

Is It All COVID-19? Resident Distress and Reasons for It in 2020

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Objective: For resident wellness, it is important to understand and discern the relative contributions of each factor to resident stress.

Methods: After institutional review board approval, a 20-question survey instrument was provided to 90 residents across four specialties (Internal Medicine, Emergency Medicine, General Surgery, and Orthopedic Surgery) at a university-affiliated health system. The survey was completed from October through November 2020 by 63 residents for a 70% participation rate. Qualitative and quantitative analyses were used.

Results: The results showed a mean change in status in either direction of 2.66 points on an 11-point scale. Status changes were both positive (less stress) and negative (more stress). Related to the source of change in stress levels, 8 items were seen as predominantly influenced by residency training and 11 factors were predominantly influenced by the pandemic. One item was equally influenced by both. No item was primarily influenced by the sociopolitical climate. For 16 of the 20 items, changes in a negative direction were statistically greater than in a positive direction.

Conclusions: Both positive and negative changes in resident stress status occurred during the pandemic period. Traditional residency stressors remained and because all of the factors were affected by both the pandemic and residency training, efforts to mitigate the negative effects of both need to continue.

Key Words: pandemic, residency stress, residents, wellness

Despite the potential for personal and professional development, the refinement of unique skills, and opportunities to make lifelong friends and colleagues, for more than 30 years residency training has been recognized as a stressful experience.¹ Focusing on polar terms such as burnout and wellness, the contemporary literature and daily experience suggest that the adjustment challenges of residency remain.^{2,3}

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In 2020 and continuing, the coronavirus disease 2019 (COVID-19) pandemic added another layer to the stressors of clinical care and training. The impact, which is ongoing, extends beyond residents to staff physicians and all healthcare workers.^{4,5} The uniqueness of this pandemic was described this way:

*The coronavirus crisis was more novel than we thought, more taxing than we expected—and its consequences will last longer than we anticipated.*⁶

There is a third component in the current environment, providing a trifecta of strain for residents: the backdrop of an unprecedented sociopolitical climate. Macroevents such as politics are correlated with the mood of young doctors.⁷ Although needed attention is importantly paid to the additive and multiplicative intensity of these influences, less attention has been focused on each individual factor's potential and relative contribution to distress in residents.

As such, we sought to disentangle the etiological factors for distress in residents in the current chaotic tapestry of residency training experiences. For training, adjustment, and thriving, it is important to understand and discern what distress stems from residency itself, the additional burden of COVID-19, and/or a fluid sociopolitical climate. This is especially true as we try to prevent and intervene with the deleterious effects of these stressors.

Methods

To assess the direction and degree of changes in stress levels, we developed a 20-item questionnaire, as shown in the Supplemental Digital Content survey instrument (<http://links.lww.com/SMJ/A270>), comprising recognized resident stressors. After obtaining institutional review board approval, the questionnaire was provided to 90 residents across four specialties (Internal Medicine, Emergency

Key Points

- To optimize resident wellness in the current climate, it is important to understand the relative contributions of the pandemic, residency training itself, and the sociopolitical environment.
- Although stress occurred in residents during the pandemic, positive change also occurred.
- Increased stress occurred because of the pandemic and residency training itself.
- Efforts to mitigate stress and optimize wellness in residents must address both pandemic and residency-related stressors.

Table 1. Factors showing significant change compared with the overall mean change

	Mean	SD	Compared with overall change <i>P</i>
Experience social bias toward yourself	1.71	2.38	0.0025
Your satisfaction with essential communications	1.79	2.62	0.0110
You feel lonely	1.94	2.62	0.0322
Trust in remaining free of COVID-19	3.89	3.25	0.0039
Overall change	2.66	2.09	

COVID-19, coronavirus disease 2019; SD, standard deviation.

Medicine, General Surgery, and Orthopedic Surgery) at a university-affiliated health system. The survey was completed by 63 residents (39% female and 24% male) for a response rate of 70%. The survey was administered between October 21 and November 16, 2020.

