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Lived Experiences of Surgical Residents During the COVID-19 Pandemic: A Qualitative Assessment

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OBJECTIVE: As the COVID-19 pandemic dynamically changes our society, it is important to consider how the pandemic has affected the training and wellness of surgical residents. Using a qualitative study of national focus groups with general surgery residents, we aim to identify common themes surrounding their personal, clinical, and educational experiences that could be used to inform practice and policy for future pandemics and disasters.

DESIGN: Six 90-minute focus groups were conducted by a trained qualitative researcher who elicited responses on six predetermined topics. De-identified transcripts and audio recordings were later analyzed by two independent researchers who organized responses to each topic into themes.

SETTING: Focus groups were conducted virtually and anonymously.

PARTICIPANTS: General surgery residents were recruited from across the country. Demographic information of potential participants was coded, and subjects were randomly selected to ensure a diverse group of participants.

RESULTS: The impact of the COVID-19 pandemic on residents’ clinical, educational, and personal experiences varied depending on the institutional response of the program and the burden of COVID-19 cases geographically. Many successes were identified: the use of telehealth and virtual didactics, an increased sense of camaraderie amongst residents, and flexibility in scheduling. Many challenges were also identified: uncertainty at work regarding personal protective equipment and scheduling, decreased case volume and educational opportunities, and emotional trauma and burnout associated with the pandemic.

CONCLUSIONS: These data gathered from our qualitative study highlight a clear, urgent need for thoughtful institutional planning and policies for the remainder of this and future pandemics. Residency programs must ensure a balanced training program for surgical residents as they attempt to master the skills of their craft while also serving as employed health care providers in a pandemic. Furthermore, a focus on wellness, in addition to clinical competency and education, is vital to resident resilience and success in a pandemic setting. (J Surg Ed 78:1851–1862. © 2021 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: COVID-19 pandemic, surgical trainees, surgical education, surgical resident, qualitative study,

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focus groups, Personal Protective Equipment (PPE), wellness, telehealth, virtual education, mental health, disaster planning

**COMPETENCIES:** Systems-Based Practice, Medical Knowledge, Interpersonal and Communication Skills, Professionalism

**BACKGROUND**

Much has changed since the first confirmed case of COVID-19 in the United States (US) until the present day, with growing morbidity and mortality from the pandemic. As of February 19, 2021, the number of cases reported by the US Center for Disease Control was 27,737,875. In the month of January 2021 alone, there were on average over 3,000 deaths per day. At the pandemic’s epicenter are health care providers and front line workers, including the nation’s surgical trainee workforce. The pandemic has ultimately proven to be an unpredictable and unprecedented test of residency programs’ preparedness for ensuring clinical care in the setting of mass casualty while also upholding the duty to train residents and preserving their wellness and safety.

In March of 2020, the American College of Surgeons (ACS) Division of Education appointed a Special Committee of the ACS Academy of Master Surgeon Educators (Academy) to address educational challenges associated with the pandemic. The Special Committee of the Academy (Special Committee) recently reported the pandemic’s impact on surgical learner education and wellness as assessed through a survey administrated April to June 2020 and directed to general and specialty surgery department chairs, program directors and Academy members. There was severe disruption of clinical education due to marked reductions in surgical volume with decreases in non-emergency (87%) and emergency (20%) operative cases. In addition, one third of respondents noted severely impacted didactic education, with the majority adopting virtual conferences. Although the authors did not survey surgical trainees directly, responses from attending surgeons characterized a substantial impact on learners’ physical safety and health that was greatest in high incident areas. Most respondents described the adoption of safety and wellness programs beyond provision of personal protective equipment (PPE). Such adaptations, however, were found to be independent of self-declared Accreditation Council for Graduate Medical Education (ACGME) stage and not universally utilized by trainees or faculty, indicating an opportunity for organizational changes in the future.

These initial findings were complemented by a survey of general surgery residents and early career surgeons conducted in July 2020 by the ACS Resident and Associate Society (RAS) and Young Fellows Association (YFA), in consultation with the Academy’s Special Committee. Among 1,160 respondents, the majority reported a negative impact on their clinical and educational experiences, as well as high rates of new depression and burnout symptoms. Female gender, lack of wellness resources, reduction in case volume, caring for known COVID-19 positive patients, and being asked to provide one’s own PPE were independent predictors of adverse mental health outcomes.

