Surgical Endoscopy
https://doi.org/10.1007/s00464-023-10135-5

2023 SAGES ORAL

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Factors influencing surgeon well-being: qualitatively exploring the joy of surgery

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Received: 1 April 2023 / Accepted: 8 May 2023
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Abstract

Background There has been considerable research into burnout but much less into how surgeons thrive and find joy. This study, conducted by the SAGES Reimagining the Practice of Surgery Task Force, explored factors influencing surgeon well-being, the eventual goal being translating findings into tangible changes to help restore the joy in surgery.

Methods This was a qualitative, descriptive study. Purposive sampling ensured representation across ages, genders, ethnicities, practice types, and geographies. Semi-structured interviews were recorded and transcribed. We coded inductively, finalized the codebook by consensus, and then constructed a thematic network. Global themes formed our conclusions; organizing themes gave additional detail. Analysis was facilitated by NVivo.

Results We interviewed 17 surgeons from the US and Canada. Total interview time was 15 hours. Our global and organizing themes were:

- Stressors (Work–life Integration, Administration-related Concerns, Time and Productivity Pressures, Operating Room Factors, and Lack of Respect).
- Satisfaction (Service, Challenge, Autonomy, Leadership, and Respect and Recognition).
- Support (Team, Personal Life, Leaders, and Institutions).
- Values (Professional and Personal).
- Suggestions (Individual, Practice, and System level).

Values, stressors, and satisfaction influenced perspectives on support. Experiences of support shaped suggestions. All participants reported stressors and satisfiers. Surgeons at all stages enjoyed operating and being of service. Supports and suggestions included compensation and infrastructure, but human resources were most critical. To experience joy, surgeons needed high-functioning clinical teams, good leaders/mentors, and supportive family/social networks.

Conclusions Our results indicated organizations could (1) better understand surgeons' values, like autonomy; (2) provide more time for satisfiers, like patient relationship building; (3) minimize stressors, like time and financial pressures; and (4) at all levels focus on (4a) building teams and leaders and (4b) giving surgeons time and space for healthy family/social lives. Next steps include developing an assessment tool for individual institutions to build "joy improvement plans" and to inform surgical associations' advocacy efforts.

Keywords Joy · Burnout · Surgeons · Workplace · Occupational stress · Work engagement

It is no secret that a major crisis in healthcare today is burnout among healthcare workers. Burnout has been described as a "syndrome of emotional exhaustion, depersonalization, and loss of a sense of personal accomplishment" [1]. Surgeons have not been immune to this epidemic. Concerns regarding burnout among surgeons have been increasing even prior to the COVID-19 pandemic, with a pre-pandemic rate exceeding 50% [2–4]. Surgical training and practice are high-stress environments, and if not well managed, they lead to errors, burnout, attrition, and health issues such as depression, suicidal ideation, and substance abuse [5].

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Surgeons have a unique relationship with their patients in part due to the direct connection between surgeon skill and complications. Stressed or burned-out physicians are, therefore, more prone to commit errors and more likely to deliver sub-standard care [6]. Complications have been shown to affect surgeons emotionally, causing adverse consequences in their professional and personal lives [7]. Beyond events such as complications, the field of surgery has seen an erosion of professional control with accompanying losses of autonomy and flexibility and increases in administrative burdens and poor work–life balance. Together, these contribute to overall job dissatisfaction [1]. It is also vital to note gender differences, as more women than men experience burnout and depressive symptoms [8], and reports vary regarding differences between trainees and faculty [9]. Burnout and decreased career satisfaction are widespread issues across most surgical specialties including general surgery [10]. With job dissatisfaction comes greater attrition; a recent study found one of the most common reasons surgical residents left a program was "uncontrollable lifestyle" [11].

Much of the research to date surrounding burnout and interventions to address it have centered on individuals and have, in retrospect, often had a tone of victim-blaming rather than addressing causal or institutional factors. Early research in particular focused on the individual as the problem, with interventions aimed at creating more resilient employees [12]. Solutions were targeted mainly toward physicians, attempting to improve coping skills, increase exercise and relaxation, encourage hobbies, and improve efficiency [12, 13]. Furthermore, research typically has focused on burnout with little to no emphasis on how surgeons thrive and what motivates joy. Consequently, the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) created a task force entitled Reimaging the Practice of Surgery (RPS) to move beyond burnout and identify strategies that promote joy in the practice of surgery. The goal is to go beyond strategies aimed at the individual and instead encourage institutions to create more efficient, healthier, and more positive work environments that foster joy [13]. Anecdotally, surgeons enter training full of joy, and somewhere along the way this joy is eroded, often due to factors previously mentioned. Happiness has been shown to drive success, but joy is a much deeper, more enduring state [14]. Newer models are arising that look beyond the individual and assess team- and organization-level factors, shifting well-being to be a shared responsibility at multiple levels of an organization [15–18].

The basis for the SAGES RPS Task Force work came from the Institute for Healthcare Improvement's (IHI) framework entitled, "Improving Joy at Work" [19]. Our study aimed to answer: what factors influence surgeon well-being and how can those factors translate into tangible individual-, practice-, and system-level changes to help restore the joy in surgery?

