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ORIGINAL ARTICLE – BREAST ONCOLOGY

Assessing Burnout and Professional Fulfillment in Breast Surgery: Results From a National Survey of the American Society of Breast Surgeons

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ABSTRACT

Background. Physician burnout is a well-recognized problem in health care that has a negative impact on professional well-being and quality of patient care. Rates of burnout in breast surgery are not well-defined. This study sought to understand the degree of burnout among breast surgeons and to identify factors that influence professional fulfillment.

Methods. All U.S. members of the American Society of Breast Surgeons with a valid email address were surveyed in October 2017. The results were anonymous, and the participants were blinded to the study hypothesis. The survey included 30 questions (16-item Professional Fulfillment Index [PFI] and 14-item demographics/practice patterns). Multivariable linear regressions were performed to assess overall burnout and high professional fulfillment.

Results. Of the 2568 surveys delivered, 708 surveys were initiated, and 660 were completed. Among breast surgeons, 270 (41.3%) expressed burnout, whereas 281 (42.5%) reported high professional fulfillment. In the multivariable analysis, years in practice was inversely associated with burnout and positively correlated with professional fulfillment. Working more than 60 h per week was positively associated with burnout, and having more than 50% of practice dedicated to breast surgery correlated positively with fulfillment.

Conclusion. Approximately 4 of 10 breast surgeons have symptoms of burnout, whereas 4 of 10 surgeons report high professional fulfillment. Specific clinical practice conditions largely influence rates of burnout and professional fulfillment. The contributing factors identified in the study analysis may be useful in identifying breast surgeons at higher risk for burnout. The study findings also help to inform the design of interventions focused on the clinical practice environment to promote professional fulfillment and sustainability.

Physician burnout has been recognized as a significant problem that not only has a negative impact on individual well-being,[1] but also decreases the quality of patient care.[2–5] Studies have identified an association between burnout and reduced professional satisfaction, increased rates of depression, divorce, substance abuse, and suicide.[6,7] Professionally, burnout has been demonstrated to increase the risk of medical errors and the rate of adverse patient safety events.[8,9] Furthermore, patient satisfaction, clinical productivity, and physician turnover all are compromised by higher rates of physician burnout.[10–12] Given these observed adverse associations, physician burnout becomes an important issue to address in order to improve quality of patient care and to achieve professional fulfillment.

The rate of burnout has increased nationally across a wide range of clinical specialties and practice settings.[13] Often, a variety of individual and workplace factors are contributing to physician burnout. Common causes attributed to this phenomenon include increasing demands for clinical productivity, loss of professional autonomy, and increasing administrative burdens (e.g., electronic health

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record).[14] Burnout can be defined by the characterization of emotional exhaustion, depersonalization, and feeling of low personal fulfillment.

Glen Gabbard, Professor of Psychiatry at Baylor, describes burnout as an "erosion of the soul caused by deterioration of one's values, dignity, spirit, and will… joyless striving." The manifestations of burnout typically progress from a growing cynicism and frustration to a decrease in clinical performance as well as irritability, anger, withdrawal, and ultimately, an inability to deliver adequate care, which may result in a loss of hospital privileges, suspended license, or worse.

The signs and effects of burnout may build gradually over time, making it harder for an individual to recognize them when present. Addressing this issue of physician burnout is important, but bringing about change often is difficult.[2]

Physicians who treat patients with cancer may be especially at risk for burnout, which in turn may negatively affect an especially vulnerable patient population.[3,4] Findings have previously shown that nearly one-third of surgical oncologists experience burnout despite their reported high level of career satisfaction.[15]

Previously published studies have compared quality of life, burnout, and career satisfaction among surgical oncologists and other surgical specialties.[16–18] Although these studies have brought us closer to understanding the patterns contributing to burnout among distinct groups of surgeons, rates of professional burnout specifically in breast surgery have not been independently assessed to date. Furthermore, there is a paucity of evidence for which system-based or individual components may prevent or mitigate the effects of physician burnout in breast surgeons specifically. This study sought to understand better the degree of burnout and professional fulfillment among breast surgeons, and to identify factors that contribute to the rates observed.

METHODS AND STATISTICS

Participants

All U.S. members of the American Society of Breast Surgeons (ASBrS) with a valid email address (2568 surgeon members) were surveyed in October 2017. The results were anonymous, and the participants were blinded to the study hypothesis. The survey included 30 questions pertaining to demographic characteristics and practice patterns (14 items) and the 16-item Professional Fulfillment Index (PFI).

