



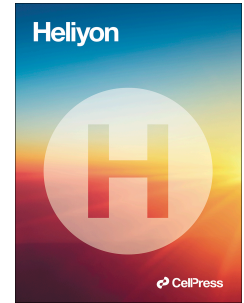
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Evaluation of psychological impact of COVID-19 on anesthesiology residents in the United States.

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## Evaluation of psychological impact of COVID-19 on anesthesiology residents in the United States.

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**Short title:** Impact of COVID-19 on anesthesiology residents.

**Key words:** DASS 21, a MBI, BRCS, Depression, healthcare, mental health.

### Glossary of terms

coronavirus disease 2019- (COVID-19), personal protective equipment (PPE), Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS), Posttraumatic stress disorder(PTSD), Post Graduation Year (PGY) , ), Operating room(OR), Intensive Care Unit(ICU), Depression-Anxiety-Stress-Scale (DASS-21), Abbreviated Maslach Burnout Inventory (aMBI), and Brief Resilient Coping Scale (BRCS). Maslach Burnout Inventory for healthcare professionals (MBI-HSS),

**Author contribution:**

Elyse Guran-: This author conceived and designed the experiment, performed the experiment, analyzed and interpreted the data, wrote the paper.

Manshu Yan: This author conceived and designed the experiment, analyzed and interpreted the data, wrote the paper.

Derek Ho: This author conceived and designed the experiment, analyzed and interpreted the data, wrote the paper.

Rashmi Vandse: This author conceived and designed the experiment, performed the experiment, analyzed and interpreted the data, wrote the paper.

## Abstract

The aim of our study was to evaluate the impact of COVID-19 on the mental health of in-training anesthesiology residents in the United States. A link containing validated survey tools including the Depression-Anxiety-Stress-Scale (DASS-21), the Abbreviated Maslach Burnout Inventory (aMBI), and the Brief Resilient Coping Scale (BRCS) along with questions related to work environment, and additional personal factors were emailed to 159 Anesthesiology residency programs across the US. 143 responses were received of which 111 were complete. The prevalence of depression, anxiety, stress and burnout was 42%, 24%, 31% and 71% respectively. Emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment were experienced by 80%, 53%, and 65% of respondents, respectively. The BRCS scale showed 33% of respondents with low, 44% with moderate and 22% with high coping scales. Logistic regression analyses indicated those with a prior mental health diagnosis were 3 times more likely to have a non-normal DASS depression score, 4 times more likely to have a non-normal DASS anxiety score, and 11.74 times more prone to emotional exhaustion. Increased work hours and higher training levels were associated with increased levels of stress. In our survey, prior mental health illness, gender and increased work hours were the main drivers of increased risk .

## 1. Introduction

The Coronavirus disease 2019 (COVID-19) is the worst pandemic the world has confronted in 100 years, whose complete repercussions will not be known for decades. Existing studies have shown heightened levels of stress and adverse mental health outcomes among the general population during the Covid-19 pandemic, which are consistent with trends of prior novel disease outbreaks and natural disasters.<sup>1-3</sup> Front-line healthcare workers took a significant brunt of this deadly disease laboring to meet the demands of drastic surges and have faced an inestimable burden of psychological stress. Fear of catching COVID and exposing loved ones, stigmatization, shortages of personal protective equipment (PPE), and unfavorable patient outcomes are often cited as stressors.<sup>3,4</sup> Reports from countries severely affected by the pandemic demonstrate a burnout prevalence of 15-86% among physicians.<sup>5-7</sup>

