The Mental Toll of the COVID-19 Pandemic: Stress, Anxiety, and Depression of Medical Residents

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Introduction

The goal of this project is to examine the stress, anxiety, and depression of resident physicians due to the added pressures of the COVID-19 pandemic. Moreover, we look to further examine stress, anxiety, and depression across participant demographics, family characteristics, and risks for COVID-19.

Methods

Chi-square analyses were applied to test the relationship between DASS-21 subscales and participant demographics and risk factors for COVID-19. To account for small sample sizes, Fisher's exact tests were applied ($\alpha = 0.05$). Trends were also identified using Fisher's exact ($\alpha \geq 0.05 \leq 0.1$). Resident physicians in North Carolina received an email with a Qualtrics survey containing 61 items. The survey took about 15 minutes to complete. Data was captured from March-April 2021.

DASS-21 Tool

We employed the Depression, Anxiety, and Stress Scale (DASS-21)[1] to measure the mental health strain on resident physicians. DASS-21 has three subscales; one for each stress, anxiety, and depression. Responses are coded from 0 "Did not apply to me at all" to 3 "Applied to me very much, or most of the time." Our Chi-Square analyses clumped together Mild/Moderate and Severe/Extremely Severe to create just 3 subgroups.

Rating	Depression #1	Anxiety #2	Stress #3
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	37+

Results and Analysis

Table 1. Demographics of Resident Participants (n=106)

Variables					
Categorical Variables	Frequency	Percentage			
Gender ID					
Female	63	59.43			
Male	43	40.57			
Other	0	0			
Total	106				
Geographic Region					
Northeast	1	0.94			
South	105	99.06			
Midwest	0	0			
West	0	0			
Total	106				
Residency Program					
All other resident specialities	93	93.94			
Emergency Medicine	6	6.06			
Total	99				
Race					
white	86	81.9			
nonwhite	14	13.33			
Prefer not to say	5	4.76			
Total	105				
Hispanic					
yes	6	5.66			
no	100	96.43			
Total	106				
Live with someone high risk					
yes	6	15.09			
no	100	84.91			
Total	106				
Personally at high risk					
yes	13	12.26			
no	93	87.74			
Total	106				
Received Vaccine					
yes	103	98.1			
no	2	1.9			
Total	105				
Interval Variables	Frequency	Percentage	Mean	Std. Dev.	Min	Max
Age			31.06	3.659	26	44
26 to 30	55	51.89			
31 to 35	37	34.91			
36+	14	13.21			
Total	106				
Members of Household			1.327	1.17	0	5
0	23	22.12			
1	47	45.19			
2+	34	32.69			
Total	104				

Table 2: Chi-Square Results and Trends

	Peason's Chi-Square	d.f.	p-value	Fisher's Exact
	Anxiety			
LiveHighRisk	6.703	2	0.035	0.024
	Stress			
Household	8.095	4	0.088	0.072

Discussion

Ultimately we found that living with someone who is at higher risk leads to an increase in the Anxiety levels of medical residents ($\alpha = 0.024$). This was the only Chi-Square analysis that produced statistically significant results ($\alpha \leq 0.05$). However, trends in the data were identified in that residents with more people living in their households experience increasing amounts of Stress ($\alpha = 0.072$). Our results support other findings that the worry of infecting other members of their household with COVID-19, leads to increase stress and anxiety.[2,3,4]

Limitations/Future Research

- All respondents were from only 3 North Carolina institutions
- Future research should launch the same survey in areas in which the pandemic has been largely controlled as well as in other areas where the pandemic is currently uncontrolled to examine differences in stress response based on pandemic response status.

Conclusion

- Medical Residents' demographics, and family characteristics have no effect on the levels of stress, anxiety, and depression as a result of the COVID-19 pandemic.
- While stress, anxiety, and depression are present in varying amounts, we find that the pandemic amplifies these mental health effects in individuals whose households may be more at risk.