The PFI is a validated instrument for assessing physicians' professional fulfillment and burnout (i.e., emotional exhaustion and interpersonal disengagement).[1] The tool was developed to meet the need for a more practical, robust, and balanced approach to assessment of wellness variables relevant to physicians. The PFI focuses on both the negative aspects (i.e., burnout) and the positive aspects (i.e., professional fulfillment) of the role and work of physicians.

Multivariable linear regressions were performed for overall burnout and professional fulfillment. All U.S. members of the ASBrS with valid email addresses on file were eligible for the study. The survey was created in REDcap, a secure web application for building and managing online surveys and databases, and distributed electronically. The study was approved by the ASBrS and our Institutional Review Board (IRB).

Data Collection

Surveys were sent to 2568 U.S. surgeon members via email in October 2017. Two email reminders were sent before the survey was closed. The results were anonymous, and the participants were blinded to the study hypothesis. The survey included 30 questions pertaining to demographic characteristics/practice patterns and the 16-item Professional Fulfillment Index (PFI). Six items pertained to fulfillment, and 10 items pertained to burnout. Of the burnout items, four assessed work exhaustion, and 6 assessed interpersonal disengagement.[1]

Data Analysis

Professional fulfillment and burnout (work exhaustion and interpersonal disengagement) were assessed based on the PFI as previously published.[1]. The mean ± SD were calculated for each of the three PFI scales, with each item having a scale range of 0–4. Overall level of burnout was based on a combination of the work exhaustion burnout subscale and the interpersonal disengagement burnout subscale. The presence of high professional fulfillment was set at a score of 3 or greater, and the presence of overall burnout was set at 1.33 or greater, as previously published.[1] Cronbach's alpha was calculated for each PFI scale to estimate reliability.

Not all the participants completed every question in the survey. Data from incomplete surveys were included in the analysis of the professional fulfillment and overall burnout scores where items were reported. Multivariable linear regressions were performed for overall burnout and high

professional fulfillment. Age was known in only 533 of the surveys, so it was excluded from the multivariable analysis. Only complete surveys, except for age, were included in the multivariable analysis. Adjusted analysis was used to account for potentially confounding variables in the model. Both unadjusted and adjusted outcomes are reported.

RESULTS

Respondent Characteristics

Of the 2568 surveys delivered, 708 surveys were initiated, and 660 were completed. The study excluded respondents who reported that they were no longer in practice or retired, leaving a total of 657 surveys included in the analysis.

The mean age of the surgeons was 51.5 years (range, 33–76 years) (Table 1). In terms of gender, 68.6% of the participants were women, 30.4% were men, and 0.8% had gender unreported. The majority of the surgeons (86.4%) were partnered, whereas 13% were single, and 0.6% provided no answer. Answers were not mutually exclusive.

Approximately half of all the respondents practiced in a private setting (51.7%), with 30.7% working in an academic medical center, 10.1% employed by a hospital, and 7.5% working in other practice types. The size of the practice community varied, with 44.3% practicing in a population of 500,001 or more, 32.7% practicing in a population of 100,001–500,000, 22.6% practicing in a population smaller than 100,000, and 0.3% unreported. The surgeons' mean time in practice was 18.5 years (range, 1–47 years; standard deviation [SD], 10.4). Nearly half of all the surgeons worked 40–60 h per week (47.4%), with 35.2% working 60–80 h per week, 9.8% working more than 80 h per week, 6.9% working less than 40 h per week, and 0.8% working an unknown number of hours per week. The median time worked per week was 5 days. The surgeons reported spending a median of 80% of their work hours on patient care, less than 1% of their hours on research, 5% of their hours on teaching/education, and 10% of their hours on administrative duties.