Taken together, early surveys have described disruption in surgical care delivery, educational experiences, personal health, and subsequent institutional responses. The holistic assessment of the lived experiences of surgical residents utilizing qualitative methodology, however, is lacking and can further inform development of evidence-based organizational responses toward optimizing surgery resident clinical and educational experience, while also preserving safety and wellbeing. As such, this study reports the findings of national focus groups including general surgery residents designed to document their personal accounts of the impact of the pandemic on their training and wellbeing.

**MATERIAL AND METHODS**

**Selection of Study Cohort**

General surgery residents in the US and Canada were invited to participate in focus groups using email distribution lists of the Association of Program Directors in Surgery and the Academy’s Special Committee, on three occasions over a 4-week period in June-July 2020. The American Institutes for Research Institutional Review Board determined the study to be exempt. To ensure diverse representation, resident volunteers completed an initial Interest Survey that included demographic and program-related questions. Using R computational software, we randomly selected a diverse and representative cohort for participation. Selection was based on the following metrics: age, post graduate level, gender, sexual orientation, geographic region, type of institution, race/ethnicity, household size, and ACGME pandemic stage. (Table 1) Selected residents were contacted by e-mail in July-August 2020 to schedule participation in one of six planned focus groups.

**Procedures**

We assigned participants a unique identifier for anonymization, which they used to sign a consent form and log into the 90-minute virtual focus group. The group interviews used a secure virtual video format with the creation of audio- and video-recordings. Transcripts were prepared from the
audio recordings and de-identified for purposes of analysis. All interviews were completed between August 17 and September 1, 2020. A trained qualitative researcher who elicited responses from all subjects (AN) and utilized a prepared set of open-ended questions to guide the sessions facilitated focus groups. (Table 2)

Qualitative Analysis

Two independent researchers (AN, YB) reviewed the transcripts and audio recordings. The data were organized and coded by question category. We identified and refined themes and then excerpts further identified broader themes. Final procedures involved the participation of three authors (KS, MMS, ECE) who independently reviewed the qualitative analyses findings. Consensus was determined on the coding procedures and themes identified for final reporting (Table 3).

RESULTS

Overall, 111 general surgery residents completed the initial Interest Survey and six focus group sessions were held for 16 participants with each session.

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**TABLE 1.** Characteristics of General Surgery Resident Focus Groups

|                          | Number | Percent |
|--------------------------|--------|---------|
| Age                      |        |         |
| 20-25                    | 1      | 6.3     |
| 26-30                    | 11     | 68.8    |
| 31-35                    | 3      | 18.8    |
| 36-40                    | 1      | 6.3     |
| Sexual Orientation       |        |         |
| Heterosexual             | 14     | 87.5    |
| LGBTQ+                   | 1      | 6.3     |
| Race/Ethnicity           |        |         |
| Asian                    | 3      | 18.8    |
| Black/AA                 | 1      | 6.3     |
| Middle Eastern           | 2      | 12.5    |
| White                    | 10     | 62.5    |
| Household Size           |        |         |
| 1                        | 5      | 31.3    |
| 2                        | 8      | 50.0    |
| 3                        | 3      | 18.8    |
| PGY level                |        |         |
| 1                        | 4      | 25.0    |
| 2                        | 7      | 43.8    |
| 3                        | 2      | 12.5    |
| 4                        | 1      | 6.3     |
| Research/Fellow          | 2      | 12.5    |
| Region                   |        |         |
| Midwest                  | 4      | 25.0    |
| Northeast                | 1      | 6.3     |
| Southern                 | 5      | 31.3    |
| Western                  | 6      | 37.5    |
| Program Size (# residents)|      |         |
| 4-6                      | 7      | 43.8    |
| 7-10                     | 9      | 56.3    |
| ACGME Stage              |        |         |
| 1                        | 4      | 25.0    |
| 2                        | 6      | 37.5    |
| 3                        | 5      | 31.3    |
| University-Based         | 90.0   |         |

