

Career Satisfaction, Practice Patterns and Burnout among Surgical Oncologists: Report on the Quality of Life of Members of the Society of Surgical Oncology

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Background: Studies show that 30–50% of medical oncologists experience burnout, but little is known about burnout among surgical oncologists. We hypothesized that wide variation in burnout and career satisfaction exist among surgical oncologists.

Patients and Methods: In April 2006, members of the Society of Surgical Oncology (SSO) were sent an anonymous, cross-sectional survey evaluating demographic variables, practice characteristics, career satisfaction, burnout, and quality of life (QOL). Burnout and QOL were measured using validated instruments.

Results: Of the 1519 surgical oncologists surveyed, 549 (36%) responded. More than 50% of respondents worked more than 60 hours per week while 24% performed more than 10 surgical cases per week. Among the respondents, 72% were academic surgical oncologists and 26% spent at least 25% of their time to research. Seventy-nine percent stated that they would become a surgical oncologist again given the choice. Overall, 28% of respondents had burnout. Burnout was more common among respondents age 50 years or younger (31% vs 22%; $P = .029$) and women (37% vs 26%; $P = .031$). Factors associated with a higher risk of burnout on multivariate analysis were devoting less than 25% of time to research, had lower physical QOL, and were age 50 years or younger. Burnout was associated with lower satisfaction with career choice.

Conclusions: Although surgical oncologists indicated a high level of career satisfaction, nearly a third experienced burnout. Factors associated with burnout in this study may inform efforts by program directors and SSO members to promote personal health and retain the best surgeons in

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the field of surgical oncology. Additional research is needed to inform evidenced-based interventions at both the individual and organizational level to reduce burnout.

Key Words: Surgical oncology—Cancer surgery—Cross-sectional study—Burnout—Practice patterns—Stress—Positive-psychology—Well-being—Physicians—Surgeon—Quality of life—Depression.

There are few professions that by nature require the professional to deal with life and death situations on a daily basis. There are similarly few professions that have a profound daily impact on both the professional and his or her patients. Surgical oncology is one such profession. These attributes of surgical oncology, along with the rigors of training for this profession, attract individuals of a particular character and determination. These individuals share an unwritten but clearly understood code of rules, norms, and expectations, including coming in early and staying at work until the job is completed, working nights and weekends, performing a high volume of procedures under pressure, meeting multiple simultaneous deadlines, keeping emotions or personal problems from interfering with the job at hand, and facing adversity with vigor and resolve. Additionally, surgical oncologists deal with patients with a disease that carries a social stigma, frightens patients like no other, and creates high expectations and pressures on the physician. The traits that define the committed surgical oncologist also place him or her at risk for work-related stress and “burnout,” a syndrome of emotional exhaustion and depersonalization that leads to decreased effectiveness at work.¹

The discipline of “surgical oncology” as an entity distinct from general surgical practice was established in the late 1930s. The genesis of this movement was recognition that achieving optimal therapeutic outcomes in patients with cancer requires a focused, multidisciplinary approach that includes close interactions among specialists from multiple disciplines—surgery, pathology, medical oncology, radiation oncology, and basic science. As testimony to this fact, the Society of Surgical Oncology (SSO), founded in 1940, was originally named the James Ewing Society in recognition of a leading pathologist who recognized the critical need for close interactions between laboratory researchers, radiation oncologists, internists, and of course surgeons. The society changed its name to the Society of Surgical Oncology in 1975 in an effort to achieve national recognition. The SSO is devoted to disseminating the highest-quality oncologic surgical care and to promoting

optimal patient outcomes through education, practice, research, ethical conduct, and advocacy.

Caring for patients with cancer carries with it a unique set of stressors, including frequent delivery of bad news to patients, an inability to cure many patients, the need to manage toxic treatments and interventions, and frequent exposure to patient death and suffering. Although burnout may occur in physicians of all specialties, many have speculated that frequent exposure to life-threatening illness, death, and suffering in the practice of oncology may place physicians who care for patients with cancer at particularly high risk for burnout.^{2,3,4-7} In fact, studies show that 30–50% of medical oncologists experience burnout.^{2,3,8,9} While these studies provide some insight into the experience of physicians caring for patients with cancer, they did not include surgical oncologists. Since, the training experience and practice of surgical oncologists differs dramatically from that of medical oncologists, little is known about burnout in surgeons and surgical oncologists in particular.