The majority of the surgeons indicated having a full-time breast surgery practice (64.8%), with 14.1% dedicating most of their time to performing breast surgery, 20.6% dedicating half of their time or less, and 0.5% remaining unknown. Of those who dedicated less than full time to

TABLE 1 Respondent characteristics (n = 657) n (%)

Mean age (years)[a]	51.5 ± 9.8
Gender	
Female	450 (68.8)
Male	199 (30.4)
Unreported	5 (0.8)
Relationship status	
Single	85 (13.0)
Partnered	565 (86.4)
Unreported	4 (0.6)
Practice setting	
Private practice	338 (51.7)
Academic medical center	201 (30.7)
Hospital-based	66 (10.1)
Other	49 (7.5)
Practice community size	
≤ 100,000	148 (22.6)
100,001–500,000	214 (32.7)
≥ 500,001	290 (44.3)
Unknown	2 (0.3)
Mean years in practice	18.5 ± 10.4
Hours worked per week	
< 40	45 (6.9)
40–60	310 (47.4)
60–80	230 (35.2)
> 80	64 (9.8)
Unknown	5 (0.8)
Median days worked per week: $q1$–$q3$ (range)	5 (5–6)
Median % work hours spent: $q1$–$q3$ (range)	
Patient care	80 (70–90)
Research	0 (0–5)
Teaching/education	5 (0–10)
Administrative tasks	10 (5–20)
Extent of practice dedicated to breast surgery	
Full-time	424 (64.8)
Most of my time	92 (14.1)
Half or less of my time	135 (20.6)
Unknown	3 (0.5)
Other surgical specialty practiced[b]	
General surgery	183 (75.3)
Surgical oncology	50 (20.6)
Plastic surgery	3 (1.2)
Other	7 (2.9)

[a]Missing 125

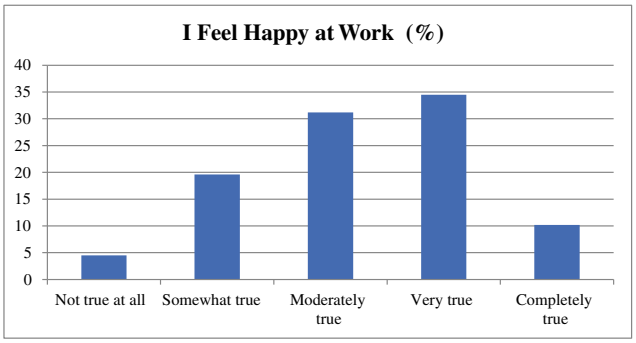
[b]Asked only when extent of time dedicated to breast surgery was less than full-time (n = 227) (check all that apply)

breast surgery, 75.3% practiced general surgery, 20.6% practiced surgical oncology, 1.2% practiced plastic surgery, and 2.9% practiced another specialty.

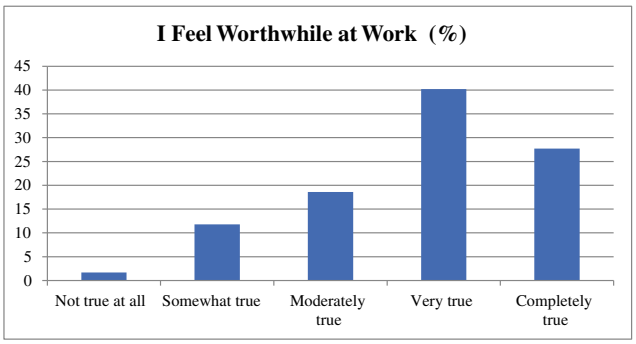
Professional Fulfillment

The mean professional fulfillment score was 2.67 on a scale of 0–4 (SD, 0.82, Cronbach's $\alpha = 0.9$). Given a score of 3 or higher as criteria for high professional fulfillment, 281 (42.5%) breast surgeons reported having professional fulfillment. Individual items of the professional fulfillment survey are shown in Fig. 1.

(a) I feel happy at work (n=695)



(b) I feel worthwhile at work (n=694)



