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Resilience related to novel coronavirus among doctors and undergraduate medical students-A study from India

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Abstract:

BACKGROUND: There are no studies pertaining to resilience related to novel coronavirus focusing primarily on doctors and undergraduate medical students in India. The objectives of this survey were to assess the resilience and its various domains that are needed for dealing with novel coronavirus among doctors, interns, and undergraduate students and to see its correlation with various sociodemographic factors.

MATERIALS AND METHOD: An online cross-sectional survey was done among doctors and undergraduate medical students during the first COVID-19 wave from May 19, 2020 to June 8, 2020. A total of 434 responses were recorded during the study period. All the recorded full responses were considered for data analysis. Snowball sampling was used for this study. Resilience was assessed using three items, which were taken from the Brief Resilience Scale (BRS).

RESULT: Out of 434 responses, 51.7% (224/433) of the respondents were non-resilient. The presence of the elderly at home was significantly associated with poor resilience ($P = 0.02$). Resilience was not significantly associated with other socio-demographic factors. Younger respondents ($P = 0.019$) and females ($P = 0.0004$) were of the opinion that they recovered late from stressful events. Elderly respondents ($P = 0.003$) and those with chronic illness ($P = 0.008$) reported that it is hard for them to snap back if something bad happens ($P = 0.003$).

CONCLUSIONS: More than half of the doctors and undergraduate medical students were found to be non-resilient, underscoring the urgent need to take steps to improve the resilience of this group of frontline workers.

Keywords:

Doctors, novel coronavirus, resilience

Introduction

The novel coronavirus pandemic, which was started in 2019 December is continuing to challenge the mankind despite the availability of an effective vaccine against it. This is because of the uncertainty related to changing mutations in the virus, uncertain efficacy of the vaccine against the new mutants, fear related to reinstatement of public restrictions such as night curfews, lockdown, and potential

overwhelming of health care systems with infected cases. This all continues to take a toll on the frontline workers such as doctors and testing their resilience to deal with the emerging situation.

Resilience can be described as an individuals' ability to recover after experiencing challenging life experiences or overcoming changes or crises.^[1] Resilience is essential not only in the primary confrontation of a crisis but in the continuing confrontation. Supporting the mental well-being and

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resilience of frontline healthcare workers is imperative to ensure not only the global recovery from the COVID-19 pandemic but also during the post-pandemic period.

The COVID-19 pandemic has caused an unprecedented strain on healthcare systems and healthcare workers around the world. During the different waves of the pandemic, rising infection rates, inadequate personal protective equipment, and the lack of availability of hospital beds had resulted in further deterioration of the already fragile mental health of healthcare workers.^[2] Even before the COVID-19 pandemic, burnout was occurring at alarming rates of 35%–54% among nurses and physicians.^[3] The inverse relationship between resilience and burnout has been established in studies done both before and during the pandemic.^[4-6] Not only does resilience correlate negatively with burnout, but there is also evidence of its inverse relationship with depression, anxiety, and post-traumatic stress disorder (PTSD) among health care workers including doctors, further elevating the importance of resilience among health care workers.^[7]

Objectives

There are no studies pertaining to resilience related to novel coronavirus focusing primarily on doctors and undergraduate medical students in India. Hence, we believe that the finding from this study will be helpful in understanding the resilience and factors associated with it among this key group of frontline workers in dealing with the current pandemic and during the post-pandemic period. This in turn will help in better planning of interventions to improve the resilience of doctors and undergraduate medical students.

This paper is part of our survey named “Monitoring knowledge, risk perception, and preventive behavior related to novel coronavirus among doctors and medical students.” One of the objectives of this survey was to assess the resilience and its various domains that are needed to deal with novel coronavirus among doctors, interns, and undergraduate students and to see its correlation with various sociodemographic factors.

Materials and Methods

Study design and setting: A cross-sectional online survey among doctors and undergraduate medical students was conducted during the first COVID-19 wave from May 19, 2020 to June 8, 2020. As it was not feasible to do a community-based national sampling survey during this special period, we collected the data online, thereby keeping it in line with the social distancing and lockdown protocols.

Study participants and sampling: The target study population was medical teachers (those working in

government or private medical colleges as faculties/consultants), interns, undergraduate students, and other doctors (private practitioners, doctors working in other government hospitals). A total of 434 doctors responded during the study period.