**TABLE 2.** Questions used During Resident Focus Group Sessions

1. Reflect on your clinical experience during the COVID-19 pandemic, considering your experience in the operating room, on the wards, in the clinics, as a consultant, scheduling or rotation arrangements, or otherwise. What has been the impact on your clinical experience?
2. Reflect on your educational experience during the COVID-19 pandemic, considering your experience with didactics, conferences, teaching, feedback, or otherwise. What has been the impact on your educational experience?
3. Reflect on your personal experience during the COVID-19 pandemic, considering your sense of wellness, feelings of physical safety, your emotional health, your relationships, or otherwise. What has been the impact on your personal experience?
4. During the pandemic, have you taken care of patients who tested positive for COVID-19? Please describe this experience and explain how it was distinct from caring for patients pre-pandemic, focusing on your clinical, educational and or personal experience.
5. To what extent do you believe the COVID-19 pandemic has impacted you as a surgical resident (in negative or positive ways); please elaborate.
6. Reflecting on your program’s response to the COVID-19 pandemic, what do you think they handled well and what aspects of their response could have been improved and as it relates to your (surgical residents’) clinical, educational, and personal experiences.

**TABLE 3.** Overall Summary of the Themes that Emerged in Focus Group Sessions of the Pandemic’s Impact on General Surgery Residents from the Perspective of Resident as a Learner, an Individual, and an Employee

| Category                              | Theme                                      |
|---------------------------------------|--------------------------------------------|
| General Surgery Resident as a Learner | Clinical Education                         |
|                                       | • Volume                                   |
|                                       | • Schedule                                 |
|                                       | • Teaching                                 |
|                                       | • Non-clinical Education                   |
|                                       | • Virtual Didactics                         |
| General Surgery Resident as an        | Professional Identity                      |
| Individual - Impact on Personal Life  | • Sense of Community                       |
|                                       | • Professional Growth                      |
|                                       | • Personal Life Changes                    |
| General Surgery Resident as an Employee - Impact of Institutional Response | Management |
|                                       | • Communication                            |
|                                       | • Personal Safety                          |
comprised of two to six individuals. The study group represented a diverse trainee population with notable exceptions including the absence of chief residents, few senior residents, and only one resident from the Northeast. (Table 1) Focus group sessions centered around three major categories of discussion from the point of view of the resident as a learner, as an individual and as an employee health care provider. Guiding questions elicited the pandemic’s impact on residents’ clinical experience, education, personal safety and/or well-being, and professional lives. (Table 2) Several major themes were identified (Table 3) and representative quotes assembled for each according to the generally positive or negative sentiments that were expressed by participants.

**Educational Impact: Residents as Learners**

Findings from focus group discussions revealed a significant impact on the educational experiences of residents as learners (Table 4). Not only did residents report concerns about operative case volume, but they also expressed disappointment with missed educational opportunities and anxiety about new patient care responsibilities. Representative comments reflected negative impact such as, “I definitely feel like I lost out on building my technical skills, which worries me going forward.” However, there were also instances of positive feedback regarding the pandemic’s impact of learning. (Table 4) Representative Quotes...in a positive sense

**Clinical Volume**
- “it just ended up...that I didn’t miss too much clinical responsibilities... didn’t really impact me, personally, very much”
- “Less clinical provided time for wellness”
- “I think everything will probably work itself out.”
- “I don’t think I’m in danger of not getting enough cases.”

**Clinical Schedule**
- “PD pulled particular people with certain conditions...pregnancy...[on Zoom] easy to call out anywhere...reduced travel time”
- “Tele health...is here to stay...people realize the benefits of it now. restarted simulation...now we have signups...limit number of people...social distance with masks”

**Clinical Teaching**
- “Our schedules kept changing...didn’t know when I would return to the OR”
- “two weeks on was tough and exhausting, and then home alone for a week”
- “we worked 12 days in a row, and 12 days remote”
- “skeleton crews...like a weekend for a month or two”

**Non-Clinical Virtual Didactics**
- “It’s never going to be the same on Zoom”
- “now sitting six feet apart and not getting together afterwards...not the same”
- “we didn’t have anything for a while...no one doing education... then bad attendance so stopped Grand Rounds”
- “I learn better during in person lectures... following the natural flow of a presentation”

**Representative Quotes...in a negative sense**

**Clinical Volume**
- “...will never be able to make up those cases...felt robbed of a rotation”
- “It was like a mass casualty event...for several months...”
- “elective surgeries were cancelled so I’ve basically had no OR experience for 5 months”
- “in charge of 10-20 intubated COVID-19 patients on a daily basis”