While distress and burnout are the negative end of the quality-of-life continuum, satisfaction and well-being are the other. Similar to burnout, little is known about the personal and professional characteristics associated with achieving personal satisfaction in the practice of surgical oncology. Factors that may reduce satisfaction with career choice among surgical oncologists include the aforementioned challenges that are unique to caring for cancer patients and a number of changes that have emerged in the practice environment in recent years, including increased workload, increased governmental oversight, decreased insurance reimbursement, decreased autonomy, and the complex demands of office management.^{10,11} Despite the significant distress experienced by some surgeons, others appear to thrive and achieve a high degree of satisfaction with their work and their overall quality of life. The personal and professional characteristics associated with achieving personal satisfaction in the practice of surgical oncology are not known.

We conducted a survey of the membership of the SSO to determine the incidence of burnout and the

level of career satisfaction among surgical oncologists. The hypothesis of this cross-sectional study was that wide variation in quality of life (QOL) and burnout exist among surgical oncologists. The specific objectives of this study were to: (i) measure burnout and QOL among surgical oncologists who were members of SSO, using extensively validated instruments; (ii) identify the variations in specific personal and practice characteristics among surgical oncologists by age, gender, practice setting, and hours worked per week; (iii) investigate the relationship between burnout and personal and practice characteristics. We also used multivariate analysis to identify demographic, practice-pattern, and other factors independently associated with burnout and career satisfaction as such factors could in theory be used to identify surgical oncologists who would derive the greatest benefit from interventions to reduce burnout risk and improve career satisfaction and QOL. We also compared the characteristics of surgical oncologists in this study to the characteristics of general surgeons and internal medicine physicians reported in previously published studies that used the same survey instruments.

METHODS

Participants

All surgical oncologists (with the exception of the study investigators) who were members of the SSO and had an e-mail address on file with the society were eligible for participation in this study. Participation was elective, and all responses were anonymous. The Mayo Clinic College of Medicine Institutional Review Board reviewed and approved this study.

Data Collection

Surgical oncologists were surveyed electronically in April 2006. A cover letter stated that the purpose of the survey was to better understand the factors that contribute to career satisfaction among surgical oncologists. Participants were not informed of the specific hypothesis of the study. The survey included 52 questions regarding demographic information, practice characteristics, career satisfaction, burnout, symptoms of depression, alcohol use, and QOL. A single e-mail message was sent to remind SSO members to complete the survey.

Validated survey tools were used to identify burnout,^{1,12-14} mental and physical QOL,¹⁵ symptoms of

depression,^{16,17} and potentially problematic alcohol use.^{18,19} Burnout was measured using the Maslach Burnout Inventory, a validated 22-item questionnaire considered a standard tool for measuring burnout.^{1,12-14} The Maslach Burnout Inventory has three subscales that are used to evaluate the three domains of burnout: emotional exhaustion, depersonalization, and low personal accomplishment. According to convention, a high score for medical professionals on the emotional exhaustion and/or depersonalization subscale is an indicator of professional burnout.¹ Symptoms of depression were identified using the two-item Primary Care Evaluation of Mental Disorders,¹⁶ a standardized depression screening tool that has been shown to perform as well as longer instruments.¹⁷ Potentially problematic alcohol use and alcohol dependence were measured using items from the Alcohol Use Disorders Identification Test.^{18,19}

Mental and physical QOL were also measured using the Medical Outcomes Study Short Form (SF-8)^{9,15}. Norm-based scoring methods were used to calculate mental and physical QOL summary scores.¹⁵ QOL is a multidimensional construct with physical, mental, spiritual, emotional, and social domains. The overall QOL of an individual comprises a large number of factors with the importance of individual domains (i.e., physical QOL, mental QOL) weighted differently for each individual. Physical QOL pertains to how an individual's physical health influences the amount of energy they have, what functional limitations/disabilities they cope with, the amount of pain they experience, and how these and other aspects of physical health relate to their ability to work, be physically active, and be involved in social activities.

Two questions, based on similar measures from previous physician surveys,^{10,20-23} were used to assess career and specialty choice satisfaction: "Would you choose to become a physician again?" (career choice) and "Would you choose to be a surgical oncologist again?" (specialty choice). Response options for these two questions were "definitely not," "probably not," "not sure, neutral," "probably," and "definitely yes." Responses of "probably" or "definitely yes" were considered to indicate greater career satisfaction.