Materials and methods

We designed a qualitative, descriptive interview study to identify the factors that bring surgeons joy. It was cross-sectional and observational, and we adhered to STROBE guidelines in this report. SAGES RPS Task Force members first used convenience sampling to generate a list of potential interviewees. The study team also used snowball sampling, allowing interviewees to suggest additional potential subjects. The first author applied purposeful sampling to the convenience- and snowball-generated list, selecting interviewees to ensure representation of men and women, ethnic backgrounds (those identifying as persons of color versus not), practice type (academic versus community practice), career stage (early, mid, and late), and geography (the four US Census regions). For sampling purposes, we based our definition of academic versus community on publicly available data regarding surgeons' affiliations with academic institutions. Then in interviews, we verified the surgeons' involvement in research and teaching and their self-identification as an academic or a community surgeon. We chose to define the early-career stage as 5 or fewer years in practice, mid as 6 through 19, and late as 20 or more [20].

The interview guide was based on a prior set of pilot interviews supported by RPS. For this study, the first author conducted all interviews by Zoom, recorded them, and had the audio files professionally transcribed. Data collection ceased when the coauthors reached a consensus that interviewees represented the demographic characteristics of interest.

Transcripts were uploaded into NVivo (QSR International) to manage inductive coding. Before coding, the authors and RPS committee decided to inductively code for factors important to surgeons' joy and deductively code for "suggestions," or ways surgeons thought their professional lives could be improved. The first author conducted initial coding to identify broad themes as well as suggestions, then detailed coding to identify nuances, regularly conferring with the second author to reach consensus on code meanings [21]. Once the codebook was finalized by consensus across all coauthors, codes were organized into a thematic network: basic, organizing, and global themes [22]. The global themes formed our conclusions. Code saturation at the organizing theme level was assessed after analysis was completed [23, 24]. Illustrative quotes are included in our reporting of results; interviewees are identified by capital letters in brackets following each, e.g., [A].

Results

Convenience and snowball sampling resulted in a list of 30 potential interviewees. RPS members shared publicly available and personally known information regarding potential interviewees' characteristics: genders, ethnic backgrounds, practice types, career stage, and geography. We utilized purposive sampling to ensure representation across these characteristics and contacted 22 potential interviewees. Of those, 17 (77.3%) agreed to participate and completed interviews with the first author, during which they verified their demographics. All surgeons were from the United States and Canada. 8 (47.1%) Identified as women and 9 (52.9%) as men. 8 identified as non-white and 9 as white. All career stages were equally represented: 5 (29.4%) were in the early stage, 6 (35.3%) mid, and 6 (35.3%) late. Total interview time was 15 h, averaging 53 min per interview.

Our thematic network was assessed for saturation at the organizing theme level. For each organizing theme, we noted when (in which interview, by chronological order) it was first referenced. Our final new organizing theme emerged during the 6th interview. All organizing themes had been referenced at least twice by the 13th interview and three times by the final, 17th, interview [23]. Table 1 details our sample characteristics.

Our global themes were stressors, satisfaction, support, values, and suggestions. Each global theme was composed of three to five organizing themes. We found that the themes values, stressors, and satisfaction influenced perspectives on support. In turn, experiences of support shaped suggestions. All participants reported stressors and satisfiers, though their specific experiences varied. Table 2 shows our thematic network with additional illustrative quotes. We also cross-referenced organizing themes within stressors, satisfaction, and support by career stage and gender, as shown in Table 3.

Table 1 Interviewee characteristics

Category	Subcategory	*n*	%
Gender	Women	8	47.1
	Men	9	52.9
	Total	17	100.0
Career stage	Early	5	29.4
	Middle	6	35.3
	Late	6	35.3
	Total	17	100.0
Ethnicity	Non-White	8	47.1
	White	9	52.9
	Total	17	100.0
Specialty	Bariatric surgery	4	23.5
	General surgery	5	29.4
	Minimally invasive surgery	3	17.6
	Trauma and acute care surgery	2	11.8
	Other	3	17.6
	Total	17	100.0
Region	Subregion		
Northeast	New England	0	0.0
	Middle Atlantic	2	11.8
South	South Atlantic	4	23.5
	East South Central	2	11.8
	West South Central	1	5.9
Midwest	East North Central	1	5.9
	West North Central	1	5.9
West	Mountain	2	11.8
	Pacific	3	17.6
International	Non-US	1	5.9
	Total	17	100.0

Stressors

All 17 (100.0%) interviewees spoke to the theme "stressors." Its organizing themes were work–life integration, administration-related concerns, time and productivity pressures, operating room factors, and lack of respect. This theme encompassed references to aspects of surgeons' professional lives that they found consistently stressful or that added to their stress in specific moments.