**Clinical Schedule**
- “No one floated on the COVID-19 units”
- “I was pregnant and removed from the schedule”

**Clinical Teaching**
- “less teaching was allowed because attendings wanted to get the cases done”
- “senior residents did most everything so younger residents impacted the most”
- “pulled away from my education [that is] operating to manage these COVID-19 patients”
- “attendings wanted us to participate [in telehealth] but didn’t know how to integrate [us]”
- “the sim labs were basically shut down”
- “I definitely feel like I lost out on building my technical skills, which worries me going forward”

**Non-Clinical Virtual Didactics**
- “It’s never going to be the same”
- “also anywhere...reduced travel time”
- “more interactive and better than before...residents prepared...on Zoom] easy to call out”
- “...everything is back to normal, except for things being virtual and having masks”
- “this will continue”

**Educational Impact**: Residents as Learners

Findings from focus group discussions revealed a significant impact on the educational experiences of residents as learners (Table 4). Not only did residents report concerns about operative case volume, but they also expressed disappointment with missed educational opportunities and anxiety about new patient care responsibilities. Representative comments reflected negative impact such as, “I definitely feel like I lost out on building my technical skills” and “elective surgeries were cancelled so I’ve basically had no OR experience for 5 months” and that they “felt robbed of a rotation.” Participants reported scenarios in which they were responsible for “10-20 intubated COVID-19 patients on a daily basis,” and “pulled away from my...
eduction [that is] operating to manage these COVID-19 patients.” Meanwhile, themes of shifting service priorities to the most capable and experienced for invasive procedures and operations at the expense of education emerged with “less teaching allowed because attendings wanted to get cases done.” Residents described the operative care of patients with known or suspected COVID-19 infection was completed by chief residents and attending surgeons “who needed to sign off on the patients anyway.” For some junior level trainees this created a sense of isolation, team fragmentation, and limited experiences. Overall, however, we observed mixed messages regarding the pandemic’s impact on clinical education. Some reported a true sense of “missing out” on cases, which they “will never be able to make up” and during a time where “it was like a mass casualty event...for several months...” whereas others felt it “would work itself out.”

Despite such challenges, residents did report educational benefit outside the clinical setting that included a shift of didactic content toward critical care, public health, and telemedicine. In particular, virtual didactics emerged as a success story of the departments’ educational response to the pandemic, with “more interactive and better” didactics, and diversity of speakers “with no travel challenges” which show promise in the post-pandemic era. While beneficial in some respects, the virtual platforms and offerings were not perfect, with varied technical proficiency with virtual platforms, hardware barriers, “poor engagement when video was not required” for participants, a limited number of willing presenters, and “poor attendance if it was not required and tracked.”

### Personal Impact: Resident Daily Life

Findings from the focus group discussions showed a significant impact on the personal experiences of residents’ daily life (Table 5). The interviewees reported that the beginning of the COVID-19 pandemic was a frantic environment, with a rush for PPE and program directors fighting to get PPE for their residents, leaving “the nurses to scrounge for themselves.” This environment was the backdrop for residents reporting feelings of guilt about not wanting to “care for these people [patients infected with COVID-19]” and an “absence of immediate surgical gratification.” Overall, changes to schedules were “tough” and “exhausting,” leading to feelings of isolation, disadvantage, and conflict in peer and personal relationships. This coupled with the concern about their safety and the safety of loved ones, as well as the lack of clarity for both the short- and long-term plans for training created an environment of general anxiety. As one participant shared, “our schedules kept changing...[I] didn’t know when I would return to the OR.”

At the same time, residents reported an increased focus on wellness, with a change in clinical work environment that supported wellness. There was not less clinical work to do, but for some, the workload was less chaotic (e.g. “getting pulled in all directions”) and hence more conducive to focusing on overall wellness. Even when mental health and wellness services became more available and robust, trainees observed that such services were participation dependent. They reported that “wellness only works if made mandatory,” as surgery residents “don’t know what they don’t know” and must be mandated to participate in wellness programming for maximal benefit.