Data collection tool and technique

The self-administered questionnaire consisted of basic details of the participants such as gender, residence, designation, history of any chronic illness, elderly, and children living at home with participants. The resilience was assessed using three items, which were taken from the Brief Resilience Scale (BRS) developed and duly validated by Smith, Dalen, and Wiggins *et al.* in 2008.^[8] The questions chosen were sourced from the World Health Organization’s (WHO) regional office Europe’s survey tool and guidance.^[9]

Before sending the survey, we did pilot testing among the local medical fraternity to see if there is any difficulty in understanding the questions. The responses were analyzed, and changes were made based on the feedback received from the participants. The questionnaires were provided in Google forms. It was sent through various online channels such as e-mail, WhatsApp groups, and Facebook. We requested participants to forward it to other eligible participants so that we get the maximum number of responses, hence doing a snowball sampling.

To assess resilience, we asked the participants to answer three questions pertaining to their experience during the novel coronavirus pandemic. The questions were as follows-

1. I have a hard time making it through stressful events
2. It does not take me long to recover from a stressful event
3. It is hard for me to snap back when something bad happens.

The respondents were given a Likert scale for their responses with a response as strongly disagree on the left side of the scale and strongly agree on the right side of the scale. The question 1 (I have a hard time making it through stressful events) and 3 (It is hard for me to snap back when something bad happens) were scored from 7 to 1 for responses ranging from strongly disagree to strongly agree, whereas question 2 (It does not take me long to recover from a stressful event) was scored as 1 to 7 as one moves from strongly disagree to strongly agree. The scoring was done as per the instruction of BRS. The individual question’s most common score (mode) and median scores were found out and scores above and below the median were considered as resilient and non-resilient and median were considered as “indecisive”. A final average score was calculated based

on resilient, non-resilient, and indecisive responses to individual questions.

The survey result was analyzed using the software SPSS version 20 provided by the Public Health Foundation of India (PHFI).

Ethical consideration

The study protocol was approved by the Institutional Ethical Committee. Online informed consent was obtained from the participants as part of the online questionnaire.

Results

A total of 434 responses were recorded during the study period. The mean age of the participants was 32.97 years with the median age being 28 years. The youngest was of 18 years and the eldest was 74 years.

Various sociodemographic characteristics of the respondents are shown in Table 1. The association of resilience with age group is given in Table 2.

Among resilient participants, the maximum belonged to the 15–30 years age group (47.1%). As the age increased, resilience decreased (minimum for > 60 years, i.e., 5.7%). However, this association was statistically not significant.

Among the age group 15–30 years, 55.6% (133/239) of the respondents were non-resilient. Overall, 51.7% (224/433) of the respondent were non-resilient, whereas 32.3 (140/433) % of the respondent were resilient.

The associations of resilience with other sociodemographic factors are shown in Table 3.

Resilience was found to be significantly associated with “elderly living at home” ($P = 0.02$). This means that the respondent who had elderly living with them were less resilient. Resilience was not significantly associated with other sociodemographic factors such as gender, place of residence, post/designation, history of chronic illness, and presence of children at home.

Analysis of the individual domain of resilience revealed that question 2 (it does not take me long to recover from the stressful event) was statistically associated with age and gender. This is shown in Figures 1-4.

The young age group was more of the opinion (64.5%) that they recovered late from the stressful event. This association was highly significant.

More females (57.94%) reported that it took them longer to recover from the stressful event when compared to

Table 1: Socio-demographic characteristics of respondents

| Characteristics of the respondents | Frequency | % | C.I. |
|--|-----------|------|-------------|
| Gender (n=433) | | | |
| Female | 107 | 24.7 | 20.88-29.88 |
| Male | 326 | 75.3 | 71.02-33.30 |
| Residence (n=433) | | | |
| Bihar | 308 | 71.1 | 66.69-75.20 |
| Outside Bihar | 125 | 28.9 | 24.80-33.31 |
| Posts/designation (n=433) | | | |
| Asst. Professor/Assoc. Prof/ Professor | 71 | 16.4 | 13.21-20.18 |
| Intern | 60 | 13.9 | 10.92-17.43 |
| Other doctors | 170 | 39.3 | 34.78-43.94 |
| Undergraduate medical student | 132 | 30.5 | 26.34-34.98 |
| History of Chronic Illness (n=433) | | | |
| Don't know | 4 | 0.9 | 0.36-2.35 |
| No | 380 | 87.8 | 84.34-90.52 |
| Yes | 49 | 11.3 | 8.67-14.65 |
| Do you have children living at home with you? (n=433) | | | |
| No | 238 | 55.0 | 50.26-59.59 |
| Yes | 195 | 45.0 | 40.41-49.74 |
| Do you have elderly living at home with you? (n=433) | | | |
| No | 235 | 54.3 | 49.56-58.91 |
| Yes | 198 | 45.7 | 41.09-50.44 |