Work–life integration

As all interviewees (17, 100.0%) described their approaches to work–life integration and their feelings about having or not having such integration, they described how they made decisions about where to put their efforts. Some had clear strategies for managing their time, such as blocking off days of the week, while others—usually mid-career surgeons—said they were still "figuring it out." Early-career surgeons, on the other hand, most often discussed the difficulties of navigating work–life integration as they transitioned from training into practice. More often than men, women surgeons delved into more granular issues like "figuring it out," culture, learning to say no, and acute personal issues. For example, one woman who talked about figuring out work–life integration said:

> [W]ith time, I think one of the things I realized was […] you don't have to do everything. There are those folks that can do three, four, or five things perfectly well, and they manage it all. They also are usually the ones that need three hours of sleep a night. That's not me. [Q]

The surgeon quoted above admitted they were still "figuring it out," but they also alluded to the fact that while

Table 2 Global and organizing themes with illustrative quotes

Global themes	Organizing themes	Illustrative quotes
Stressors		
	Work–life Integration	A 'manageable' workload: *I work probably around 50-plus hours a week, which is not bad. […] I try to avoid evening meetings for myself and others. I just feel like we shouldn't intrude in that time. […] I feel like it's manageable, for sure.* [E]
	Administration-related Concerns	Inaction: *And when we need support to support the growth we don't get it, so we're like on our little island. […] [W]e ask for stuff, we don't get it. If there's a problem, we say, 'This is a solution.' Nothing happens.* [K]
	Time and Productivity Pressures	Competing priorities: *I have learned to not put resident meetings during the clinical week because I can't focus 100%, and if there's a patient that's not doing well, I can't be fully present, and sometimes I say things not in a good way, so I don't do that anymore.* [P]
	Operating Room Factors	Resource shortages: *[The problem is] budget and staffing, it's infrastructure and staffing. And it's a culture that's been decimated by this 25 to 30% turnover, net turnover, and then monthly continued turnover.* [O]
	Lack of Respect	Hard to feel valued*: I have great leadership skills in certain areas, but I think I always never feel like I belong in the room, especially when the room is very predominantly old, male, and white. […] [I]n those settings, especially when you're new and especially when you're young, it is hard to speak up and it's hard to feel valued.* [H]
Satisfaction		
	Service	Serving the underserved: *[R]eally, this part of the country is one of the most underserved for obesity. And so, the opportunity here is really phenomenal about how we can impact our community, and that really appealed to me.* [A]
	Challenge	Achieving difficult, positive outcomes: *So, I think a lot of times for surgeons, that [satisfaction] comes from validation, doing a great case that somebody else thought was unresectable that you got out or getting through a circumstance that was really hairy.* [F]
	Autonomy	Clinical 'free range': *But the types of cases I want to do, if I wanted to try something new, getting residents involved, I have a lot of autonomy as far as that goes. […] [A]t [previous place], it was the opposite. […] [I]f you had an idea, and you brought it to a committee […] if they decided it wasn't going to happen, it doesn't happen. […] But [here] I'm given pretty free range with what I want to do, and that's been great.* [K]
	Leadership	Learning how things work: *[T]he last five to six years, I've had a pretty heavy administrative component to my job, which really involves hospital work with EPIC, transition to the new electronic medical record. […] That's taken up a lot of time, but it's been meaningful in the sense I've learned how things work in the hospital* [9]
	Respect and Recognition	Being respected: *I've felt pretty lucky. I've felt very respected professionally in most of my workplaces.* [Q]
Support		
	Team	Amazing nurses: *Some of the nurse managers in the operating room are amazing. That's the only word you can use for these people. There are times where they will get us additional rooms […] because they know stuff isn't going to stop, and the sooner we get cases done, the sooner we'll be free to do more stuff or other cases and so on. And to their credit, […] there are times when the place just hums along wonderfully.* [J]
	Personal	Supportive spouse: *I have, I would say arguably the best [spouse] ever, so. But basically, she's the reason why I can do all that I can do and allows me to reach and do these things and grow in my career while also maintaining balance at home.* [A]
	Leaders	Ways leaders show they value you: *I think leadership can really be important in making you feel valued. So, if faculty don't feel valued in their institutions they are going to look elsewhere. And whether that be valued by salary, or support, or whatever it is that you feel that makes you valued.* [M]
	Institution	Supportive policies/processes: *And a lot of the things, like onboarding here and all the structures put into place are actually designed to make sure that the physicians can live happy, healthy lives, which is super nice.* [N]
Values		
	Professional	Valuing quality: *The most important thing is always to deliver quality, safe surgical care to patients. […] Whether or not I operate, or whether or not I watch them or observe them, monitor them clinically, do a major operation, my goal is always to take care of them, not to harm them, not to cause complications, not to do any of that, or not to miss things.* [L]

Table 2 (continued)