Study-specific questions exploring demographic and professional characteristics hypothesized to be related to distress and QOL were developed based on expert opinion and review of the literature. After development, these questions along with the rest of the survey instrument were pilot-tested on five general surgeons and subsequently modified on the basis of their feedback prior to use. Percentages were cal-

TABLE 1. Personal characteristics of the 549 members of the Society of Surgical Oncology who participated in the survey study

Characteristic	No. (%)
Age, years	
< 40	125 (22.8)
40–50	242 (44.2)
51–60	125 (22.8)
> 60	56 (10.2)
Sex	
Female	108 (19.7)
Male	440 (80.3)
Relationship status	
Single	60 (10.9)
Married	472 (86)
Partner	17 (3.1)
Ever gone through a divorce	97 (17.7)
Have children	459 (83.6)

culated using all available data as indicated for specific data fields noted in the tables.

Statistical Analysis

The primary analysis involved the use of descriptive summary statistics for estimating the incidence of burnout, symptoms of depression, potentially problematic alcohol use, and mean mental and physical QOL scores among surgical oncologists. Next, we examined differences in burnout, depression, potentially problematic alcohol use, and mental and physical QOL by various demographic and practice characteristics. For practice characteristics (hours worked per week, number of nights on call per week, percentage of time devoted to research, and number of days of work-related travel per month), the value closest to the top quartile was used for categorical comparisons. The Cochran-Armitage trend test¹⁶ was used for assessing trends in proportions, and simple linear regression was used for assessing trends in continuous variables (emotional exhaustion, depersonalization, and personal accomplishment) as dependent variables in building separate models.

Stepwise logistic regression was used to evaluate independent associations between demographic and practice characteristics and categorical dependent variables related to burnout, symptoms of depression, potentially problematic alcohol use, and career satisfaction. Both continuous and categorical approaches (using the published thresholds to classify burnout) were used in the regression procedures so as to understand the relative information gleaned from considering the dependent variables as alternatively continuous or categorical in nature. The results for the two approaches resulted in similar findings, but al-

lowed for more detailed interpretations than would be obtained by restricting the analysis to a single approach. The primary intention of these analyses was not so much to ascertain how one might predict an individual's level of burnout (since burnout is a highly individualistic experience) but rather to identify and rank-order the independent variables that may contribute to burnout. The independent variables used in models for burnout were age (≤ 50 years), gender (female), children (having them), current practice setting (private), years since training completed (≥ 11), hours worked per week (> 70), cases per week (≥ 11), nights on call per week (≥ 3), percentage of time devoted to research ($< 25\%$ for all models except low personal accomplishment and potentially problematic alcohol use, for which $\geq 25\%$ was used), days spent traveling per month (> 3 for all models except depersonalization and overall burnout, for which < 2 days was used), and low physical QOL (half of a standard deviation below the mean). Models for potentially problematic alcohol use contained the same factors plus overall burnout, personal accomplishment (low), depression, and low mental QOL (half of a standard deviation below the mean). All analyses were done using SAS version 8 (SAS Institute Inc., Cary, NC).

RESULTS

Correct e-mail addresses could be identified for 1519 (96%) of the 1581 SSO members. Of these 1519 surgical oncologists who were surveyed, 549 (36%) returned surveys. The demographic and practice characteristics of the study participants are summarized in Tables 1 and 2. Approximately 20% of the study participants were women. Based on official SSO membership demographic data available, responding members were very similar to the entire SSO membership, which includes 17.1% women members and approximately 50% members 50 years of age or older. Nearly 90% of study participants were either married or had a partner. Approximately 18% of study participants indicated that they had previously gone through a divorce, and 84% had children. Approximately 56% of study participants had been in practice at least 11 years. A majority of the study participants were in academic practice, and more than 80% spent the majority of their practice time in surgical oncology. About 62% of study participants reported working more than 60 hours per week, and about 24% reported performing more than 10 surgical cases per week. About one quarter of the participants devoted at least 25% of their time to research.