(c) My work is satisfying me

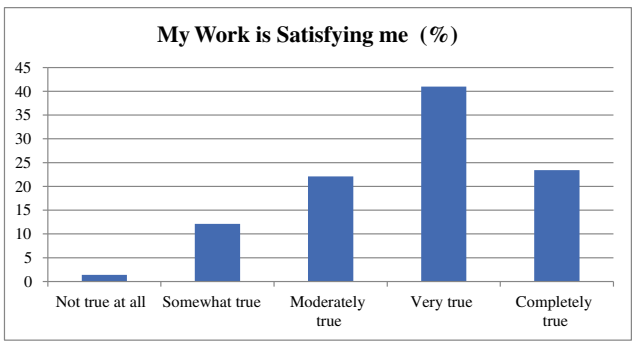
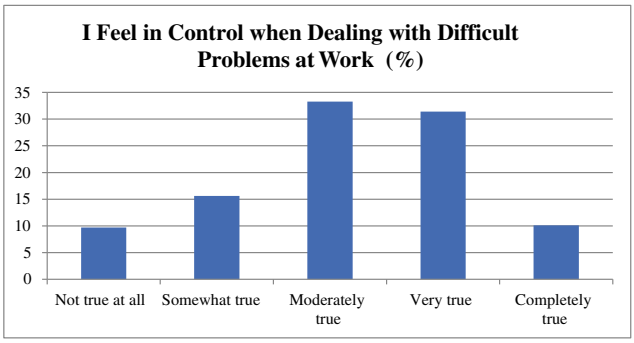
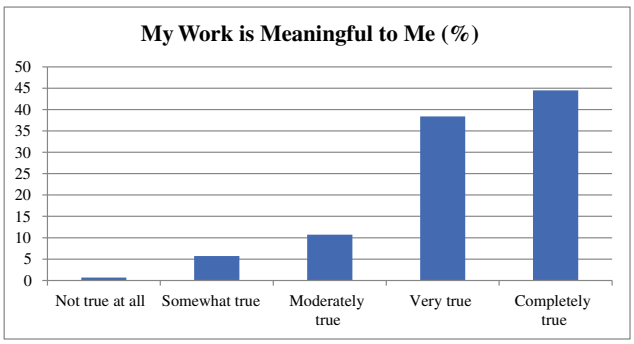


FIG. 1 Professional Fulfillment Survey

(d) I feel in control when dealing with difficult problems at work (n=694)



(e) My work is meaningful to me (n=690)



(f) I'm contributing professionally (e.g. patient care, teaching, research, and leadership) in the ways I value most (n=695)

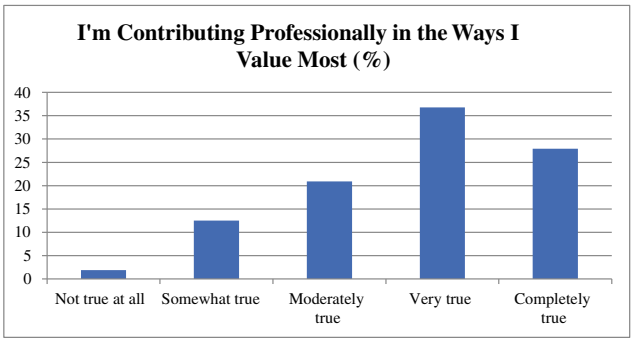
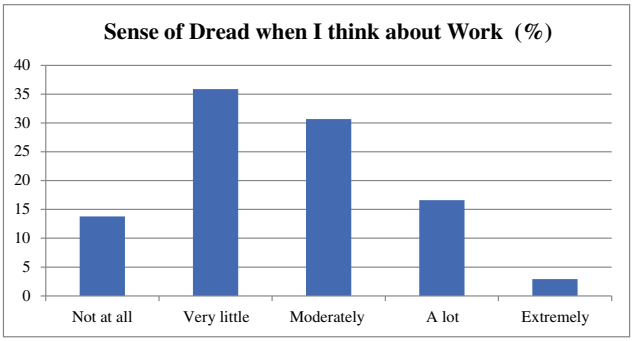


FIG. 1 continued

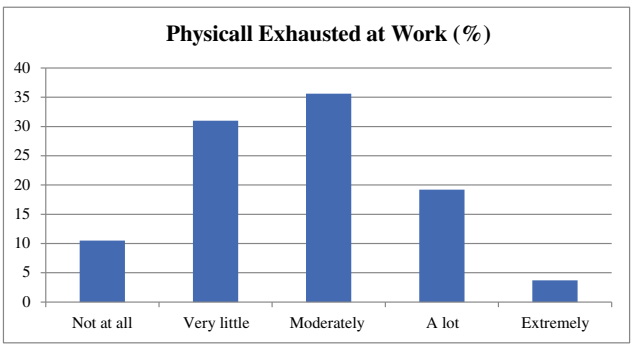
Burnout Analysis

The work exhaustion burnout subscale mean was 1.61 ± 0.86 (Cronbach's $\alpha = 0.87$). The interpersonal disengagement burnout subscale mean was 1.02 ± 0.75 (Cronbach's $\alpha = 0.90$). The mean overall burnout (combination of work exhaustion and interpersonal disengagement subscales) was 1.25 ± 0.73 (Cronbach's $\alpha = 0.92$). Overall, 270 surgeons (41.3%) experienced evidence of burnout. Individual items of the burnout survey are shown in Figs. 2 and 3.