Global themes	Organizing themes	Illustrative quotes
	Personal	Valuing family: *We were far away from everyone [during COVID]. My dad is older […], and we didn't see him for almost a two-year stretch there. It's hard for him to travel so far and have to take connected flights. And so, just really eye-opening during a time when we had to be geographically isolated, that we would prefer to be close to our family and not be so far away. […] [M]y family always brings me joy.* [Q]
Suggestions		
	Individual level	Allow flexibility: *[Leaders have] said, 'No, we're going to continue to have Zoom meetings,' which I think is great […]. I can Zoom into a meeting, get done what I need to do, and then if I haven't showered for the day and I want to go for a run, I can do that […]. It seems like a small deal that will allow somebody to have this little shred of flexibility, but I think it's important.* [C]
	Organizational level	Improve OR efficiency: *I think first thing that comes to mind in terms of just building our practice and getting, and even just our mission to help our patients is improving the efficiency of our operating rooms.* [H]
	System level	Normalize time off: *I mentioned earlier paid maternal and paternal leave. That sounds wonderful and great and everything, but surgeons have this sort of mentality that we don't need to take time off, it looks weak. But maybe normalizing behavior and modeling behavior that it's okay if you do that.* [M]

Table 3 Select global and organizing themes' frequency by career stage and gender

Global theme	Organizing theme	Early Career ($n=5$)		Mid-Career ($n=6$)		Late Career ($n=6$)		Men ($n=9$)		Women ($n=8$)	
		n	%	*n*	%	*n*	%	*n*	%	*n*	%
Stressors		5	100.0	6	100.0	6	100.0	9	100.0	8	100.0
	Work–life Integration	5	100.0	6	100.0	6	100.0	9	100.0	8	100.0
	Administration-related Concerns	4	80.0	6	100.0	6	100.0	8	88.9	8	100.0
	Time and Productivity Pressures	3	60.0	5	83.3	6	100.0	7	77.8	7	87.5
	Operating Room Factors	5	100.0	5	83.3	4	66.7	8	88.9	6	75.0
	Lack of Respect	3	60.0	4	66.7	3	50.0	4	44.4	6	75.0
Satisfaction		5	100.0	6	100.0	6	100.0	9	100.0	8	100.0
	Service	5	100.0	6	100.0	6	100.0	9	100.0	8	100.0
	Challenge	5	100.0	4	66.7	5	83.3	7	77.8	7	87.5
	Autonomy	3	60.0	4	66.7	5	83.3	7	77.8	5	62.5
	Leadership	1	20.0	4	66.7	1	16.7	3	33.3	3	37.5
	Respect and Recognition	0	0.0	1	16.7	2	33.3	1	11.1	2	25.0
Support		5	100.0	6	100.0	6	100.0	9	100.0	8	100.0
	Team	5	100.0	6	100.0	4	66.7	7	77.8	8	100.0
	Personal	3	60.0	6	100.0	5	83.3	6	66.7	8	100.0
	Leaders	4	80.0	4	66.7	5	83.3	7	77.8	6	75.0
	Institution	2	40.0	5	83.3	6	100.0	7	77.8	6	75.0

surgeons are asked to do many things, it is not possible to do it all, at least not while getting a healthy amount of sleep.

Administration-related concerns

These concerns varied across 16 (94.1%) surgeons. Within this organizing theme, surgeons most often discussed poor leadership and highlighted leaders avoiding important concerns or ignoring them altogether. For example,

> [W]e have a chairman who's one of those people that will just be status quo for the rest of his life. It's just like, he doesn't like change, he doesn't like conflict, he doesn't want to get involved. And so, [we] are doing things despite the chairman all the time. We're like, "How can we get him to get on board with the things we're trying to do?" [E]

Some spoke about administrators who did not understand surgery or allow for surgeon autonomy. Some surgeons referred to frustrations with the system broadly, for example,

> I've done enough […] now to know that I don't like the politics of medicine. And so, I really enjoy doing the surgery part, and so it reinforces my decision to just want to be a general surgeon. [G]

Fewer surgeons discussed excessive paperwork, seemingly meaningless bureaucracy, and frustrating computer systems.

Time and productivity pressures

Of 17 interviewees, 14 (82.4%) discussed ways they experienced stress and pressure related to time, finances, and productivity. Most often, surgeons expressed the feeling that there was never enough time, and they could not be multiple places at once. They also felt pressure to produce more, as measured by revenue or relative-value units (RVUs). For example,

> [W]e get compensated based on RVU production, and so, you don't get RVUs for seeing post-op patients in the clinic. […] [S]ure, I would love to see all of my post-op patients, but that's just not feasible. […] it's more beneficial for me to see new patients and keep seeing new patients, but then what does that do for that continuity? You don't want to just see them beforehand and operate on them and then not have any of that follow-up. That's also not very, a very satisfying way to live. [C]

This surgeon was able to articulate how the financial structure of their practice was at odds with how they wanted to practice and in fact was a barrier to satisfaction.

Some interviewees felt productivity-related pressures were tied to a shortage of resources, or their leaders not prioritizing them or surgery for the receipt of resources. More abstractly, some surgeons discussed that systemically they face implicit messaging telling surgeons they should do more, or be more, even as they face limited time and resources. This is exemplified by a surgeon who said about their workload, "It's too much. But I don't know a lot of surgeons who feel like they don't have enough. And most of the surgeons I know feel like, okay, I could probably take some time off" [G].