Table 2: Association of resilience with age-group

| Age group | Resilience | | | Total |
|-------------|------------|---------------|------------|-------------|
| | Resilient | Non-Resilient | Indecisive | |
| 15-30 years | 66 (47.1%) | 133 (59.4%) | 40 (58.0%) | 239 (55.2%) |
| 31-45 years | 43 (30.7%) | 64 (28.6%) | 22 (31.9%) | 129 (29.8%) |
| 46-60 years | 23 (16.4%) | 24 (10.7%) | 6 (8.7%) | 53 (12.2%) |
| >60 years | 8 (5.7%) | 3 (1.3%) | 1 (1.4%) | 12 (2.8%) |
| Total | 140 (100%) | 224 (100%) | 69 (100%) | 433 (100%) |

$P=0.055$

males (37.11%). This association was highly significant statistically.

Further, 66.7% of the elderly had it hard for them to snap back if something bad happens. This association was significant statistically.

More (40.81%) people who had chronic illness thought that it is hard for them to snap back if something bad happens when compared with people who do not have a chronic illness (34.47%).

Discussion

The objective of this study was to study the resilience related to novel coronavirus among undergraduate medical students and doctors. We found that 71.1% of the study participants were from Bihar, whereas the remaining 28.9% were from other parts of the country. The mean age of the participants was 32.97 years with the

Table 3: Association of resilience with various socio-demographic factors

| Characteristics of the respondents | Resilient (%) | Non-resilient (%) | Indecisive (%) | P |
|--|---------------|-------------------|----------------|--------|
| Gender (n=433) | | | | |
| Female (107) | 28 (26.2) | 61 (57) | 18 (16.8) | 0.286 |
| Male (326) | 112 (34.4) | 163 (50) | 51 (15.6) | |
| Residence (n=433) | | | | |
| Bihar (308) | 90 (29.2) | 169 (54.9) | 49 (15.9) | 0.073 |
| Outside Bihar (125) | 50 (40) | 55 (44) | 20 (16) | |
| Posts/designation (n=433) | | | | |
| Faculty | 25 (35.2) | 34 (47.9) | 12 (16.9) | 0.0196 |
| Intern | 13 (21.7) | 32 (53.3) | 15 (25) | |
| Other doctors | 63 (37.1) | 84 (49.4) | 23 (13.5) | |
| Undergraduate medical student | 39 (29.5) | 74 (56.1) | 19 (14.4) | |
| History of Chronic Illness (n=433) | | | | |
| No | 126 (32.2) | 194 (50.3) | 64 (16.6) | 0.310 |
| Yes | 14 (28.6) | 30 (61.2) | 5 (10.2) | |
| Do you have children living at home with you? (n=433) | | | | |
| No | 67 (28.2) | 131 (55) | 40 (16.8) | 0.121 |
| Yes | 73 (37.4) | 93 (47.7) | 29 (14.9) | |
| Do you have elderly living at home with you? (n=433) | | | | |
| No | 89 (37.9) | 110 (46.8) | 36 (15.3) | 0.02 |
| Yes | 51 (25.8) | 114 (57.6) | 33 (16.7) | |

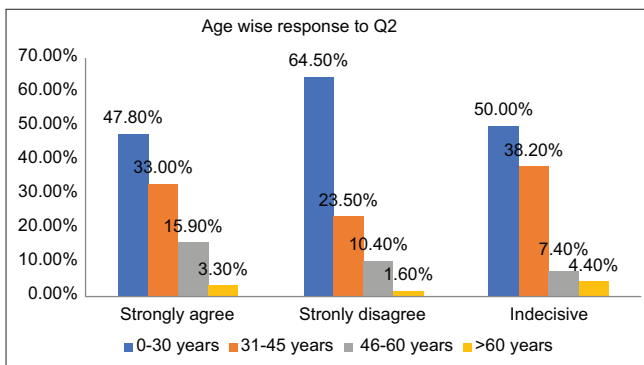


Figure 1: Graphical representation of Association of question 2 with age. Chi-square- 15.230, P = 0.019