Another theme that emerged was that of resident resilience and comradery. Residents reported that the experience of the pandemic “made me a better physician” who “learned a lot about crisis” with a new “appreciation for leadership.” One participant shared, “Our chairman and...PD running around with us...seeing what we were going through...I was thankful they were reacting with understanding.” Ultimately, residents felt the

| Representative Quotes . . . in a positive sense | Representative Quotes . . . in a negative sense |
|-----------------------------------------------|-----------------------------------------------|
| Professional Identity                         | Sense of Community                            |
| • “made me a better physician”               | • “we went through something horrible together-brought us closer” |
| • “learned a lot about crisis; allocation of resources” | • “ Petty arguments were gone...much greater understanding of each other” |
|                                               | • “felt on my own and really struggled with isolation” |
|                                               | • “limited exposure...trained for so many years and then couldn’t even help” |
| Sense of Community                            |                                               |
| • “I think we got through it pretty well...at the end of the day, I think we’ll all come out being well trained” | • “virtual interviews are a mess and I know I am disadvantaged” |
| Professional Growth                           |                                               |
| • “leveled the playing field and made us all more human” | • “had a major impact on my relationships...it will never go back” |
|                                               | • “had to cancel my wedding”                  |
pandemic “leveled the playing field and made us all more human” and in some ways even brought people closer together. “We went through something horrible together - [it] brought us closer.”

Institutional Impact: Residents as Employed Health Care Providers

Findings from focus group discussions showed a significant impact of the COVID-19 pandemic on residents’ clinical experience as related to their service duties as a health care provider. (Table 6) Several themes emerged that reflected varying perspectives based on readiness of the institution, as well as the expectations and needs of the resident house staff. In a positive sense, residents reported a culture of understanding and support from leadership, with open lines of communication, focus on PPE availability, and rapid policy changes to accommodate resident concerns. In a negative sense, residents reported feeling a lack of prioritization of useful and timely communications, and rather “a lot of emotional turmoil caused by lack of information” with “more emails about wellness than logistics.” Themes also emerged that were related to rapid organizational changes and what appeared to be “silly,” “blanket” policies enacted by invisible leadership devoid of real-time and evolving patient care responsibilities. A theme of uncertainty was frequent along with concerns about PPE availability. Participants shared, “We never knew where I was going to get PPE when I went in” and “PPE...used for 20-30 days.” Others reported that their departments “went out and bought us all N95 and...goggles” which led them to “[feel] 100% safe as my PD took care of us.” We found frequent reports of confusion and anxiety. Based on comments from the interviewees, the inconsistent, ever-changing guidelines and in many cases “over-communication” relevant to other health care providers without clear relevance to

TABLE 6. Clinical Impact: The COVID-19 Pandemic’s Impact on the General Surgery Resident as a Health Care Provider.

| Representative Quotes . . . in a positive sense | Representative Quotes . . . in a negative sense |
|-------------------------------------------------|-------------------------------------------------|
| Management                                      | Management                                      |
| • “our chairman and...PD running around with us...seeing what we were going through...I was thankful that they were reacting with understanding instead of...yelling back at us.” | • “initially a mess...silly policies, no masks required, reusing masks, not enough social distancing, everything kept changing” |
| • “Open lines of communication”                  | • “made the mistake of blanket policies and statements and then had to change” |
| • “Supportive of residents”                      | • “people at home making decisions while residents were in the hospital doing the work” |
| • “Made real time changes in rapid fashion...had to carry three service nighttime pagers consolidated to one pager...nothing has to be the way it used to be” | • “Different sites had different policies for treating COVID + patients” |
| • “...brought it to the attention of [PD] that med students were not wearing their masks” | • “Some policies counter intuitive and no policies to deal with personal illness” |
| • “weekly Zoom calls with program director...daily messages from hospital leadership” | • “Guidelines confusing, no way to enforce” |
| • “[we were instructed] not to see any COVID-rule-out or + patients... only attendings...an attending had to see other health care providers without clear relevance to |

Personal Safety

| “...our department even...went out and bought us all [N95 and then goggles]” | “Initially no universal policies about masks and later began temperature screening and masks” |
| “We actually recycled PPE, so it was abundant” | “Never knew where I was going to get PPE when I went in” |
| “I felt 100% safe as my PD took care of us...bought us goggles” | “initially there were no masks for us” |
| “[we were instructed] not to see any COVID-rule-out or + patients...only attendings...an attending had to see them regardless.” | “PPE used for 20-30 days” |
| “PPE was available so anxiety about physical health was not high” | |
the resident work force, and “some policies (as) counter intuitive” and “no polices to deal with personal illness,” were perceived management missteps likely responsible for these feelings.14,15

CONCLUSIONS

To our knowledge, this is the first qualitative study presenting the lived experiences of general surgery residents during the first year of the COVID-19 pandemic. The report’s strength, in part, lies in the very nature of its rigorous and timely qualitative methodology and holistic focus placed on surgical resident experience. The results of focus group discussions broaden and deepen our understanding of themes identified regarding resident education, safety and wellness, and institutional leadership during the initial course of the pandemic.