Our data showed late-career surgeons most often discussed time and productivity-related pressures, although mid-career surgeons most often spoke about revenue and RVUs. Men more often than women discussed limited resources, not being prioritized for resources, and implicit "do more, be more" messaging.

Problems in the OR

In this organizing theme, our interviewees (14, 82.4%) most often discussed frustration with wasted time during or between cases, often due to shortages of personnel or equipment. For example,

> [W]e're profoundly understaffed right now. We're short on anesthesiologists, we're short on operating room nurses, and we're especially short on recovery nurses. So that means that we basically sit here not being able to work, which is crazy. [J]

They were also frustrated by not having everything needed for a given case, inequitable allocation of OR time or referrals, long waiting times for patients (for appointments or procedures), and not always being able to solve patients' problems. The proportion of surgeons experiencing OR problems stage decreased from 100% in early career to 83.3% in mid-career, and 66.7% in late career.

Lack of respect

In this organizing theme, surgeons (10, 58.8%) discussed actions they experienced that, in their opinions, demonstrated a lack of respect for them or their work. They called out specific acts and discussed instances when they felt gendered disrespect. Community surgeons also described frustration with academics whom they perceived looked down on them as lesser surgeons. Early-career surgeons most often called out specific disrespectful acts, whereas mid-career surgeons most frequently brought up gendered disrespect and the tension between academic and community surgeons. While 37.5% of women surgeons discussed gendered disrespect, no men did. 75.0% of women discussed lack of respect as a stressor, whereas 44.4% of men did.

Satisfaction

The global theme "satisfaction" was composed of the organizing themes: service, challenge, autonomy, leadership, and respect and recognition. All 17 (100.0%) interviewees discussed satisfiers. Data in this theme depicted what surgeons found satisfying about their work.

Service

All 17 surgeons (100.0%) expressed that service brought satisfaction at work. Most (13, 76.5%) enjoyed serving by teaching. For some, teaching was deeply meaningful:

> A focus on those who are coming after brings a lot of good things in its wake. And the lack of that can lead

> to a lot of self-centered activity that, for a profession like surgery, I think is quite undermining to the reason you're there in the first place. [D]

The quoted surgeon felt that by teaching, one could avoid self-centeredness and remain true to the spirit of service.

Others found joy in serving by making a difference for individual patients or their entire community. Especially rewarding were complex operations that gave patients good outcomes, where surgeons knew that without surgical intervention, the patients would not have survived. Those who highlighted positively impacting their communities often connected that joy to their personal values, making statements like:

> Being able to bring needed skills to an area that's under-resourced and be a part of that community was really important to both me and [spouse], especially as we raise our [children]. [H]

This surgeon found value in sharing their community impact with their family and passing along the importance of service to their children.

Challenge

Most interviewees (14, 82.4%) found joy in the challenge of surgery, from the intellectual challenge and technical skills required in complex operations to performing interesting, enjoyable cases, honing their skills, and generally doing difficult tasks. One surgeon had, "always loved minimally invasive surgery and new technologies" [K], while another said they loved their subspecialty because, "of the operations and the anatomy and the delicate surgeries that we do" [L]. In this organizing theme, interviewees also discussed enjoying being busy and constantly moving from task to task. For example:

> [T]here are so many days when I walk out of the building, and I'm like, I lived the academic surgeon scientist dream today. I did it all. I did all the things. […] I made [kids] a smoothie at breakfast, I exercised before they woke up, I […] did a great operation, and then I communicated in between cases with my scientific collaborators, […] scrubbed a case with one of my colleagues […]. So those are the days when I feel awesome. [N]

This surgeon enjoyed being busy and doing "all the things"; notably, they defined enjoying the challenge of being a surgeon by incorporating both personal and professional aspects. The proportion of surgeons discussing this organizing theme was highest in the early- and late-career stages and lowest in mid-career. The data did not suggest meaningful differences by gender.

Autonomy

Most surgeons (12, 70.6%) had positive comments about the effect of autonomy on their professional satisfaction. While some surgeons described wanting control generally, most specified they wanted autonomy over how they spent their time and did not want to be micro-managed. For example:

> I've talked to colleagues where they're like, 'I've got to literally clock in, […] clock out,' and […] I feel no such pressures. So, in that sense, over my global schedule I feel like I have some autonomy. [9]

This surgeon valued not having someone look over their shoulder. Another surgeon prioritized autonomy in the OR, saying, "Particularly in the operating room, [surgeons] have a lot of autonomy. We basically lead the room," but said elsewhere in their professional life, their autonomy was "probably adequate" [M].

About two-thirds of surgeons in their early and mid careers discussed autonomy, and 83.3% of those in late career did. 62.5% of women had positive comments about autonomy, whereas 77.8% of men did.