TABLE 2. Practice characteristics of the 549 members of the Society of Surgical Oncology who participated in the survey

Characteristic	No. (%)
Years since completed training	
< 2	61 (11.2)
2–5	85 (15.6)
6–10	95 (17.4)
11–20	173 (31.7)
> 20	132 (24.2)
Practice setting	
Academic	393 (72.2)
Private practice	146 (26.8)
Practice category ^a	
Primarily general surgery	19 (3.5)
Equal mix general surgery and surgical oncology	74 (13.6)
Primarily surgical oncology	180 (33.0)
Primarily or only breast surgical oncology	117 (21.4)
Primarily or only gastrointestinal surgical oncology	81 (14.8)
Primarily or only skin surgical oncology	11 (2.0)
Primarily or only head and neck surgery	11 (2.0)
Primarily or only endocrine surgery	6 (1.1)
Primarily or only thoracic surgical oncology	11 (2)
Urologic surgical oncology	10 (1.8)
Other	26 (4.8)
Hours worked per week	
< 40	5 (0.9)
40–50	55 (10)
51–60	149 (27.2)
61–70	207 (37.8)
> 70	132 (24.1)
Average No. of surgical cases performed per week	
< 3	29 (5.3)
3–6	189 (34.8)
7–10	193 (35.5)
11–15	88 (16.2)
> 15	44 (8.1)
Number of nights on call per week	
0	141 (25.9)
1–2	294 (54.0)
3–4	45 (8.3)
5+	64 (11.8)
Percentage of time devoted to research	
0%	92 (16.9)
1–24%	312 (57.2)
25–49%	104 (19.1)
≥50%	37 (6.8)
No. of days of work-related travel per month	
0	46 (8.4)
1	200 (36.5)
2–3	223 (40.7)
4–5	57 (10.4)
6–8	18 (3.3)
> 8	4 (0.7)

^a Participants were asked to choose only one response in this category.

Characteristics of the group overall with respect to career satisfaction, burnout, depression, potentially problematic alcohol use, and QOL are summarized in Table 3. The majority of the study participants indicated that they would become a physician again (78.8%) and would specifically become a surgical oncologist again (85.4%) if they could revisit their

TABLE 3. Career satisfaction, burnout, depression, potentially problematic alcohol use, and quality of life among the 549 members of the Society of Surgical Oncology who participated in the survey study

	N (%)
<i>Career satisfaction</i>	
Would become physician again (career choice)	431 (78.8)
Would become surgical oncologist again (specialty choice)	468 (85.4)
<i>Burnout indices^a</i>	
Emotional exhaustion	
Low	276 (53.2)
Moderate	118 (22.7)
High	125 (24.1)
Depersonalization	
Low	337 (64.1)
Moderate	109 (20.7)
High	80 (15.2)
Personal accomplishment	
High	348 (68.0)
Moderate	115 (22.5)
Low	49 (9.6)
Burned out ^b	153 (28.2)
<i>Depression and alcohol use</i>	
Screen positive for depression	168 (30.8)
At risk for alcohol use	37 (6.8)
<i>Quality of life</i>	
Mental QOL score, mean ± standard deviation (median)	50.4 ± 8.18 (52.1)
Physical QOL score, mean ± standard deviation (median)	53.9 ± 6.41 (55.9)

^a Participants with high scores on the emotional exhaustion and depersonalization subscales or low scores on the personal accomplishment subscale are considered to have burnout.

^b High score on emotional exhaustion and/or depersonalization subscales (see methods).

career and specialty choice. Substantial variation in burnout was observed among the surgeons sampled as evidenced by depersonalization (mean = 5.2, range: 0–23), emotional exhaustion (mean = 19.5, range 0–54), and personal accomplishment scores (mean = 42, range 7–48). Overall, 28.2% of respondents met the criteria for burnout; 24.1% had high emotional exhaustion, 15.2% demonstrated high depersonalization, and 9.6% had a low sense of personal accomplishment. Approximately 30% of study participants screened positive for depression. Given the sensitivity (96%) and specificity (57%) of the screening instrument used,^{16,17} this finding implies that approximately 10% of respondents would have met the criteria for major depressive disorder at the time of the survey if they had undergone a full psychiatric assessment. Roughly 7% of the study participants reported potentially problematic alcohol use²⁰ (not fulfilling responsibilities because of drinking, being unable to stop drinking, drinking in the morning, or binge drinking). The mean mental and

physical QOL scores for surgeons participating in the survey were 50.4 and 53.9, respectively (the mean scores for the U.S. population are 49 ± 9 for both mental and physical QOL¹⁵).