Educational Impact

Many participant accounts confirmed the success of virtual didactic adaptations and postulated its durability post-pandemic. Most trainees, as in other quantitative reports, communicated virtual education satisfaction, effectiveness, and many advantages described in this report.16-22 Programs that failed to implement successful virtual education can learn from resident discussions around hardware gaps, need for technology training for faculty and identifying alternative opportunities to interact safely in person. While residents appreciated regular meetings through virtual platforms, many missed the informal interactions that routinely occur at the time of departmental meetings and didactic sessions. Interaction with attendings as teachers is crucial for professional development, including feedback and mentorship. Previous qualitative work identified the positive impact of feedback on resident leadership development, learning and progression of confidence, all of which may be lost in a chaotic pandemic setting.23,24 If optimal virtual education is to continue, it will be critical to learn from best practices that demonstrated engagement and participant satisfaction, as well as innovative and reliable technology. In contrast, few, if any, of the learners experienced telehealth patient care in spite of the majority of the participant’s institutions adaptation of virtual clinical encounters through telehealth. The absence of resident involvement was interestingly not due to time, scheduling, or availability, but rather an absence of a curriculum to teach delivery of health care through telehealth to both learners and surgical educators. This identified need is an important area for further research and active development moving forward; it also highlights the opportunity to require Program Directors to create a “Disaster Curriculum” for the next pandemic or disaster that ensures structured educational opportunities continue. The telehealth interface, much like virtual education, is likely to continue and undergo expansion in the clinical setting post-pandemic.

Our data also underscore the pervasive, however variable, impact on the clinical operative experience. This varied according to level of residency training, institutional response, the course of the pandemic, program size and the individual. As has been described by a myriad of reports, the residents interviewed reported anxiety and frustration regarding their ability to attain necessary skills and operative experience.25-27 This likely occurred as a result of substantial, although variable, decrease in clinical exposure for residents at all levels of training. As well, some senior residents, and focus group participants have reported concerns about implications for future job and fellowship prospects.28-35

Program Directors will need to carefully assess and document the readiness of residents to advance in training and/or to graduate from general surgery programs and fellowships on time while training under the veil of this prolonged pandemic training environment. It remains to be seen whether residents’ perceptions of loss of clinical opportunities due to operative disruption will be substantiated, and more importantly, whether residents’ eventual skills acquisition to independent practice will be negatively impacted. This underscores the importance of objective assessment of residents through the design and implementation of competency-based education and training models. Numbers alone are a poor surrogate for assurance of competence. For the graduating class of 2020, the American Board of Surgery allowed a 10% decrement in minimum case volume from 850 to 765. This volume requirement was still 15 cases higher than a previous standard that stood for many years at 750. Is there a point, where the loss of case volume might necessitate more time in training to reach competency? Be measured in months of missed rotations or case numbers? Have long-term consequences for surgical capability? Be identified by meaningful thresholds? There remain many unanswered questions.

Personal Impact: Resident Daily Life

Our study further documents the variable institutional response and program readiness experienced by residents as relates to management, communication, and provision of PPE, known to be directly related to resident wellness.8 We found a mixed picture of resident certainty about PPE availability, and as described in some instances, PPE was available to the trainee at the expense of other health care providers’ safety. This
dilemma resulted in moral conflict for the trainee further exacerbating their anxiety and stress. Participants described struggling with feelings of isolation, helplessness, and fear for themselves and others, as well as ethical dilemmas regarding duty, patient care, and individual risk assumption in keeping with other institutional reports. These observations combined with reports of lack of PPE as an independent predictor of burnout underscore the provision of high quality and readily available PPE as the highest order of priorities for our trainees as the pandemic continues.

The ACGME has provided a roadmap in the form of a guidebook and checklist whereby organizations may assess their own capability for the provision of safety and wellness resources. This consists of domains that incorporate basic needs, communication, and psychosocial/mental health services essential to maintain the physical, emotional, and mental health of health care workers at the front lines of the pandemic. Systematic reviews have failed to identify interventions associated with maintaining the resilience and mental health of front line workers, or the barriers to their implementation. Others have drawn from proven outcomes of tactics utilized in battlefield settings where trauma, loss of life, moral injury, and fatigue are prevalent. As physicians, and surgeons in particular, are at known risk for adverse emotional and mental health outcomes and suicidal ideation/suicide in baseline pre-pandemic reports, our study raises consideration for mandatory participation of residents, and possibly faculty in resilience and wellness programs.