Several studies including a systematic review and meta-analysis attest to the adverse psychological impact of COVID-19 on healthcare workers. A multitude of health care workers appeared to suffer from several short and long-term sequelae such as symptoms of anxiety, burnout, depression, and posttraumatic stress disorder.<sup>1-6</sup> Specific risk factors include single relationship status, female gender, being quarantined, working in high-risk units, high work load, low job satisfaction, lack of family support, and a prior history of psychiatric disorder.<sup>1-6</sup> Interestingly, stronger moral resilience was found to decrease the odds of stress, anxiety, burnout and depression symptoms.<sup>7,8</sup> Apart from its psychological influence, burnout can adversely affect physicians' medical competency and judgement, increasing the risk for medical errors and impairing patient safety.<sup>9</sup> Reduced exposure to training opportunities and redeployment has

further impacted the training of physicians globally. An international survey of physician trainees across all specialties reported a widespread perceived negative impact on training due to the COVID-19 pandemic.<sup>10</sup>

Anesthesiology residents represent a unique vulnerable group of physicians who are learners but also execute a substantial amount of frontline caregiving tasks with increased levels of autonomy. Although several studies have reiterated the negative psychological impact of the COVID-19 pandemic among physicians and nurses, the psychological effects and vulnerability experienced by anesthesiology residents is still unknown. Understanding these factors may help formulate strategies and interventions to better prepare us for future health crises.

The study's objectives are to evaluate the psychological impact of the COVID-19 pandemic on in-training anesthesiology residents by quantifying symptoms of anxiety, depression, and burnout. We also aim to explore factors that may help to reduce stress and examine individual's coping strategies.

## **2. Materials and Methods**

### **2.1 Subjects and Study Tool**

The psychological impact of COVID-19 on anesthesiology trainees' study was conducted between December 2020 and April 2021 at Loma Linda University in California. The survey was created using a Qualtrics questionnaire platform with written informed consent included at the beginning of the questionnaire. An exemption was obtained from the institutional review board (IRB) at the Loma Linda University Medical Center in compliance with Health Insurance

Portability and Accountability Act regulations (IRB number – 5200275). In January 2021, invitations to participate with study objectives and a survey link were emailed to program directors and clinical coordinators of 159 Anesthesiology residency programs across the US to be distributed to all anesthesiology trainees (PGY-1 to PGY-4). (Supplement 1)

## 2.2 Measures

### 2.2.1) Demographics

Information about subjects' gender, ethnicity, training states, and current training levels (post-graduation year or PGY1-4) was obtained.

### 2.2.2) Exposure to COVID-19

Questions including the following were asked: working/rotation locations during the COVID-19 pandemic (operating room, intensive care units, emergency room, inpatient internal medicine, outpatient/ambulatory); current surge status of COVID-19 cases at the training hospital; presence and frequency of direct contact with COVID positive patients; testing status (whether or not the trainee had been tested for COVID-19, whether or not the trainee had tested positive for COVID-19); quarantine history (if the trainee had been quarantined due to infection or exposure); whether relatives or friends had contracted COVID; whether the respondent lived apart from family members during the pandemic; vaccination status.

### 2.2.3) Impact of COVID on clinical training



Information regarding trainees' perception of the impact of COVID-19 on their clinical training including work hour changes (increase vs decrease); duties performed outside the training scope (switching from anesthesia rotations to COVID units); decrease in case log numbers; decrease in didactics/lectures were collected.

#### 2.2.4) Perceptions of preparation, protection, and support with respect to COVID-19.

Information regarding program/hospital's support system/availability of protective equipment was obtained. Specifically, PPE availability; emotional/social support for trainees; supervision level from staff while caring for COVID patients; availability of dedicated lectures/established protocols for COVID-19 management were collected.

#### 2.2.5) Trainees' altruistic acceptance of risk

Whether the trainee feels he/she has valuable skills to care for COVID patients and feels motivated to learn the skills to respond to diverse challenges were collected.