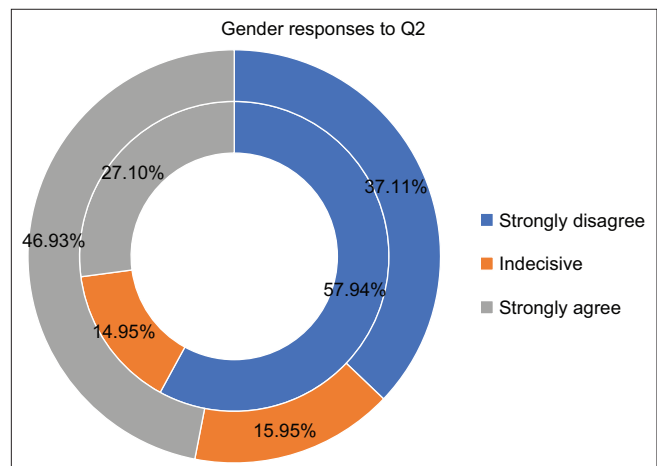


Figure 2: Graphical representation of association of question 2 with gender. *Inner circle represents female responses, whereas outer circle represents male responses

median age being 28 years. Just more than half (51.7%) of the respondents were non-resilient, whereas approximately one-third (32.3%) of the respondents were resilient. An integrative review of healthcare worker resilience during the COVID-19 pandemic found the resilience score to be in the moderate range.^[6] Given the complex nature of resilience and the different scales used by different studies, it would not be helpful to compare the results of our study with other studies such as the one done by Nathiya *et al.* in 2021.^[10] However, the study finding highlights the urgent need to improve the resilience of doctors and undergraduate medical students as more than half of them were non-resilient. To further assist in this process, it would be interesting to see the association of various socio-demographic factors with resilience and its different components.

The study found the presence of elderly living at home with the participants to be the only socio-demographic

factor significantly associated with resilience ($P = 0.02$). This means that the participants who had elderly living with them at home were not resilient. This is understandable given that the doctors being the frontline workers have a high-risk of having exposure to novel coronavirus and the presence of the elderly at home possibly could have induced the fear of them infecting the elderly at home. Moreover, the fact that the elderly are more prone to have severe illness and serious complications of infection could have made the situation more frightening for the respondents. Notably, the association was not significant for the presence of children at home. This could be explained by that the fact that children are less susceptible to have severe illness and its complications. The study did not

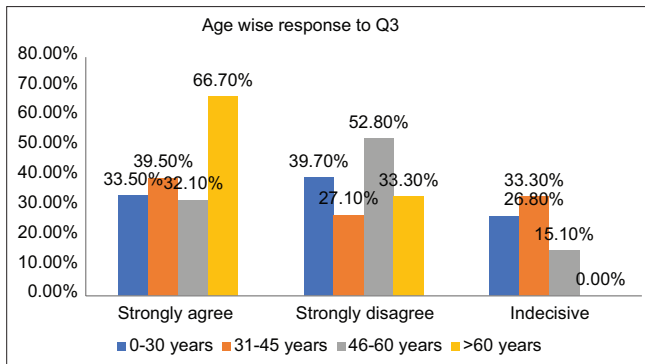


Figure 3: Graphical representation of association of question 3 with age. Chi-square- 19.68, P = 0.003

find any significant association of resilience with other socio-demographic factors such as age, gender, place of residence, designation, and presence of chronic illness. Our literature search in this area revealed no published study focusing specifically on the resilience of doctors and undergraduate medical students. Most of the published studies have tried to compare resilience among doctors, nurses, and other healthcare workers.^[6] A study done by Collantoni *et al.*^[11] to assess resilient coping abilities among healthcare workers in a tertiary healthcare setting in Italy during the final phase of the first wave found greater resilient coping abilities in males as compared to females. A frontline COVID survey done in India that included doctors found that middle-aged (31–40 years) had a higher level of resilience.^[10] These different findings could be explained by the fact that different local factors may contribute to the level of stress, resilience, and mental health at the time of the global pandemic. Nonetheless, the study finding highlights the need to provide specialist psychological support to the doctors for having elderly living with them.