Our data support such an approach, as residents reported greater success when wellness programming was required and when communication was coordinated and prioritized. Other reports describe low utilization of wellness programming despite knowledge of them. Mandatory participation might further normalize emotional and psychological health among trainees and faculty, as well as to promote the importance of skills acquisition that supports psychological self-assessment, seeking assistance/treatment, and the wellness of peers in applying "psychological first aid." Adaptation of military resources to a civilian setting, where readily adopted by organizations and surgery programs specifically, will be an area for rigorous study to determine effectiveness and outcomes in maintaining the resilience and mental health of the surgical trainee workforce throughout the course of the pandemic.

Institutional Impact on Residents as Employed Health Care Providers

Through a holistic view of their experiences, residents have also provided valuable insight into their expectations of institutional and program leaders. While residents did not expect leaders to deliver on all requests nor have all the answers, they noted and appreciated their visibility, particularly in front-line settings such as COVID-19 wards. Effective program leaders found innovative ways to be present and stay connected with the trainees that enhanced camaraderie as well as provided a means for acknowledgement of resident concerns. Satisfaction with institutional leadership has been correlated with comfort level in discussing concerns with attendings and inversely correlated with perceptions of increased risk. Residents reported that experiencing this crisis alongside their colleagues and the presence of institutional leadership created feelings of comradery, humanism, and understanding - qualities attributed to resilience that is protective against feelings of anxiety, depression, and burnout, and correlated with improved quality of life as in physical functioning, energy and/or fatigue levels, and emotional well-being.

Further, during the peak volume of the initial pandemic surge, residents reported not less clinical work, but a less chaotic workload, more conducive to focusing on overall wellness. This observation ultimately highlights an opportunity for program directors to consider the quality of resident workload beyond clinical work and duty hours as a means to further support and enhance wellness initiatives, in addition to the provision of time to engage in wellness activities.

The pandemic’s impact on resident’s schedules added to the uncertainty of one’s work environment known to be linked to “anticipatory anxiety”, confusion, and worry with significant negative impact on employee well-being and healthy functioning. Residents also reported that they were more resilient when heard and their concerns addressed. This took place when leaders asked the residents what they needed in a practical sense such as modifications and protections for pregnant residents, those with small children and/or elderly, and clear communication of schedule modifications in advance wherever possible. In our study as well as others, bidirectional messaging, even if unsuccessful in problem resolution, promotes an environment of trust and appreciation known to reduce anxiety.

Limitations to this study include those frequently encountered in qualitative work. The number of participants was small and the results may not be generalizable. Clearly, this national qualitative study had only 16 participants, including one resident from the Northeast and no Chief Residents, and this impacts negatively on generalizability of our findings. However, we believe the results are representative as the 90-minute interviews permitted in depth discussion and the geographic, ethnic, and ACGME stage composition of the groups was diverse. Further, we believe a strength of this study is the inclusion of six focus groups, each resulting
in rich dialogue between participants. While the intention was to have a representative study cohort, respondent bias affected our recruitment, in that respondents to the Interest Survey may be distinct in their desire to reflect upon and share their experiences. Although we used randomized individual selection to create a representative sample, our study population had limited representation of upper-level residents and residents from the Northeast. Lastly, biased interpretation of data including saturation of themes may exist. We attempted to mitigate interpretation bias by using two data analysts who reviewed transcripts separately, reached consensus, and in turn confirmed consensus among a larger group of authors.

In conclusion, several themes emerged from this qualitative study of general surgery residents’ personal accounts of the impact of the pandemic. Findings suggest that the pandemic affected residents in their clinical, educational, and personal experiences, in both positive and negative ways. A highlight of the findings is on the one hand, the critical need to address resident wellness, and on the other, to acknowledge the tremendous resilience manifest by surgical trainees. These findings will ultimately serve to inform trainees, surgical educators and teaching hospitals on key elements for a successful response to future crises. Themes of struggle and challenge, as well as success and accomplishment, should invoke a reflective response from leadership to consider what one can learn from these voices moving forward. Ultimately, these data highlight the need for institutional preparedness for ongoing and future disasters.

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