Leadership

Much like their affinity for completing challenging tasks, the surgeons (6, 35.3%) in our study who found joy in leadership enjoyed it because they could fix, organize, innovate, learn, and improve. Regarding leading operatively, one surgeon said:

> So, I'm able just to get the reps in, to get better, because I'm operating consistently, I've got the volume, and so then I can actually pick what I'd like to build, and I can now finally realize my goal of becoming a national leader. [N]

Similarly, another surgeon found joy in leading their field by being, "an architect of a bunch of change in surgery" [O]. In contrast, another surgeon enjoyed digging into the weeds of departmental governance, saying, "I love being organized; I love keeping things in kind of their place" [E].

Interestingly, the proportion of late-career surgeons discussing leadership (16.7%) was slightly lower than the proportion of early-career surgeons (20.0%), and both were significantly lower than the proportion of mid-career surgeons (66.7%).

Respect and recognition

A few surgeons (3, 17.6%) discussed that occasionally, awards and external validation were satisfying. One surgeon said that "respect, and not being challenged [by coworkers] every day" [M], would bring them the most joy. Our cross-referencing by gender suggested that our women interviewees may have experienced respect and recognition issues more often than men, though the frequency of these issues was low across both genders.

Along with values and stressors, satisfaction seemed to have a meaningful influence on surgeons' perspectives on the next global theme, support.

Support

The theme "support" was comprised of the organizing themes: team, personal, leaders, and institutions, all named for sources of support. All 17 (100.0%) interviewees offered examples of how they were supported.

Team

15 of 17 (88.2%) surgeons described how fellow surgeons, clinical staff, and administrative staff were all integral to their professional happiness. One surgeon was grateful for clinical colleagues who were "in that same boat," and went on to say, "I think having good colleagues, optimistic colleagues, people that you feel like sort of understand those goals and are in it with you makes a huge difference" [C]. In response to a question about why they can focus on what matters, an interviewee shared:

> I honestly think that the majority of it is the people that I work with. […] [I]n the hospital there are specific scrub techs and nurses that I request work with me. […] [Going] in the operating room and having people who know your style, who's [sic] ready for you, so you don't have to double and triple check everything, that makes it. [G]

This surgeon was alluding to at least two things also explicitly identified by other interviewees as important in a high-functioning team: trust and clear communication.

On the non-clinical side, surgeons appreciated having administrative assistants or practice manager-type staff who kept them on schedule and ensured efficient handling of non-clinical tasks. For example, "[M]y office staff really respects the work we do and really treats me fantastic. It's really an excellent, positive environment" [A]. One surgeon recognized that it is important to "make everyone feel like they're important to that team" and "recognize them" [F]. They went on to assert, "[T]he surgeons, we're very poor at that because we think we are the most important person in the team. And you're not" [F].

All early and mid-career surgeons discussed the importance of their teams, and 66.7% of late-career surgeons did. 77.8% of men discussed team members, and 100.0% of women did.

As surgeons discussed leadership, institutional factors, and their clinical and administrative teams, factors like compensation and infrastructure were intertwined. However, our data suggested human resources were the resources most meaningful to surgeons in making them feel supported at work.

Personal

14 of 17 (82.4%) surgeons discussed how their personal lives provided them with support. Many praised spouses for being understanding, facilitating kids' activities, helping them be grateful, or calming them down when necessary. Others discussed the importance of hobbies and recreation, with one saying that morning exercise "probably keeps me sane" [M]. Another surgeon discussed having experienced postpartum depression and stating it was, "the greatest test of what my support system was, and I found that it did not fail me" [B]. Gratitude was a common thread, with some interviewees citing their faith's role in keeping them oriented toward service and toward being thankful they can make a difference, even during tough times. One surgeon closed their remarks on this subject by saying, "So we have a good life. We live in a nice place. We are blessed with a good family and good schools. And when I look at the deal, the whole deal, right, we're still doing very well. We're thankful" [9].

Leaders

13 of 17 (76.5%) surgeons discussed how leaders supported them, allowing for greater enjoyment of their work. Several reported having supportive department chairs. One talked about a chair who understands surgeons ask for resources because they are putting the patient experience first, then said, "It makes me want to be here because that means that we see eye to eye" [B]. Having leaders aligned with the organization's mission and the surgeon's values meant a lot, and surgeons also appreciated leaders who gave them space to be human. For example, one leader's understanding was "tested" when a surgeon's family member became seriously ill. The surgeon realized they needed to spend significant time with family and said:

> And I called work, and […] my superior was actually very, very reasonable and very, very compassionate and said, 'Your family is the most important thing, please

> take the time that you need.' And I did that. [...] And so, to me, it felt very liberating, it felt very supportive, and I was very grateful for that. [C]

Another surgeon also discussed the ability of leaders to 'free' surgeons from feelings of inadequacy or guilt, stating that one of their leaders had recognized their passion for teaching and asked them to pursue that. The surgeon said, "That was very freeing, because it meant I didn't have to worry that he was wondering why I wasn't producing more" [D]. While leaders may not have control over system-level factors that drive some stressors, surgeons in our sample reported that leaders were in fact able to influence stressors related to time and productivity by acting at the organizational and individual levels.

Our data suggested that surgeons may consistently feel supported by leaders in their early and late careers, but a decline in support may be perceived during mid-career (see Table 3).