The questionnaire also included the following validated survey tools to assess the psychological impact of COVID-19 on anesthesiology trainees: Depression-Anxiety-Stress-Scale (DASS-21), Abbreviated Maslach Burnout Inventory (aMBI), and Brief Resilient Coping Scale (BRCS). The DASS-21 is a well-established, validated instrument to measure depression, anxiety, and stress symptoms in both clinical and non-clinical settings in adults.<sup>11</sup> The DASS-21 was also validated in the US and other countries to assess depression, anxiety and stress during the COVID-19 pandemic.<sup>12</sup> It encompasses a set of three self-report scales (7 items each) to measure the emotional states of depression, anxiety, and stress. The Maslach Burnout Inventory for

healthcare professionals (MBI-HSS) is the most frequently utilized and endorsed tool to diagnose burnout among medical professionals.<sup>13,14</sup> We used the abbreviated version of MBI-HSS (9 questions) to evaluate emotional exhaustion, depersonalization, and personal accomplishment.<sup>15</sup> A high risk of burnout was defined as a participant with moderate high or high burnout scores in 2 or more of the sub-scales as described in prior studies involving anesthesia residents.<sup>2,16</sup>

The Brief Resilient Coping Scale (BRCS) (4 items) examines the use of coping strategies to differentiate low, medium and high resilience<sup>17</sup>.

### **Data Analysis**

We evaluated multiple exploratory endpoints. No assumptions were made about the data a priori as sample size estimation was not conducted. Categorical variables are represented by counts/percentages, while numeric variables are represented by medians accompanying 25th/75th percentiles. Fisher's exact tests (unadjusted p-values) evaluated categorical variables. For post-hoc comparisons of numeric variables, the Dunn's test was utilized. There was no multiple testing correction used for this analysis. Logistic regression was used for descriptive analytics to model the presence of burnout, anxiety, and stress using the following endpoints: (1) Maslach depersonalization scores, (2) Maslach emotional exhaustion scores, (3) DASS depression scores, (4) DASS anxiety scores, (5) DASS stress scores, and (6) Brief Resilient Coping Scale (BRCS). Analyses were conducted in R version 4.1.2.

## **3. Results**

Characteristics of respondents

This survey was sent to all anesthesiology residency training programs across the US. 143 responses were received, among which 111 responded to the questions completely. Table [1,2] shows the demographics of the respondents, along with the degree of exposure to COVID-19, the impact of COVID-19 on clinical training as well as hospital/program's support system including availability of PPE during the pandemic. A total of 26% (17.5% of males and 37.5% of females) had a prior mental health diagnosis.

Overall, a large majority of respondents participated in the care of COVID-positive patients (77%). 32% of respondents had to quarantine due to potential COVID-19 infection. From the perspective of working environment and training during the pandemic, 28% of the respondents reported working more hours than usual and 41% reported mainly working in the ICU. Most respondents reported having adequate support from the hospital/department (82%), including PPE availability (99%), lectures (41%), and protocols on managing covid patients (76%), and emotional/social support to those who needed help (65%) (table [2]).

We classified DASS depression, anxiety, and stress scores into two groups: normal range and increased range. Depression scores are considered normal if  $\leq 9$ , anxiety scores are considered normal if  $\leq 14$ , and stress scores are considered normal if  $\leq 7$ . According to the survey, the prevalence of depression, anxiety, stress was 42%, 24%, and 31%, respectively. As per the A-MBI scale, the individuals with moderate and high risk were included. Emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment were experienced by 80%, 53%, and 65% of respondents, respectively. The high rate of burnout was found in 71.2% of

respondents. The BRCS showed 33% with low coping, 44% with moderate coping and 22% with high coping (Table 3).

Logistic regression analyses (Supplement 2) indicated that factors including prior mental health diagnosis, gender, quarantined status, and increased work hours are associated with the exploratory endpoints. The strongest model, AIC=148, for DASS depression scores used prior mental health diagnosis (odds ratio=3.03[95% CI:1.23-7.87]) and quarantined status (odds ratio=0.38[95% CI:0.15-0.91]) as predictors. We interpret the DASS depression model as follows: those with a prior mental health diagnosis are 3 times more likely than those without a prior mental health diagnosis of having a non-normal DASS score. Moreover, the odds of having a non-normal DASS score is 62% lower if respondents had ever been quarantined due to potential COVID-19 infection.