The study found that the younger people took long to recover from stressful events related to novel coronavirus. This finding is understandable given the fact that younger doctors might have less experience in dealing with life stressors as compared to other age group doctors. The study finding is similar to a study done in 2020 by Awano *et al.* in Japan to assess anxiety, depression, and resilience of healthcare workers during the coronavirus disease.^[12] They found younger age and lower resilience to be risk factors for depression. This study finding underscores the need to have the special emphasis on younger doctors' specific psychological needs to improve their resilience.

Another important finding of this study was that female respondents reported that it took them long to recover from stressful events related to novel coronavirus. This association was statistically highly significant ($P = 0.0004$). This is understandable given

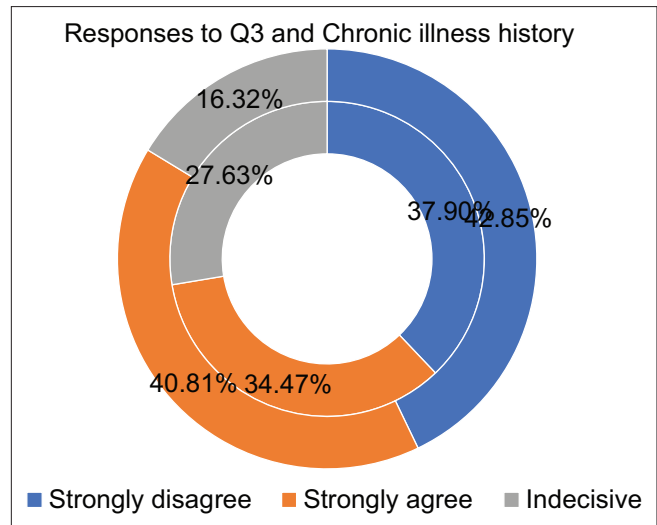


Figure 4: Graphical representation of association of question 3 with chronic illness. Chi-square- 9.56, P = 0.0084

that female doctor in our country are shouldered with both household and job responsibilities. This makes them prone to suffer from stress and its consequences. Understandably, a statistically highly significant number of females reported that it took them longer to recover from stressful events related to novel coronavirus. This finding is similar to a study done in India by Nathiya *et al.*^[10] to assess the mental health outcome and professional quality of life among healthcare workers during the COVID19 pandemic as part of the frontline COVID survey, which found that females, especially nurses had a greater risk of burnout and stress. This finding translates into the need to offer psychological support attuned to female psychological needs to improve their resilience.

Our study found that the elderly population and people with chronic illness had a hard time to snap back if something bad happens related to the novel coronavirus. This finding can be understood from the fact that elderly populations of doctors are having a high likelihood of having a chronic illness. Similarly, their life stage makes them more vulnerable to recover if something bad happens as they might have already suffered losses even before the current pandemic. This makes them difficult to cope with further losses. This translates into providing more social support and grief-related mental health support to this population of doctors to improve their resilience.

As per our knowledge, there are no studies in India that have tried to look into resilience related to novel coronavirus among doctors and undergraduate medical students. The study has a reasonable sample size. The study looked at overall resilience and attempted to look into specific domains of resilience related to the

novel coronavirus and its association with various sociodemographic factors to better understand the phenomenon.

Limitations and recommendation

Our survey has a relatively small sample size. A bigger sample size would have been more helpful in drawing more meaningful and generalizable observations. The online nature of this survey was another limitation as this could have led to sample bias toward younger and more technology-savvy participants. Snowballing nature did not allow us to estimate the proportion of potential participants who did not respond. A survey of this nature would be more meaningful if a follow-up of the responses were recorded with the progression of the pandemic. The use of a standard resilience rating scale could have made it possible to compare the finding with other similar studies.

Longitudinal studies are needed to address whether resilience responses are consistent and whether they can predict trajectories of mental and general health as humanity moves toward the post-COVID-19 pandemic era.

Conclusion

More than half of the doctors and medical undergraduates were non-resilient. This underscores the urgent need to take steps to improve resilience of this group of frontline workers. The study found that the presence of the elderly at home was significantly associated with having less resilience among doctors, thus highlighting the need to provide psychological support to this subgroup of doctors. Although younger doctors had difficulty in dealing with stressful events related to novel coronavirus, and elderly doctors had difficulty in snapping back if something bad happens. Female doctors reported that it took them along to recover from stressful events related to the novel coronavirus. Doctors with chronic illness found it difficult to snap back if something bad happens related to the novel coronavirus. Thus, it is important to focus on specific psychological difficulties of various subgroups of doctors and medical undergraduates to improve their resilience.

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Conflicts of interest

There are no conflicts of interest.

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