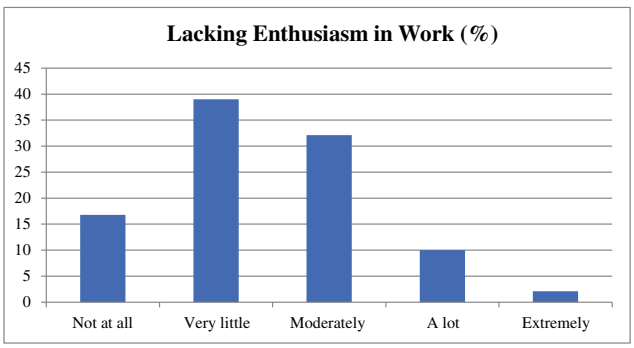
(a) A sense of dread when I think about work I have to do (n=680)



(b) Physically exhausted at work (n=677)



(c) Lacking enthusiasm in work (n=679)



(d) Emotionally exhausted at work (n=677)

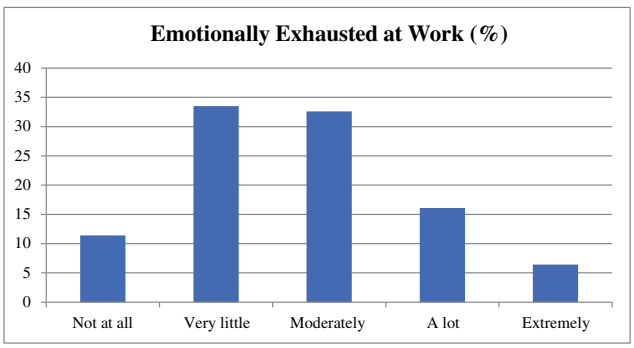
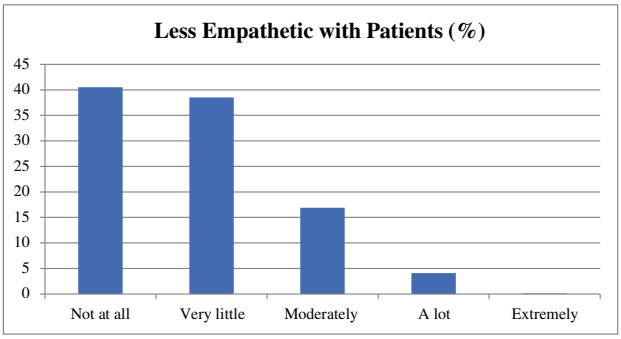
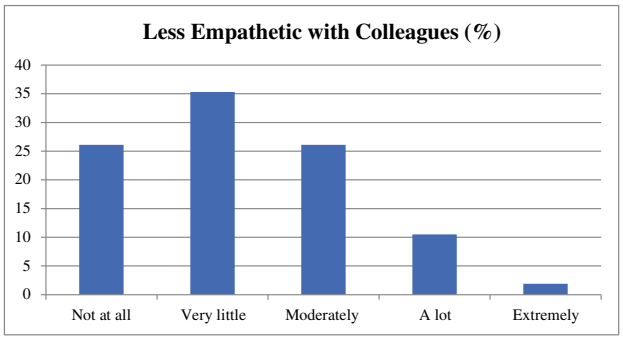


FIG. 2 Burnout Survey: Emotional Exhaustion

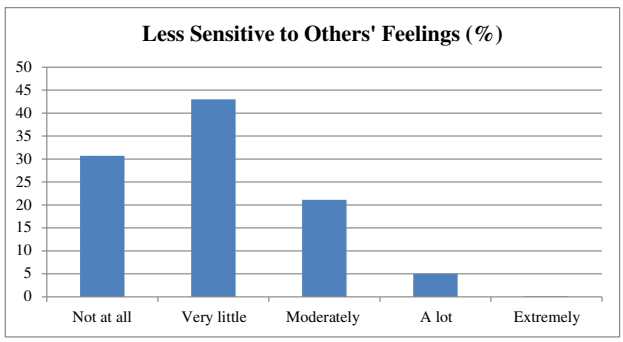
(a) Less empathetic with my patients (n=676)



(b) Less empathetic with my colleagues (n=677)



(c) Less sensitive to others' feelings/emotions (n=677)



(d) Less interested in talking with my patients (n=676)