The top model, AIC=110, for DASS anxiety scores used both gender (odds ratio=0.27[95% CI:0.09-0.70]) and prior mental health diagnosis (odds ratio=4.00[95% CI:1.52-10.85]) as predictors. We interpret the DASS anxiety model as follows: males have a 73% lower likelihood, compared to females, of having non-normal DASS anxiety scores. Moreover, the odds of having non-normal DASS anxiety scores are 4 times higher if someone has a prior mental health diagnosis as compared to those without. The median DASS anxiety scores across gender are 2 and 4 for males and females, respectively.

The best model, AIC=134, for DASS stress scores only used increased working hours status (odds ratio =3.42[95% CI:1.35-8.31]) as a predictor. We interpret the DASS stress model as

follows: if someone answered yes to 'Increased Work Hours?' then they are 3.42 times more likely than those who did not have increased hours of having non-normal DASS stress scores. Further, the median DASS stress scores across gender are 10 and 12 for males and females, respectively.

The top model, AIC=144, for depersonalization used both gender (odds ratio=4.93[95% CI:2.16-11.91]) and prior mental health diagnosis (odds ratio=1.77[95% CI:0.69-4.78]) as predictors. We interpret depersonalization as follows: males are 4.93 times more likely than females to have depersonalization. Moreover, the odds of having depersonalization is 77% higher for those with a prior mental health diagnosis. The median depersonalization scores were 8 and 4 for males and females respectively.

Lastly, the best model, AIC=106, for emotional exhaustion scores used both gender (odds ratio=1.98[95% CI:0.74-5.40]) and prior mental health diagnosis (odds ratio=11.74[95% CI:2.19-218.78]) as predictors. We interpret emotional exhaustion as follows: those with a prior mental health diagnosis are 11.74 times more likely of having emotional exhaustion as compared to those without mental health diagnosis. Further, 82.5% of men and 77% of women had emotional exhaustion. Please see the supplementary table for additional exploratory endpoint models.

Higher training levels (PGY-4) are associated with a higher risk for stress (Figure 1), while lower training levels (PGY-1) are associated with lower DASS depression and stress scores. Having a high BRCS coping score is associated with lower depression, anxiety, and stress scores (Table

3). The Kruskal Wallis tests showed a statistically significant difference (p-value<0.05) regarding training levels across DASS depression and stress scores. For DASS depression scores, PGY-1 differed from all years (p-values <0.01, <0.01, <0.01) and for DASS stress scores PGY-1 differed from PGY-4 (p-value <0.01).

#### 4. Discussion

Anesthesiology as a specialty has historically been associated with disproportionate rates of anxiety, depression, substance abuse and suicidal ideation.<sup>18,19</sup> Resident physicians within this specialty have similarly demonstrated high rates of burnout, depression, and suicidality<sup>16,20</sup> and may be a particularly vulnerable group during times of extreme stress and uncertainty. A cross-sectional survey of 2773 anesthesiology residents in the United States prior to COVID -19 pandemic found 41% of respondents at high risk for burnout, while 22% screened positive for depression.<sup>16</sup> Another cross-sectional survey encompassing anesthesiology residents and first-year graduates between 2013 and 2016 in US, measured burnout and depression rates at 51% and 12%, respectively.<sup>20</sup> This is in contrast with our study, which showed much higher prevalence of depressive symptoms (42%) and burnout (71.2%) suggesting the harmful influence of the COVID-19 pandemic. It is also important to note how DASS scores of anesthesiology residents compare with the general population during the pandemic. A recent study examined DASS scores in a US general population and found stress, anxiety and depression scores of 9.28, 5.70, and 8.33 respectively<sup>26</sup> while the median DASS stress, anxiety, and depression scores in our study population were 8, 2 and 12 respectively, highlighting the pervasive effects of the pandemic.