On univariate analysis, factors associated with emotional exhaustion included being 50 years of age or younger, female gender, devoting less than 25% of time to research, performing 11 or more cases per week, and having lower physical QOL. The only factor associated with depersonalization was performing 11 or more cases per week, and the only factor associated with low personal accomplishment was having lower physical QOL. Factors associated with overall burnout were being 50 years of age or younger, female gender, devoting less than 25% of time to research, and having lower physical QOL. Burnout was strongly associated with both potentially problematic alcohol use (burned out 12.4% vs not burned out 4.6%, $P = .0012$) and lower career satisfaction (would choose to become a surgical oncologist again: burned out 67% vs not burned out 92%, $P < .0001$; would choose to become a physician again: burned out 53% vs not burned out 88%, $P \leq .0001$).

Characteristics of Surgical Oncologists by Age

Of the 549 surgical oncologists who responded to the survey, 367 (67%) were 50 years of age or younger. Younger surgical oncologists were less likely to have at least 3 nights on call per week (17 vs 26%; $P = .011$), less likely to travel more than 3 days per month (12 vs 19%; $P = .042$), and more likely to devote at least 25% of their time to research (32 vs 14%; $P < .0001$). There were no differences by age in the number of cases or number of hours worked per week.

Younger surgical oncologists had higher mean emotional exhaustion scores (20.5 vs 17.6; $P = .002$) and depersonalization scores (5.6 vs 4.5; $P = .0004$). Consistent with these results, younger surgical oncologists were more likely to have scores in the high range for health care professionals on the emotional exhaustion subscale (27 vs 18%; $P = .027$). Although more younger than older surgical oncologists also scored in the high range on the depersonalization subscale, this difference did not reach statistical significance (17 vs 12%; $P = .144$). Overall, younger surgical oncologists were more likely than their older counterparts to meet the criteria for burnout (31 vs 22%; $P = .029$). Younger oncologists had slightly lower mental QOL (mean score, 49.8 vs 51.5; $P = .019$), but there were no differences by age in physical QOL.

Overall, younger surgical oncologists were less likely than their older colleagues to indicate that they would choose to become a physician again (76 vs 84%; $P = .025$). However, younger surgical oncologists were just as likely as their older colleagues to indicate that they would choose to become a surgical oncologist again (86 vs 84%; $P = .666$).

Characteristics of Surgical Oncologists by Gender

Of the 549 surgical oncologists who responded to the survey, 108 (20%) were women. Women were less likely to perform at least 11 cases per week (11 vs 27%; $P = .0006$) and more likely to devote at least 25% of their time to research (34.6 vs 23.8%; $P = .023$). Although women were slightly less likely than men to work in private practice (20 vs 29%; $P = .065$) or work more than 70 hours per week (19 vs 26%; $P = .143$), these differences were not statistically significant. Women had higher mean emotional exhaustion scores (21.5 vs 19.0; $P = .019$) and were more likely to score in the high range for health care professionals on the emotional exhaustion subscale (32 vs 22%; $P = .038$). There were no differences by gender in depersonalization or personal accomplishment scores. Overall, women were more likely than men to meet the criteria for burnout (36.8 vs 26.1%; $P = .029$). Women had lower mental QOL (mean score, 48.0 vs 51.0; $P = .001$), but there were no differences in physical QOL (53.1 vs 54.0; $P = .569$) by gender.

There were no differences by gender in the proportions of respondents who stated that they would choose to become a physician again (women, 76%; men, 80%; $P = .360$) or choose to become a surgical oncologist again (women, 86%; men, 85%; $P = .855$).

Characteristics of Surgical Oncologists by Practice Setting

Of the 549 surgical oncologists who responded to the survey, 393 (72%) classified themselves as academic surgical oncologists, while 146 (27%) classified themselves as private practice surgical oncologists (10 individuals chose not to respond to the question). Private practice surgical oncologists were more likely to be on call at least 3 nights per week (29 vs 16.5%; $P = .0013$) and to perform at least 11 cases per week (48 vs 16%; $P \leq .0001$). Academic surgical oncologists were more likely to devote at least 25% of their time to research (33.3 vs 6.2%; $P < .0001$), to spend more than 3 days per month traveling for work-re-

lated purposes (17 vs 8%; $P = .004$), and to work more than 70 hours per week (28 vs 14%; $P \leq .0001$).

Despite these practice differences, there were no differences between private practice and academic physicians in mean emotional exhaustion, depersonalization, or personal accomplishment scores or the frequency of overall burnout. Similarly, there were no differences between private practice and academic physicians in symptoms of depression, potentially problematic alcohol use, or mental or physical QOL.