Using a 3-month time period, starting from the beginning of the academic year in July 2020, residents were asked to indicate for each questionnaire item if there was any change to how it affected them; whether that change was positive (less stress) or negative (more stress); the intensity of that change, on a 0 to 10 scale; and to what did they attribute the change: residency training, the COVID-19 pandemic, the sociopolitical climate of the country, or “other” factors.

To evaluate the source of status change, residents were asked to assign a number from 1 to 3 (primary to tertiary) for each item reflecting the impact of residency, the pandemic, or the sociopolitical climate or “other” as the etiology of the change. We combined the percentage of residents ranking each potential source as either 1 or 2 to obtain the relative influence on the status change.

Data were analyzed quantitatively. Resident demographic data, including department, sex, and years of training, were reported as numbers and percentages. The number and percentage of positive (better/less stress) and negative (worse/more stress) responses were reported for each survey question. The degree of change for each survey question was reported as means and standard deviations. Each question was compared with the overall degree of

change using a one-sample *t* test. The degree of change comparisons between the positive and negative responses was conducted using the Student *t* test. The rankings of the reasons of change were reported as numbers and percentages. All of the analyses were done in SAS 9.4 (SAS Institute, Cary, NC). A *P* value of less than 0.05 was considered statistically significant.

Results

Our results showed that the mean change in status in either direction (positive or negative) was 2.66 points on a 0- to 10-point scale. As shown in Table 1, 3 of the 20 factors showed a significantly lower mean of change than the overall change. Only one factor showed a significant higher mean of change than the overall change.

Related to the degree of change, as seen in Figure 1, the three factors with the greatest change in a positive direction were your ability to engage with your patients (88.9% of residents indicating positive change), your happiness with your career choice (82.5% of residents indicating positive change), and your feeling fulfilled by patient contact (79.4% indicating positive change).

The items showing the greatest change in a negative direction, as shown in Figure 2, were your trust in remaining free of COVID-19 (63.5% indicating negative change); your trust in PPE [personal protective equipment] availability (52.4% indicating negative change), and your contact with family/your contact with friends (tied with 49.2% indicating negative change).

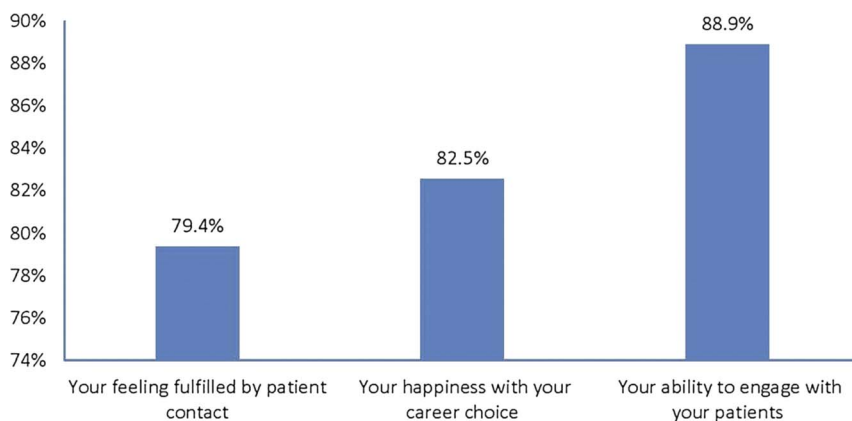


Fig. 1. The three factors showing the greatest change in a positive direction.