In addition to the daily hardships associated with residency such as long, unpredictable work hours and the care of hemodynamically unstable patients, the COVID-19 pandemic introduced additional situational stressors related to PPE availability, personal safety concerns, and disruption to scheduled clinical rotations.<sup>21</sup> As hospitalizations peaked, resources across the nation were stretched to the limit. Intensive care units often exceeded capacity and expanded into various non-ICU medical wards and non-patient care areas. With this expansion, resident physicians were relied upon to help meet these new demands. Though various specialties were involved in the care of COVID patients, anesthesiology residents were among the first and most heavily utilized group in many academic centers due to their unique expertise in managing critically ill patients. For example, one academic program created resident-fellow positions—a transition likened to “battlefield promotion” meaning senior residents acted as fellows and fellows acted as attendings to provide ICU coverage.<sup>22</sup> However, increased exposure in turn increases the risk for burnout and psychological distress.<sup>23,24</sup> Higher rates of anxiety, depression, and burnout have been documented among healthcare workers involved with direct care of COVID patients and those who contracted COVID-19.<sup>23,24</sup> Unfortunately, in most robust COVID related surveys of healthcare workers, anesthesiology as a specialty has been largely excluded with even fewer studies incorporating anesthesiology residents. A single institutional study revealed higher rates of moderate to severe anxiety among anesthesiology residents compared to ICU nurses and attending anesthesiologists. It is also notable that residents had over twice the amount of moderate to severe anxiety compared to anesthesiology attendings.<sup>25</sup>

As we decipher the results from our study, there appears to be an association between pre-existing mental illness and higher depression, anxiety, and stress scores. These findings are consistent with prior studies.<sup>23,27-30</sup> Female residents had higher overall DASS scores compared to male residents which is also in line with a higher percentage of preexisting mental health disorders in females compared to males. Previous data on the effect of gender are conflicting, although specific gender-related risk factors can contribute to burnout and poor mental health. Interestingly, burnout among men is significantly related to greater levels of depersonalization while emotional exhaustion are linked to burnout in women<sup>31</sup> which is in contrast with our results with male residents demonstrating a higher likelihood of both depersonalization and mental exhaustion compared to females.

In our study, a higher post-graduate year (PGY) was associated with higher DASS depression and stress scores. This is in contrast with a study by Elbay et al, who analyzed depression, anxiety, and stress levels during the COVID-19 pandemic and showed that less work experience is associated with worse mental health outcomes.<sup>32</sup> However, anesthesiology residents are distinct in that they often have increased frontline responsibilities and less supervision at higher PGY levels. Elbay's study did show that working on the frontline with lower levels of support from supervisors was associated with higher scores, which is consistent with increased responsibilities and autonomy of higher PGY levels.

As per the A-MBI scale, emotional exhaustion, depersonalization, and reduced feelings of personal accomplishment were experienced by 80%, 53%, and 65% of our respondents, respectively. Burnout has been shown to impact cognitive function and more precisely visual



attention which is especially pertinent to anesthesiology because it requires high levels of vigilance at all times.<sup>33–36</sup>

According to our results, quarantining was not statistically significant for DASS anxiety or stress scores. However, we have found quarantining to be a statistically significant factor for DASS depression scores only when modeled with prior mental illness. Our results are somewhat inconsistent with prior studies, which demonstrate an association of being quarantined with higher stress levels during the pandemic.<sup>23,27–29</sup> However, we have found that an increased workload significantly contributes to burnout. It is plausible that time spent under quarantine provided anesthesia residents time away from high-risk COVID units and other work-related stressors, thereby ameliorating the adverse effects of prior COVID exposure.

Our results also emphasize the significance of coping skills during a viral pandemic. Residents with low coping skills on the BRCS also showed higher DASS depression, anxiety, and stress scores while the reverse was true for residents with higher coping skills. These results highlight the necessity of providing opportunities for anesthesia residents to learn resilience strategies, making it an essential component of resident wellness during stressful events, like a global pandemic.<sup>37</sup> This emphasizes the need for strong support systems to identify high-risk residents with the goal of preventing worsening symptoms and improving resiliency. Knowing which residents are at high risk for depression, anxiety, and stress can help identify those who would benefit from protective measures such as psychiatric professional screening, private counseling, and other mental health resources. There may also be a role for incorporating an online cognitive behavioral therapy (CBT) program with the goal of improving resilience during highly stressful

situations in at risk individuals.<sup>38,39</sup> It is also beneficial in that it avoids drawbacks associated with face-to-face interventions during a pandemic (e.g., risk of transmission) and provides a more flexible and feasible format for a large number of healthcare workers to access.