Overall, surgeons in private practice appeared to have lower career satisfaction: they were less likely than those in academic practice to indicate that they would choose to become a physician again (70 vs 82%; $P = .003$) or choose to become a surgical oncologist again (79 vs 87%; $P = .017$).

Characteristics of Surgical Oncologists by Hours Worked per Week

Of the 549 surgical oncologists who responded to the survey, 132 (24.1%) worked more than 70 hours per week (hereafter referred to as "longer hours"). Surgical oncologists who worked longer hours were more likely to spend more than 3 days per month traveling for work-related purposes (21 vs 12%; $P = .011$) and to devote at least 25% of time to research (21 vs 12%; $P = .011$). Although surgical oncologists who worked longer hours were more likely to be on call at least 3 nights per week (26 vs 18%; $P = .061$), this difference was not statistically significant. There was no difference by hours worked per week in the proportion of surgeons who performed at least 11 cases per week (26 vs 24%; $P = .666$).

Surgical oncologists who worked longer hours had higher mean emotional exhaustion scores (22.0 vs 18.7; $P = .033$), and there was a trend for surgical oncologists who worked longer hours to score in the high range for health care professionals on the emotional exhaustion subscale (30 vs 23%; $P = .112$). There were no differences by hours worked per week in mean depersonalization scores, frequency of burnout, symptoms of depression, potentially problematic alcohol use, or mean mental or physical QOL scores.

There were no differences by hours worked in the proportion of respondents who stated that they would choose to become a physician again (longer hours, 80%; shorter hours, 79%; $P = .799$) or choose to become a surgical oncologist again (longer hours, 88%; shorter hours, 85%; $P = .350$).

TABLE 4. Factors independently associated with burnout, potentially problematic alcohol use, and satisfaction with career choice among the 549 members of the Society of Surgical Oncology who participated in the survey study

Characteristic and associated factors	Odds ratio	95% CI	P value
Emotional exhaustion			
< 25% time devoted to research	3.2	1.8–5.7	.0001
Lower physical QOL	2.6	1.6–4.2	< .0001
Age \leq 50 years	2.2	1.3–3.6	.0025
Depersonalization			
Performing \geq 11 cases/week	2.0	1.2–3.4	.0102
Low personal accomplishment			
Lower physical QOL	3.9	2.1–7.4	< .0001
Overall burnout			
< 25% time devoted to research	2.5	1.5–4.1	.0006
Lower physical QOL	2.4	1.5–3.8	.0001
Age \leq 50 years	2.0	1.3–3.1	.0028
Potentially problematic alcohol use			
Positive depression screen	7.6	3.5–16.5	< .0001
\geq 25% time devoted to research	2.5	1.2–5.3	.0175
Specialty choice (surgical oncology) ^a			
Overall burnout	4.4	2.4–7.8	< .0001
Lower physical QOL	2.3	1.3–4.2	.0044
Positive depression screen	1.8	1.0–3.3	.0436
Career choice (being a physician) ^a			
Overall burnout	4.7	2.8–7.7	< .0001
Positive depression screen	2.3	1.4–3.8	.0012

CI, confidence interval.

^a Factors shown are those associated with decreased career satisfaction.

Multivariate Analysis of Factors Associated with Burnout, Alcohol Use, and Career Satisfaction

Factors independently associated with burnout, potentially problematic alcohol use, and career satisfaction on multivariate analysis are shown in Table 4. Factors associated with higher degrees of emotional exhaustion were devoting less than 25% of time to research, having lower physical QOL, and being 50 years of age or younger. The only factor associated with higher depersonalization was performing at least 11 cases per week. The only factor associated with a low sense of personal accomplishment was lower physical QOL. Factors associated with a higher overall risk of burnout were devoting less than 25% of time to research, having lower physical QOL, and being 50 years of age or younger.

Factors associated with potentially problematic alcohol use were screening positive for depression and devoting at least 25% of time to research. Being burned out and screening positive for depression were associated with low satisfaction with both specialty choice (surgical oncology) and career choice (physician). Having lower physical QOL was also associated with lower satisfaction with specialty choice (surgical oncology). Burnout was a stronger predictor

than screening positive for depression in all models of low career satisfaction.