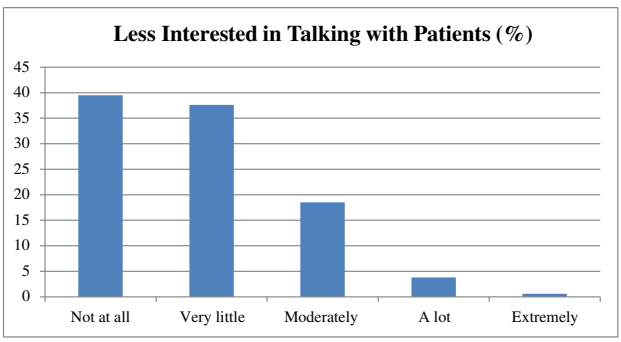
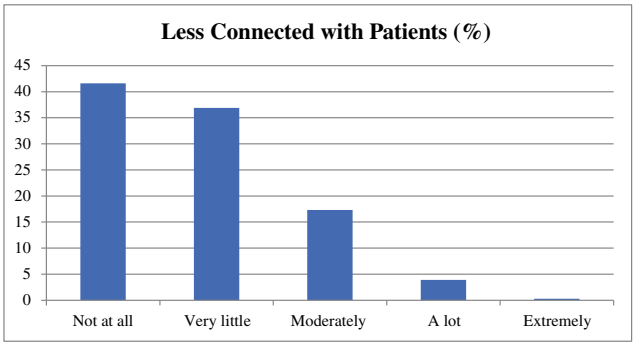


FIG. 3 Burnout Survey: InterpersonalDisengagement

(e) Less connected with my patients (n=675)



(f) Less connected with my colleagues (n=675)

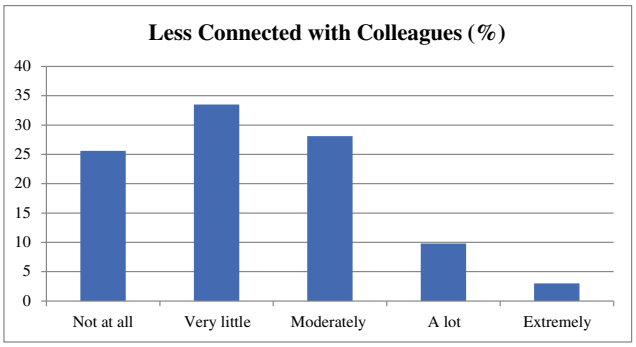


FIG. 3 continued

Multivariable Analysis

Only 100% complete surveys (except for age, which was excluded) were analyzed in the multivariable analysis (n = 628). Years in practice, gender, relationship status, practice settings, practice community size, hours worked per week, and extent of time dedicated to breast surgery were included in the multivariable analyses for both overall burnout and professional fulfillment.

For overall burnout (Table 2), years in practice were negatively associated with burnout in both the unadjusted and adjusted analyses, meaning that the overall burnout score decreased as the number of years in practice increased. Female gender was positively associated with burnout in the unadjusted but not the adjusted analysis. A work week of more than 60 h was positively associated with burnout in both the unadjusted and adjusted analyses. Having a practice 50% or less dedicated to breast surgery was positively associated with overall burnout in the unadjusted but not the adjusted analysis.

A multivariable analysis of factors contributing to professional fulfillment also was performed (Table 3). Years in practice was positively correlated with professional fulfillment. Single status was negatively associated with professional fulfillment in the unadjusted but not the adjusted analysis. Practice size communities of 500,001 or larger were positively correlated with professional fulfillment in the adjusted but not the unadjusted analysis. Being in a practice 50% or less dedicated to breast surgery negatively correlated with having high professional fulfillment in both the unadjusted and adjusted analyses.

DISCUSSION

Physician burnout continues to be a significant quality issue in U.S. health care, with both personal and professional implications. We characterized levels of burnout and professional fulfillment among U.S. breast surgeons and identified specific clinical practice and individual conditions influencing these observed rates.

Our study identified specific factors associated with burnout among breast surgeons. Except for years in practice, the factors contributing to burnout and professional fulfillment were largely distinct. In the multivariable analysis, an average work week longer than 60 h was associated with burnout. In contrast, professional fulfillment correlated with practicing in a larger community and having a practice dedicated to breast surgery. Interestingly, unlike professional fulfillment, burnout was not affected by practice community size or extent of practice dedicated to breast surgery. Likewise, professional fulfillment, unlike burnout, was not affected by hours worked. This indicates that the determinants of burnout and professional fulfillment may not be completely uniform, with each influenced by different factors. Notably, our study did not find any association with gender, relationship status, or practice setting.