In our survey, prior mental health illness, gender and increased work hours emerged to be the drivers of increased risk. Although specific personal characteristics are pivotal, a recent study indicates that workplace culture and practices are far more significant in contributing to physician burnout than individual factors<sup>14</sup>. A survey of practicing anesthesiologists in the United States, conducted on March 2020, indicated that the perceived lack of support at the work place is the single most important risk factor for both high risk of burnout and burnout syndrome<sup>14</sup>. This contrasts with our study where in 65% of residents indicated that their hospital provided emotional support to those who needed help and only 18% of the respondents felt lack of support at their workplace. Thus, both organizational mediations along with targeting personal risk factors seems to be important.

### Limitations

Our study has several limitations. As per the 2018 report from AAMC, there were 5871 active anesthesiology residents in USA<sup>39</sup>. Our effective response rate thus represents a small fraction of the total population. Though the survey was distributed to all the residency program coordinators and program directors, we couldn't directly send the survey to individual residents. Given the increased workload and psychological stress associated with the COVID surge, motivation to take part in the additional voluntary survey was probably very low. There were

several other surveys that were circulating around this time which again might have adversely impacted the response rate. However, our results are generalizable to the larger population as the sampling still represents the fraction of the anesthesiology residents in the US. A larger proportion of respondents were from the west coast and several regions had no responses. Given the geographic variability in COVID surges, it is possible that the time from the last COVID surge may have a significant impact on psychological symptoms experienced by residents, which is not captured in our small sample. Further, the study can only measure correlation and not causation since we did not manipulate any variables in the study and did not have a control group.

## Conclusions

Anesthesiology in-training residents are at high risk for harmful psychological impact of the COVID-19 pandemic, however more studies are needed that specifically focus on anesthesiology trainees. Several modifiable and non-modifiable factors that merit further investigation have been highlighted in this study and include work hours, gender, prior mental illness and PGY level. Hospitals and anesthesiology programs should focus on strategies to identify and protect the more vulnerable groups by implementing timely and targeted interventions to promote coping strategies and resiliency that might help mitigate the adverse psychological impact of the pandemic.

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## Figure Legends

Figure 1.- Median DASS scores across training levels. (Post graduation Levels- PGY)



Table 1, Baseline Demographics of Survey Respondents

<b>N</b> (Number of Complete Responses)	111
<b>Postgraduate Year</b>	
PGY1	13 (11%)
PGY2	33 (29%)
PGY3	26 (23%)
PGY4	39 (35%)
<b>Sex</b>	
Female	48 (43%)
Male	63 (54%)
<b>Ethnicity</b>	
Asian	29 (26%)
Black/African America	5 (4.5%)
Hispanic/Latino	8 (7%)
White/Caucasian	62 (56%)
Other/Unknown	2 (2%)
<b>Prior Mental Health Diagnosis</b>	29/111 (26%)
Male	11/29 (38%)
Female	18/29 (62%)
<b>Testing Positive for SARS-COV-2</b>	
Yes	10 (9%)
<b>Quarantine Due to Potential SARS-COV-2 infection</b>	
Yes	36 (32%)
<b>Direct Contact with SARS-COV-2 Positive Patient</b>	
Daily/Weekly	86 (77%)
Monthly/Never	25 (23%)