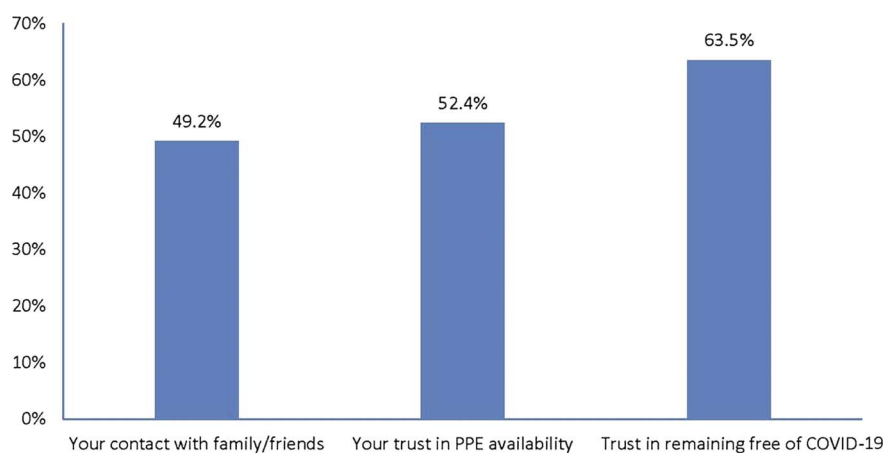


Fig. 2. The three factors showing the greatest change in a negative direction. COVID-19, coronavirus disease 2019; PPE, personal protective equipment.

Related to the intensity of impact, the changes in a negative direction were statistically greater than the change in a positive direction for 15 of the 20 factors, from 1.45 points to 3.12 points ($P < 0.05$). As shown in Table 2, the three factors that showed the largest significant difference were your ability to maintain the health of your family (3.12, $P < 0.0001$), trust in remaining free of COVID-19 (2.77, $P = 0.0007$), and your trust in societal institutions (2.68, $P < 0.0001$).

Related to the source of change in stress levels, Table 3 shows that five factors were seen as predominantly influenced by the pandemic, Table 4 shows that 13 factors were seen as predominantly influenced by the residency training, and one item was equally influenced by both (contact with friends, 46.7%). The only factor that was seen as being primarily influenced by the

sociopolitical climate was your trust in societal institutions, with 42% of residents ranking it as the number one reason for the change in stress level. For some factors, other reasons for change in status were job search, personal life, personal stressors, and personal/family issues as cocontributors to the level of stress change.

Discussion

In summary, the data show that there were changes in resident stress status over the course of 3 months coinciding with the start of the residency year and a concomitant increase in the severity of the pandemic. Of note, not all change was in a negative or more stressful direction. Furthermore, not all change was seen as the result of the pandemic. The intensity of negative change,

Table 2. Factors of significant difference between changes in a positive direction and negative direction

Factors	Negative direction (mean)	Positive direction (mean)	Difference in mean	<i>P</i>
Your ability to maintain the health of your family	4.38	1.26	3.12	<0.0001
Trust in remaining free of COVID-19	4.90	2.13	2.77	0.0007
Your trust in societal institutions	4.11	1.43	2.68	<0.0001
Your feeling fulfilled by patient contact	4.46	1.82	2.64	0.0011
Your ability to sleep soundly	4.29	1.83	2.46	0.0016
Your contact with family	4.42	2.00	2.42	0.0015
Your optimism about life in general	4.78	2.42	2.36	0.0108
Your trust in this health system	4.07	1.72	2.35	0.0006
Your ability to maintain work/life balance	4.04	1.69	2.35	0.0019
Contact with friends	4.29	2.16	2.13	0.0031
Your worry about bad things happening	3.73	1.79	1.94	0.0022
You feel lonely	3.18	1.30	1.88	0.0060
Your satisfaction with essential communications	3.19	1.32	1.87	0.0126
Finding it hard to get through the day	3.24	1.58	1.66	0.0158
Your feeling nervous and on edge	3.07	1.62	1.45	0.0148

COVID-19, coronavirus disease 2019.

Table 3. Factors in which pandemic ranked as the primary source of change in stress level

Factors	Responses,
Your trust in PPE availability (n = 47)	63.8
Your contact with family (n = 45)	51.1
Your ability to maintain the health of your family (n = 36)	50.0
Your trust in this health system (n = 43)	48.8
Your trust in remaining free of COVID-19 (n = 52)	48.1

COVID-19, coronavirus disease 2019, PPE, personal protective equipment.

however, was greater than positive change for almost all items, and the source of this change was primarily related to pandemic influences.