DISCUSSION

We report here the results of a national study of practice patterns, burnout, distress, and satisfaction with career choice among surgical oncologists who were members of the SSO. To our knowledge, this study is the largest study to date to focus on burnout among surgeons working in a single surgical discipline²⁴ and is similar in size to the only other large study of burnout among surgeons of which we are aware, which focused on graduates of the University of Michigan.²⁵ As hypothesized wide variation in QOL and burnout was observed among the surgical oncologists studied. Previous research suggests a dose response relationship between measures of burnout and report of suboptimal patient care practices by physicians.^{20,26} This research suggests that each 1 point change on all three burnout subscales is associated with a 7–10% increase risk of physician reported medical error in the following 3 months,²⁶ suggesting the variation observed in the present study is clinically meaningful.

We found that the overwhelming majority of respondents were satisfied with both their choice of career and their choice of specialty. However, we also found that burnout was common. The rate of burnout among surgical oncologists in our study was similar to that observed in the University of Michigan series, which was heavily weighted toward general surgeons and included only three surgical oncologists.²⁵ Consistent with the University of Michigan study, we found that burnout was more common among younger surgical oncologists²⁵ and those who spent more of their time focused on clinical care (<25% of time devoted to research). We also found that burnout was more common among respondents with lower physical QOL. Notably, burnout was the strongest predictor of low satisfaction with career and specialty choice on multivariate analysis and was nearly twice as powerful a predictor as screening positive for depression in both models.

Despite the relationship between burnout and increased time devoted to clinical care, we found no association between burnout and hours worked per week, case load, number of nights on call per week, practice setting (academic vs private practice), or number of days of work-related travel per month on multivariate analysis. The University of Michigan study of surgeons in a variety of disciplines also

found no relationship between caseload and burnout.²⁵ Our findings underscore that burnout is a potential problem for surgeons in both academic and private practice and with a variety of practice patterns. Although we found that the number of hours worked was not an independent predictor of burnout on multivariate analysis, it should be noted that 89% of the responding surgical oncologists worked more than 50 hours per week and more than 60% worked more than 60 hours per week. In comparison, the United States Bureau of Labor reports that Americans on average work only 34.5 hours per week.²⁷ The nearly uniformly long hours worked by SSO members may have limited our ability to evaluate the relationship between hours worked and burnout.

A number of studies have explored the potential causes of physician burnout. Some have suggested that commitment to patients, attention to detail, and recognizing the responsibility associated with patients' trust—the very traits that define a good surgical oncologist—also place physicians at greater risk for burnout.²⁸ A mentality that puts personal life on hold during medical school, residency, and fellowship training^{20,29} in turn appears to foster a mentality of delayed gratification that many physicians carry with them into practice.^{10,11,30} The outcome of this mentality is that many physicians who were “hoping to reclaim” their personal life after completing fellowship find themselves delaying this task ever further into the future (e.g., until after establishing their practice, until after becoming an associate professor, etc.). This can lead many physicians to put their personal life on hold right up to the time of their retirement.¹⁰

These observations suggest the roots of surgeon burnout may have their origin early in the training process. Current medical students, residents, and fellows are the future of surgical oncology. Toward this end, we are obligated to design systematic interventions to help future surgeons both recognize and prevent burnout so that they can maintain resilience through the course of their career. In this regard, the critical importance of positive mentorship cannot be underestimated for mid and later level clinicians and faculty, but early on for our medical students and trainees.

One aspect of our study that should be emphasized is that the overwhelming majority of surgical oncologists participating in this survey had a high sense of personal accomplishment and indicated that they would become a surgical oncologist again if given the choice. These findings should be reinforced to individuals considering a career in surgical oncology as

part of efforts to attract the best medical students, residents, and fellows to the field. However, nearly a third of surgical oncologists participating in this study exhibited burnout, and the frequency of burnout was higher among younger surgical oncologists. Our findings that burnout was associated with devoting less than 25% of one's time to research and having lower QOL may serve as motivation to program directors and department chairs to attempt to reduce burnout among their faculty by providing opportunities for research and encouraging faculty to be attentive to their physical health (e.g., maintaining fitness, establishing a primary care physician, staying current with recommended health care maintenance measures, etc.).