Table 2, Impact on Clinical Training, and hospital support system

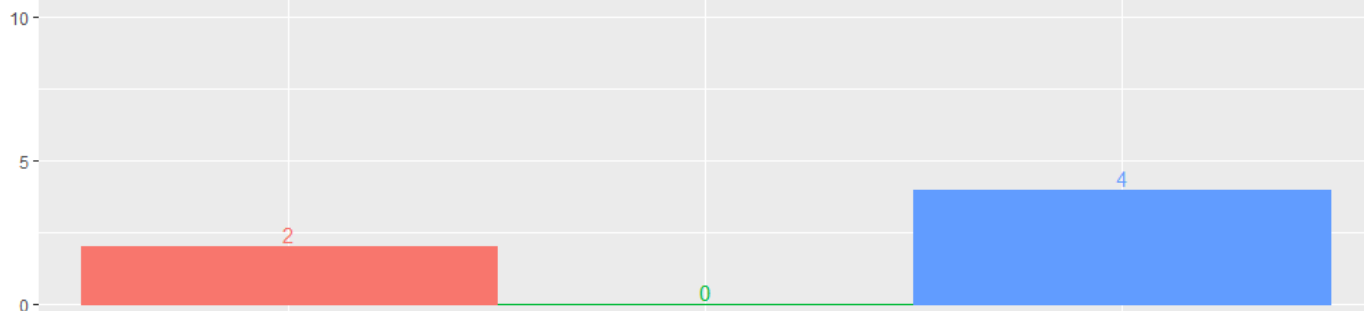
<b>How has your work schedule changed since the start of COVID-19?</b>	
Work substantially more hours than usual	31 (28%)
Work substantially fewer hours than usual	16 (14%)
Had to perform duties outside the scope of my field or position	32 (29%)
Have been switched from a current anesthesia rotation to a covid unit or ICU to help with staffing	47 (42%)
<b>What is the effect on anesthesiology training?</b>	
Feel I am missing out on essential cases, rotations or experiences due to changes from COVID	52 (47%)
My program has decreased didactics during the pandemic	57 (51%)
<b>How was the preparation and hospital's support during the pandemic?</b>	
My program has a dedicated lecture or lecture series on how to manage covid patients	46 (41%)
My program has a specific protocol when managing covid patients in the OR/ICU	84 (76%)
My program/hospital offers emotional/social support to those who need help	72 (65%)
I had to care for COVID patients by myself without enough supervision	24 (22%)
I feel my program/hospital is not being supportive to residents during the pandemic	20 (18%)
<b>Trainees' altruistic acceptance of risk</b>	
I feel I have valuable skills to contribute to care for COVID patients	77 (69%)
I feel motivated to learn the skills to respond to diverse challenges	60 (54%)
<b>Departments Worked/Rotated During the Pandemic</b>	
OR	100 (90%)
ICU	99 (89%)
ER	25 (22.5%)
IM	39 (35%)
Output/Ambulatory Medicine	20 (18%)
<b>PPE Availability?</b>	
Never/Rarely Available	1 (1%)
Sometimes Available	2 (2%)
Often/Always Available	108 (97%)

Table 3: DASS, Burnout and BRCS coping scale

<b>Variable</b>	<b>Count (Percentage)</b>
<b>DASS Depression (&gt;9)</b>	47/111 (42%)
Male	27/47 (57%)
Female	20/47 (43%)
<b>DASS Depression (≤9)</b>	64/111 (58%)
Male	36/64 (57%)
Female	28/64 (43%)
<b>DASS Anxiety (&gt;7)</b>	27/111 (24%)
Male	8/27 (30%)
Female	19/27 (70%)
<b>DASS Anxiety (≤7)</b>	84/111 (76%)
Male	55/84 (65%)
Female	29/84 (35%)
<b>DASS Stress (&gt;14)</b>	35/111 (32%)
Male	19/35 (54%)
Female	16/35 (46%)
<b>DASS Stress (≤14)</b>	76/111 (68%)
Male	44/76 (58%)
Female	32/76 (42%)
<b>BRCS</b>	
Low Coping (4-13)	37/111(33%)
Moderate Coping (14-16)	49/111(44%)
High Coping (17-20)	25/111(22%)
<b>BRCS Low Coping (4-13)</b>	37/111 (33%)
DASS Depression Scores (>9)	20/37 (54%)
DASS Anxiety Scores (>7)	15/37 (40%)
DASS Stress Scores (>14)	15/37 (40%)
<b>BRCS High Coping (17-20)</b>	25/111 (22%)
DASS Depression Scores (>9)	3/25 (12%)
DASS Anxiety Scores (>7)	2/25 (8%)
DASS Stress Scores (>14)	3/25 (12%)
<b>Increased work hours</b>	31/111 (28%)
DASS Depression Scores (>9)	18/31 (58%)
DASS Depression Scores (≤9)	13/31 (42%)
DASS Anxiety Scores (>7)	15/31 (48%)
DASS Anxiety Scores (≤7)	16/31 (52%)
DASS Stress Scores (>14)	16/31 (52%)
DASS Stress Scores (≤14)	15/31 (48%)

