with families and daunting debt. Anesthesia students are under substantial pressure to perform well in a complex and competitive environment. This may lead to starting a career with physical and emotional stress, which can be a factor in career dissatisfaction.

Learning is all about change, which induces stress in the learner. How much stress is involved varies among individuals, but it is there for everyone. With too little stress, the student may not feel challenged and may become bored, but too much stress leads to informa-

tion overload and may cause decreased retention. For our associate members, all of whom have put on hold successful careers, there are (1) financial strains, (2) decreasing self-esteem that often comes with changing jobs, (3) strains on personal relationships because of decreasing time for self and others, and (4) stresses of starting school, often in an unfamiliar location requiring a move. Managing and coping with these known stressors are not covered in our anesthesia curriculum, but they all decrease the learner's ability to concentrate on the myriad materials that they are expected to master. One wonders, how can these learners achieve success given the increasing complexity of their role?

As mentioned previously, associate members felt the greatest discontentment in both their career choice as well as where they were employed (in school). One has to ask the question: What will this do to long-term support by these future nurse anesthetists to the AANA, our state associations, and overall to the profession? How can we enhance the satisfaction of the 20% of associate members who wonder if they made the correct career choice? Alternatively, is this a temporary condition that will reverse once they become more comfortable with their skills, graduate, pass board examinations, and become productive healthcare providers again?

The CRNA population is growing older (average age is above 50 years in 2008, compared with 48 in 2005). The normal aging process, which influences both physical and cognitive abilities, may have implications for personal well-being and patient safety. With the addition of a stressful work environment, the practitioner may become overwhelmed.^{4,10}

The survey supports previous work concerning the stressful anesthesia work environment and emphasizes the need for available resources to assist the practitioner in positive mechanisms to manage their stress. The personal cost of long-term stress is a factor that must be evaluated and emphasized. Resource management on a personal and corporate level is an asset that can be measured in real dollars. The avoidance of adverse patient outcomes coupled with lifelong physical, emotional, mental, and spiritual health of anesthesia providers is the win-win benefit of stress management.

Survey respondents indicated ways they managed stress. Many ways were positive but, unfortunately, some were negative, including substance abuse. Some of the more positive stress relievers included exercise, concentrating on making the situation better, getting support and help from others, finding "me" time, playing with a favorite pet, reading, and connecting with one's "spiritual" self. Some of the less positive, often destructive, ways indicated included alcohol, drugs, denial of the problem, self-criticism, giving up, expressing negative feelings, and sleeping excessively.

Practitioner well-being is the foundation for optimal, safe patient care, and practitioners are increasingly ac-

countable and visible to the public. Clearly, individual management of daily stressors is a critical component in the provision of quality anesthesia care. Although the data suggest areas of needed education and information, additional research should be conducted to determine the most effective approaches to enhance nurse anesthetists' overall health and wellness and, ultimately, patient safety.

REFERENCES

1. Benedict C, Kern W, Schmid SM, Schultes B, Born J, Hallschmid M. Early morning rise in hypothalamic-pituitary-adrenal activity: a role for maintaining the brain's energy balance. *Psychoneuroendocrinology*. 2009;34(3):455-462.
2. Tunajek S. Student stress: a question of balance. *AANA NewsBull*. May 2006;60(5):20-21.
3. Miller LH, Smith AD, Rothstein E. *The Stress Solution: An Action Plan to Manage the Stress in Your Life*. New York, NY: Pocket Books; 1994:123-145.
4. Cordes CL, Dougherty TW. A review and an integration of research on job burnout. *Acad Manage Rev*. 1993;18(4):621-656.
5. Castelo-Branco C, Figueras F, Eixarch E, et al. Stress symptoms and burnout in obstetric and gynecology residents. *Br J Obstet Gynecol*. 2007;114(1):94-98.
6. Marine A, Ruotsalainen J, Serra C, Verbeek J. Preventing occupational stress in healthcare workers. *Cochrane Database Syst Rev*. 2006;18(4):CD002892.
7. Milstein JM, Gerstenberger AE, Barton S. Healing the caregiver. *J Altern Complement Med*. 2002;8(6):917-920.
8. Dixon W, Reid J. Positive life events as a moderator of stress-related depressive symptoms. *J Counsel Develop*. 2000;78(3):343-347.
9. Seward MR. The sandwich generation copes with elder care. *Benefits Q*. 1999;15(2):41-48.
10. Dada L. Workplace stress effects. *Am J Nurs*. 2006;107(2):15-19.

AUTHORS

Anthony Chipas, CRNA, PhD, is the program director and professor in the Division of Anesthesia for Nurses at the Medical University of South Carolina, Charleston, South Carolina. Dr Chipas served on the Council for Public Interest in Anesthesia (CPIA) and served as chair of the CPIA for 2 years. He is currently president of the South Carolina Association of Nurse Anesthetists. Email: chipas@musc.edu.

Dennis McKenna, CRNA, MSNA, is the assistant program director and assistant professor in the Division of Anesthesia for Nurses at the Medical University of South Carolina, Charleston, South Carolina. Email: mckenna@musc.edu.

ACKNOWLEDGMENTS

We wish to thank the following individuals for their assistance.

Sandra Tunajek, CRNA, PhD, past executive director for the Council for Public Interest in Anesthesia, for her continued mentorship, friendship, and service to our profession.

Lorraine Jordan, CRNA, PhD, AANA senior director of research and executive director of the AANA Foundation, for her advice and support during the conduct of this study.

Janette Chipas, MHS, an always supportive spouse and editor, for her assistance in editing this article.

Kit N. Simpson, director and professor of Outcomes Research at the Medical University of South Carolina, for her assistance with the preparation of the survey instrument and data analysis.

Wanda O. Wilson, CRNA, PhD, AANA executive director, who, when serving as AANA president, allowed this survey to be distributed under her name to the AANA membership.