The lower rates of burnout and greater professional fulfillment among surgeons who have been in practice longer may be attributable to the benefit of seniority these surgeons have, with fewer on-call duties, better administrative support, more opportunity to reduce work hours voluntarily, and greater experience dealing with difficult clinical decisions and the demands of a busy practice. Their seniority also may allow them to tailor their practice better, focusing on what they find most meaningful.[19,20] This finding also may indicate selection bias because surgeons experiencing the highest levels of burnout and low professional fulfillment may leave clinical medicine early for other career opportunities.

Longer hours worked per week previously has been associated with burnout in physicians,[4,21–23] with reports attesting the integration of work life with burnout. Having little control over the number of hours worked and patients seen can result in a sense of powerlessness often associated with physical and psychological distress. Reducing working hours may help surgeons prevent or recover from

TABLE 2 Multivariable analysis of factors contributing to overall burnout (n = 628)

Predictors	Unadjusted β (95% CI)	p Value	Adjusted β (95% CI)	p Value
Years in practice	− 0.012 (− 0.018 to 0.0070)	< 0.001	− 0.013 (− 0.018 to − 0.0066)	< 0.001
Gender				
Female	0.13 (0.0029 to 0.25)	0.045	0.088 (− 0.052 to 0.23)	0.22
Male (ref)	–	–	–	–
Relationship status				
Single	0.14 (− 0.029 to 0.31)	0.11	0.086 (− 0.083 to 0.26)	0.32
Partnered (ref)	–	–	–	–
Practice setting				
Private practice	− 0.033 (− 0.16 to 0.097)	0.61	0.041 (− 0.092 to 0.17)	0.55
Academic medical center (ref)	–	–	–	–
Hospital-based	− 0.04 (− 0.25 to 0.17)	0.69	0.019 (− 0.19 to 0.22)	0.86
Other	0.035 (− 0.20 to 0.27)	0.77	0.15 (− 0.08 to 0.38)	0.21
Practice community size				
≤ 100,000 (ref)	–	–	–	–
100,001–500,000	− 0.082 (− 0.24 to 0.073)	0.30	− 0.12 (− 0.27 to 0.035)	0.13
≥ 500,001	− 0.023 (− 0.17 to 0.12)	0.76	− 0.077 (− 0.23 to 0.07)	0.31
Hours worked/week				
< 40 (ref)	–	–	–	–
40–60	0.26 (0.032 to 0.48)	0.025	0.20 (− 0.026 to 0.43)	0.08
60–80	0.53 (0.30 to 0.76)	< 0.001	0.49 (0.26 to 0.72)	< 0.001
> 80	0.47 (0.19 to 0.74)	< 0.001	0.46 (0.18 to 0.74)	0.001
Extent of time dedicated to breast surgery				
Full-time (ref)	–	–	–	–
Most	− 0.047 (− 0.21 to 0.12)	0.58	0.0056 (− 0.16 to 0.18)	0.94
Half or less	0.15 (0.0032 to 0.29)	0.045	0.10 (− 0.049 to 0.26)	0.18

Adjusted R^2 = 0.077

CI confidence interval

burnout, but many physicians may find this to be a challenging option due to practical considerations. However, physicians traditionally have worked long hours, but many of these hours currently are perceived as being spent addressing clerical tasks that provide little direct value to patient care.[22] Perhaps an alternative to reducing hours is to allocate more of physicians' time to direct patient care activities. Having adequate administrative support and using scope of practice/top of license practicing can facilitate this aim.

Similar to other studies, we observed lower rates of professional satisfaction among surgeons working in small or rural communities compared with those for surgeons in larger urban areas.[24–28] Professional dissatisfaction and attrition are commonly reported in rural practice settings. This may be due to having limited resources, fewer opportunities for professional support, greater demand on time, and other unique challenges for physicians working in smaller communities compared with urban areas that have larger practice communities. Interestingly, in contrast to this finding, a recent study observed lower rates of burnout in small, independent practices in the United States.[14] It should be noted that our study did not examine practice size, which may be unrelated to the size of the practice community.