Institutional

13 of 17 (76.5%) surgeons discussed how their institutions—not individuals, but organizations—demonstrated support for surgeons and surgery. These demonstrations included: supporting achieving center of excellence designations, "not really trying to squeeze every hour out of you" [A], offering wellness initiatives, having time off policies that are easy to navigate, having structures and processes that allow for greater autonomy, and allowing—and providing resources for—surgeons to build programs and practices. The topic of wellness arose during conversations about institutional support, and one surgeon said:

> I think to me there is a misconception that wellness comes down to additional programs, more salads in the cafeteria, 'join us for yoga on the lawn' kind of thing. [...] I mean, those are nice, don't get me wrong. But it comes down to control, autonomy, [...] and flexibility [...] [like] working from home. And they have gotten better about that. [P]

Across interviewees in this organizing theme, institutional support could be summarized as fair policies and processes that allow sufficient autonomy and flexibility, plus adequate resources to pursue fulfilling work.

Our cross-referencing suggested that perceived institutional support may grow over the course of a surgeon's career, as 40.0% of early careerists, 83.3% of mid-careerists, and 100.0% of those late in their careers discussed this topic.

Values

The "values" global theme included the organizing themes: professional and personal. 15 (88.2%) Interviewees discussed one or both organizing themes. We assigned the organizing theme "personal" to references surgeons made to things they value that are independent of their professional lives and/or not controllable by professional forces. For example, "I took the other job because I thought it would be a better setting for my family" [D] and "My faith is really important to me and pretty central to who I am" [O]. The organizing theme "professional," included explicit references to surgeons valuing surgical expertise or their patients, independent of their specific position or organization. For example, "But if when [patients] get in the door, they have a terrible experience, what's the point?" [B]. We found that surgeons' values influenced their perspectives on support, as discussed previously. As our goal was to focus on potential organizational interventions, we placed less emphasis on factors within the values theme, as interviewees tended to describe them as fundamental to them as individuals.

Suggestions

Last, our a priori theme "suggestions" was divided into organizing themes according to the level at which improvements could be made: individual, practice, and system. All interviewees had at least one suggestion.

Individual level

When asked what improvements could be made to make them, as individuals, better able to find joy in their work, surgeons had a number of suggestions. They favored straightforward, transparent communication generally and specifically about productivity, schedules, compensation, and the allocation of organizational resources. They wanted to be heard and not given lip service when they requested resources to better deliver high-quality surgical services. In terms of resource allocation, some said ergonomics were an important way to help preserve surgeons' physical well-being. Several mentioned the need to hire additional mid-level professionals to grow their practices. To promote better work–life integration, they advocated for flexibility and autonomy, including virtual meetings and working from home. They also would like better boundaries around work hours and fewer (or zero) meetings scheduled outside of normal work hours.

Some expressed interest in more formal mentorship programs and at minimum more encouragement, especially for those in their early careers. They also said they would individually benefit from a professional culture where surgeons step in for one other when they need to get to personal responsibilities. One surgeon summarized the desired professional culture by saying surgeons and their organizations should have the "grace to understand when people are not perfect, or they need a lift up [...] instead of a beat-down" [9]. Some of these suggestions, while geared toward

individual benefit, certainly could have a positive spillover effect in practices and hospitals.

Practice level

When asked what improvements would benefit many surgeons across a practice or a hospital, surgeons suggested moves that would support surgery directly and indirectly. They wanted surgery to be prioritized as a service line, with organizations promoting it publicly, including upgrading public-facing resources like websites. However, they also emphasized the importance of supporting all professionals critical to making surgery work, like nurses, and encouraged organizations to break down silos between medicine and nursing management. More broadly, they wanted to see cross-organization collaboration, such as that between universities and affiliated hospitals.

Calls for collaboration and cross-silo communication were consistent across interviewees, with additional calls for improvements in work culture that would better retain staff, lower turnover, create space to build community, and embrace professionals' ability to be whole people. Some surgeons also brought up the need for more comprehensive commitments to professional development, as well as more meaningful commitments—not just talk—around diversity, equity, inclusion, and wellness.

System level

When surgeons gave suggestions for system-level change, they spoke to the culture of surgery, what education and advocacy surgical associations or societies could do, and what national policy changes they favored. Several interviewees emphasized that while clear, fair reimbursement and compensation are important, even more they want to feel valued. In the context of scope of practice debates, one surgeon said, "The value of what we do, how we do it, and who else can do it has to be a conversation […] on the national level" [G]. They suggested that surgical associations or societies could engage in those conversations, and they could also "teach [surgeons] how to take care of themselves physically, mentally, I think also, importantly, financially" [9]. They felt that if surgeons were better prepared for the non-clinical stressors they would face post-training, perhaps they might not be as prone to burnout. Some put a finer point on well-being by asserting that the profession needs to address mental health and suicide. One surgeon stated, "I wish that as a culture, surgery could destigmatize the need to ask for help" [G]. Summarizing the issues of needing to feel valued, learning to take care of oneself, and preparing for stressors, an interviewee said, "Medicine as a field is way too naïve and unsophisticated about its human resource management" [D].