# Median DASS Scores

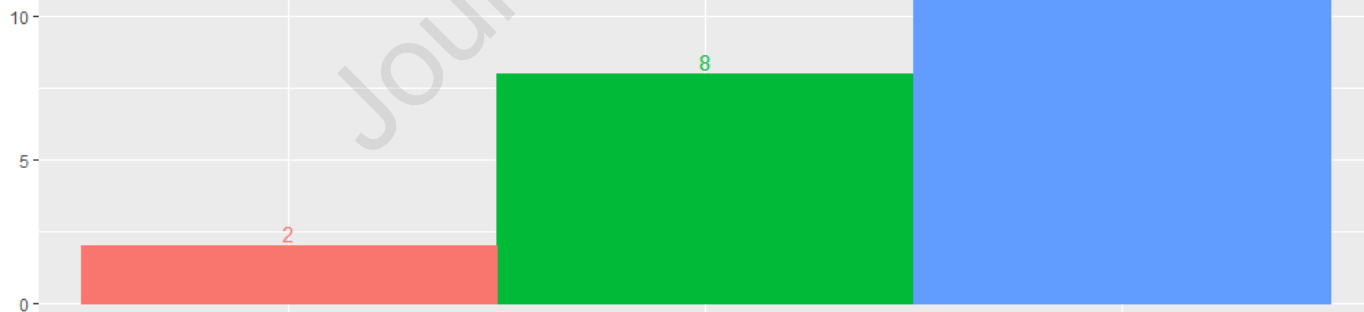
PGY1  
Journal Pre-proof



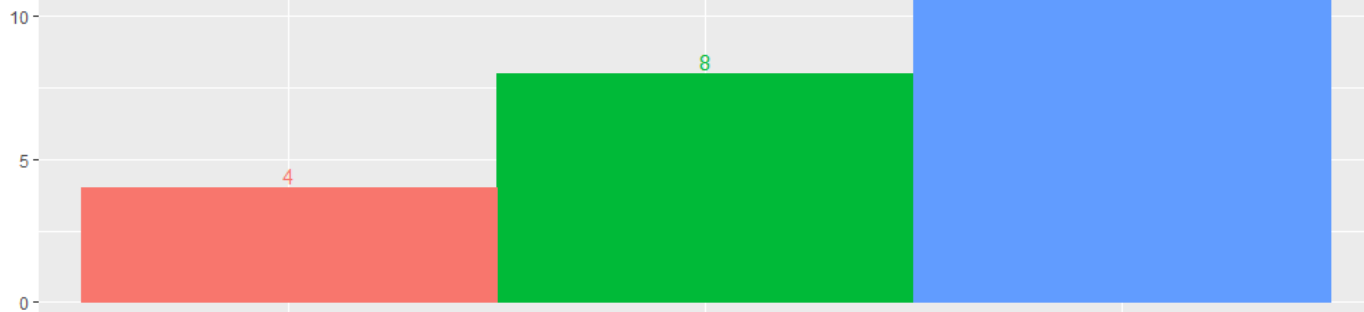
PGY2



PGY3



PGY4



Anxiety

Depression

Stress

Type Anxiety Depression Stress