Professional fulfillment was associated with surgeons in practices that dedicate a majority of time to breast surgery. Because the physicians in the sample categorize themselves as breast surgeons, it is reasonable to assume that breast surgeons in practices that allow them to focus predominately on their chosen area of specialty would report greater professional satisfaction. The autonomy to pursue one's interests and expertise is a vital component of professional fulfillment.[20]

Our findings naturally lead to the question of how we can help breast surgeons at risk of burnout and low professional fulfillment. Because burnout can adversely affect the quality and safety of patient care, also leading to physician depression, fatigue, and other adverse outcomes,[29–32] it becomes important for us to identify those at

TABLE 3 Multivariable analysis of factors contributing to professional fulfillment

Predictors	Unadjusted β (95% CI)	p Value	Adjusted β (95% CI)	p Value
Years in practice	0.0095 (0.0033 to 0.016)	0.0029	0.01 (0.0034 to 0.017)	0.0036
Gender				
Female	− 0.12 (− 0.26 to 0.022)	0.099	− 0.12 (− 0.28 to 0.042)	0.15
Male (ref)	–	–	–	–
Relationship status				
Single	− 0.20 (− 0.40 to − 0.011)	0.039	− 0.18 (− 0.38 to 0.013)	0.067
Partnered (ref)	–	–	–	–
Practice setting				
Private practice	0.012 (− 0.13 to 0.16)	0.88	0.011 (− 0.14 to 0.16)	0.89
Academic medical center (ref)	–	–	–	–
Hospital-based	0.099 (− 0.14 to 0.34)	0.41	0.11 (− 0.13 to 0.35)	0.36
Other	− 0.041 (− 0.31 to 0.22)	0.76	− 0.04 (− 0.31 to 0.23)	0.76
Practice community size				
≤ 100,000 (ref)	–	–	–	–
100,001–500,000	0.15 (− 0.026 to 0.32)	0.096	0.17 (− 0.0068 to 0.35)	0.059
≥ 500,001	0.16 (− 0.0053 to 0.33)	0.058	0.19 (0.013 to 0.36)	0.036
Hours worked/week				
< 40 (ref)	–	–	–	–
40–60	− 0.054 (− 0.31 to 0.21)	0.67	− 0.00020 (− 0.26 to 0.26)	0.99
60–80	− 0.19 (− 0.45 to 0.080)	0.17	− 0.13 (− 0.40 to 0.14)	0.36
> 80	− 0.24 (− 0.56 to 0.079)	0.14	− 0.19 (− 0.51 to 0.13)	0.25
Extent of time dedicated to breast surgery				
Full-time (ref)	–	–	–	–
Most	− 0.085 (− 0.27 to 0.10)	0.38	− 0.15 (− 0.34 to 0.050)	0.14
Half or less	− 0.23 (− 0.40 to − 0.073)	0.0045	− 0.23 (− 0.40 to − 0.048)	0.013

Adjusted R^2 = 0.036

CI confidence interval

risk of burnout and establish methods of prevention and intervention. Previous studies have suggested that personal stress management interventions are minimally effective in affecting burnout[33,34] and that effective measures must include organizational changes beyond the individual physician.[35–37] An organization's investment in reducing burnout and improving physician well-being should include leadership accountability, allowing physician well-being to influence important hospital decisions, designating programs centered around physician well-being, and developing a shared culture of wellness.[38]

Physicians and hospitals can work together in making structural changes to reduce breast surgeon burnout. Surgeons can be provided more administrative support to decrease clerical burdens and hours spent on work unrelated to direct patient care. Local programs that routinely assess burnout, create venues for mutual support, and implement system-based interventions to prevent burnout have demonstrated success.[38,39] Furthermore, steps can be taken by professional societies to raise awareness and advocacy for physician burnout and provide resources that help improve practice conditions and ensure personal support for their membership.[40] It is important for breast surgeons to take action collectively and work with hospital leadership and administrators to put systems in place to combat breast surgeon burnout.

CONCLUSION

In summary, approximately 4 of 10 U.S. breast surgeons have symptoms of burnout, whereas 4 of 10 have high professional fulfillment. Organization- and system-level efforts should focus on shifting this ratio in favor of professional fulfillment. Our data suggest that clinical practice conditions largely influence rates of burnout and professional fulfillment. The factors identified in our analysis may be useful in identifying breast surgeons particularly at risk for burnout. Ultimately, this information may help in

designing targeted interventions focused on the clinical practice environment to promote professional sustainability.

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