Although many findings cannot be explained by the design of this initial study, some are worth speculation. For example, the finding from Table 1 that trust in remaining free of COVID-19 decreased may be reasonably related to the severity and uncertainty of the disease at that juncture. Less obvious is why some factors such as the experience of social bias, satisfaction with essential communications, and feelings of loneliness were relatively stable. Perhaps the overriding fear and physical impact of COVID-19 and need for care muted the expression of patient biases, or perhaps resident immersion in care muted the awareness of that expression. The impact on loneliness may have been influenced by the cultural composition of these particular residency programs as they have a high percentage of internationally trained residents. Whether these residents are more comfortable with separation from family or how domestically trained residents responded needs further clarification. Perhaps system and individual program awareness and efforts to maintain engagement reduced some isolation. Also, reflection suggests that the communication structure and quality of this particular health system were at an effective level prepandemic and continued during the pandemic.

The results shared in Figures 1 and 2, demonstrating factors with the greatest change in a positive or negative direction, would need further investigation to clarify the nature and etiological reasons. The reasons for differences in responses from individual residencies (which could not be determined from these data) may reflect differences in exposure to COVID-19 patients, however. For example, Internal Medicine residents are likely to have been more intimately involved in COVID care than general or orthopedic surgeons.

Tables 3 and 4 suggest that current changes in stress levels and etiologies were not unitary and reflect perhaps expected and historically typical trends. Although the pandemic brought a unique set of concerns, it did not erase the more traditional stresses or positive effects of residency training. Furthermore, in concert with other data reported, it appears that protective effects occur at the macro (systems) level and, also important, at the micro (residency program) level.

Finally, the impact of a shifting political climate also may have been influenced by the cultural composition of these residency programs. In systems with primarily American medical graduates, there may be greater invested interest in politics with the ability to vote versus this largely international graduate group, who are not eligible to vote and may have less investment in ideology and issues.

Another curious finding was that of residents' trusting PPE availability and the health system, but being concerned about protecting their families from COVID-19 exposure. A potential explanation for this could be that, although present, this trust was not solid, especially in the early stages of the pandemic because of frequent and variable changes in information, stances, and guidelines at institutional and federal levels on the transmission of COVID-19.

One final factor that may have contributed to the current findings was that the system and individual programs instituted various (but beyond discussion in this article) measures to proactively address uncertainties. A well-received intervention was the creation of a biweekly support group, known as frontline meetings, for residents working on medical floors and in critical care units. These provided an outlet for sharing their concerns and reactions to daily challenges. An example response from one participating resident was "I realized after these meetings that the feelings I experience are not 'odd' or 'abnormal,' but a normal response to these trying times and that I am not alone."

Conclusions

Although our study is limited by the number of participants and its restriction to one system's training sites, the lessons suggested are instructive. Perhaps most important is the conclusion that, despite the enormous impact of the COVID-19 pandemic on society, health care, and training, the traditional stressors of residency remain (eg, quality of sleep). Because all of our factors

Table 4. Factors in which residency training ranked as the primary source of change in stress level

Factors	Responses, %
Your expectation that good things will happen for you (n = 42)	78.6
Your ability to maintain work-life balance (n = 42)	73.8
Your happiness with your career choice (n = 44)	70.5
You find it hard to get through the day (n = 38)	68.4
Your ability to engage with your patients (n = 40)	65.0
Your satisfaction with essential communications (n = 31)	64.5
Your feeling fulfilled by patient contact (n = 44)	61.4
Your feeling nervous and on edge (n = 47)	59.6
Your ability to sleep soundly (n = 40)	57.5
Your optimism about life in general (n = 43)	55.8
You feel lonely (n = 36)	55.6
You experience social bias toward yourself (n = 34)	47.1
Your worry about bad things happening (n = 45)	44.4

were affected by both the pandemic and residency training, the critical efforts to mitigate the potential negative effects of both need to continue.

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