Until the 1990s, surgery and surgical specialties were male dominated. One particularly disturbing finding of our survey was that women were more likely than men to have burnout (37 vs 26%; $P = .031$). This is concerning as individuals experiencing burnout may be at risk for leaving the profession. These results are consistent with the results of a large study of 4501 U.S. women physicians, which found that although 84% of respondents were generally satisfied with their careers, 31% would probably not choose a career in medicine again.²¹ In that study, among women who were general surgeons ($n = 42$), only 58% reported career satisfaction. Alarming, the results were even worse for women in surgical subspecialties ($n = 91$), only 47% of whom reported career satisfaction and 36% of whom indicated that they would probably not choose a career in medicine again. Given that these individuals are the role models, mentors, and career counselors for the next generation of professional women, this dissatisfaction with career and specialty choice may have adverse consequences for attracting talented women to the field of surgical oncology in the future. One potential source of increased professional stress and burnout in woman physicians is the challenge of effectively balancing multiple roles and the additional burden of having to take time off for delivery and care of children. The causes of increased rates of burnout among women, however, may not be so simple. Frank et al. reported in 2000 that the career satisfaction and mental health of women physicians were not adversely affected by time spent on domestic activities such as child care, cooking, and house work.³¹ Similarly, a large Canadian study of women surgeons reported in 1993 found that only 12% of women respondents were dissatisfied with role conflict between home and career.³² Frank et al. concluded that women physicians increased career

satisfaction by evaluating and decreasing work-related stress and eliminating potential sources of harassment.^{21,31}

There is a new and flourishing field in behavioral science called "positive psychology."^{33,34} The terminology at first glance may sound simplistic, but positive psychology is a legitimate scientific field together with university academic training programs and appropriately thought out controlled and randomized clinical trials. Researchers in the field of positive psychology believe that one key to "happiness" is to use our native strengths or learned abilities to be in the service of something bigger than ourselves—for example, to use our talents to increase knowledge and understanding and to pursue activities that result in goodness to fellow beings.³⁴ Viewed in this framework, the practice of medicine and the work of surgical oncologists and cancer researchers should provide opportunities for a great deal of meaning and satisfaction for surgical oncologists. This might explain, in part, the high rate of personal accomplishment and career satisfaction among our study participants as well as the fact that the overwhelming majority of study participants stated that they would choose to practice in the field of surgical oncology again if given the choice. The field of positive psychology considers those who live a "full life" to not only have meaning in life but also consistently integrate positive emotions (pleasant components of life) and engage in other gratifying activities to make life itself "worth living."^{33,34}

Our study has several important limitations. Although the response rate in this study was similar to response rates for other physician-related surveys, response bias remains a possibility.³⁵ It is difficult to predict whether surgical oncologists with burnout would be more or less likely to participate in such a survey. Burned out SSO members might be more apathetic and less likely to participate; alternatively, burned-out SSO members might have a greater interest in the survey topic and be more likely to participate. Several studies, however, have failed to identify any statistically significant differences in the data obtained from responding and nonresponding physicians in cross-sectional surveys,³⁵ implying that respondents and nonrespondents are similar. Another potential limitation of our study is that we could not assess surgical oncologists who have actually left the field—individuals who might have exhibited an even higher rate of burnout. Finally, our study is limited by its cross-sectional design, which limited us to evaluation of associations between

TABLE 5. Potential methods for Surgical Oncologists to maintain personal wellness and increase both personal and professional satisfaction

<i>Maintaining career satisfaction</i>
Engage in clinical or translational research
Make time for work-related travel
<i>Maintaining personal wellness</i>
Relationships
Protect time to spend with significant others
Spiritual practices
Nurture spiritual aspects of self and cultivate interests that are personally joyous and emotionally satisfying
Attitudes
Find meaning in work and personal endeavors and focus on aspects of life that are emotionally positive and that you are grateful for
Physical and mental well-being
Get proper exercise, sleep, nutrition, and medical care, and seek professional counseling when needed.
Strive to maintain balance between professional life and personal life

burnout and various personal and practice factors rather than determination of cause and effect.

The findings of our study have important implications. Increasing evidence suggests that physician burnout influences the quality of care physicians provide^{20,26,36,37} and can contribute to medical errors.^{20,26} These findings underscore the importance of burnout not only to physicians but to academic medical centers, practice administrators, and health maintenance organizations. A number of specific organizational responses to address physician distress and burnout have been suggested.³⁸ Strategies individual physicians and surgeons can take to promote their own well-being have also been proposed.^{30,38} Strategies that may help increase wellness for individual surgical oncologists include participating in research, continuing educational activities outside of work, and paying particular attention to important personal relationships, spiritual practices, recognizing the importance of one's work, cultivating personal interests outside of work, and creating a balance between personal and professional life (Table 5).¹¹ Additional research is needed to provide evidence-based interventions at both the individual and organizational level to reduce burnout and enhance productivity.

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