At the national policy level, surgeons expressed support for policies that would expand access to care, provide clear and fair reimbursement, and improve and simplify the insurance system. As one surgeon put it, "I don't know how we can fight it, but insurance is, I think, ruining our lives in many ways. Insurers are torturing us" [Q].

Although the support and suggestions global themes included compensation and infrastructure concerns, overwhelmingly surgeons described human resources—and human relationships—as the most critical. To experience joy, surgeons needed high-functioning teams in clinics and operating rooms, good leaders and mentors, and supportive family and social networks.

Discussion

All our participants reported experiencing stressors and satisfiers, though the specifics of their experiences were common in some instances and different in others. Stressors like time and financial pressures significantly impacted our interviewees. Some stressors varied by gender and time in practice. Surgeons at all career stages enjoyed operating and, primarily through clinical care, being of service to their communities. Although discussions of support and suggestions included compensation and infrastructure concerns, overwhelmingly across the board, surgeons described human resources as the most critical.

Values, stressors, and satisfiers together influenced surgeons' perspectives on what support looked like from leaders, institutions, colleagues, and individuals in their personal lives. The support they experienced from these sources then shaped the individual-, practice-, and system-level changes they suggested could help surgeons focus on the joy in surgery. Whether we are considering changes at the individual, practice, or system level, those interested in surgeon well-being would do well to focus on building teams and leaders and giving surgeons the time and space to develop healthy family and social lives.

The IHI states, "Health care is one of the few professions that regularly provides the opportunity for its workforce to profoundly improve lives. Caring and healing should be naturally joyful activities" [19]. Our study suggests that surgeons and their practices and hospitals can meaningfully engage in interventions to minimize stressors, maximize satisfiers, and help surgeons experience joy in their work. A systematic review has demonstrated that both individual-focused and structural/organizational strategies successfully reduced burnout, with a pooled mean absolute reduction from 54 to 44% [25]. Another systematic review determined that organization-directed workplace interventions targeting an improvement in workplace processes and implementing a team-based approach (including the use of scribes/medical

assistants) provided the most benefit for reducing burnout among physicians [26]. Targeted interventions can achieve change.

Organizations may want to invest resources to better understand the values driving surgeons, like autonomy and enough time for team and patient relationship building. Walker and Kono found that higher levels of autonomy had the greatest effect on global life satisfaction as well as workplace satisfaction [27]. This is especially pertinent as 65% of surveyed physicians felt that the quality of healthcare will diminish in the future, and a lack of physician autonomy may be a driver of this sentiment [28]. Organizations—from smaller practices to large academic medical centers—would benefit from investing in creating high-functioning teams. Not only do such teams produce high-quality outcomes, which is beneficial to patients, but to experience joy, surgeons overwhelmingly expressed the need for high-functioning clinic and OR teams.

We recognize that the evaluation of physician well-being is quite complex. There are many frameworks for evaluating and quantifying physician well-being [29]. However, it appears that there is a significant void in assessing, addressing, and strengthening factors that promote joy in the practice of surgery. Much focus has been given to burnout, which corresponds to the end stages of lack of well-being. Efforts are needed to recover and stimulate the joy in being a surgeon, which appears to effectively translate in the prevention of loss of well-being, of burnout.

Limitations

This was a qualitative, descriptive study conducted using non-representative sampling methods. As such, we cannot draw conclusions about causality between the factors identified and surgeons' levels of satisfaction, nor can we generalize our findings to all surgeons in the US and Canada. However, we are confident we reached code saturation, based on an empirical analysis of codebook development.

Future directions

These findings will be used to develop survey tools that could allow organizations and professional associations to assess the presence and absence of factors important to surgeons' joy more comprehensively. With such an assessment, we can develop interventions customized to individuals and organizations, while also working on system-level factors through advocacy.

Our results indicate organizations could (1) better understand values driving surgeons, such as autonomy and control; (2) provide surgeons more time for satisfiers, like patient relationship building; (3) minimize stressors, like time and financial pressures; and (4) focus, at all organizational levels, on (4a) building efficient teams to support the practice of surgery, as well as (4b) giving surgeons the time and space to develop healthy family/social lives. Next steps include developing a survey tool to be used at individual institutions to build "joy improvement plans" and for surgical associations to support advocacy efforts.

Acknowledgements The authors gratefully acknowledge the interviewees who gave generously of their time and insights. They also appreciate the expertise and consideration of all SAGES RPS Task Force members, who provided input throughout the study process and continue to shape ongoing study of the joy in surgery.

Funding This work was funded in part by a grant from the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES).

Disclosures Dr. Hughes received a grant from the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) for time and expenses relevant to this study, paid to the University of Kansas School of Medicine Department of Population Health. Dr. Hanson has no conflicts of interest relevant to this work to disclose. Drs. Alseidi, Romanelli, Vassiliou, Feldman, and Asbun report they are Board Members of SAGES.

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