

# Social Stigma of COVID-19 Experienced by Frontline Healthcare Workers of Department of Anaesthesia and Critical Care of a Tertiary Healthcare Institution in Delhi

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## ABSTRACT

**Background:** Social stigma is associated with Coronavirus Disease-2019 (COVID-19) particularly against people who have contracted the disease or have come in contact with it. There is paucity of studies regarding the prevalence of social stigma against healthcare workers (HCWs) in COVID-19 hospitals in India. The objective of this study was to measure social stigma faced by frontline HCWs of Department of Anaesthesia and Critical Care in a COVID-19 hospital and to assess the relationship between sociodemographic characteristics and social stigma.

**Patients and methods:** A cross-sectional study using a questionnaire (sociodemographic characteristics along with modified Berger HIV Stigma Scale) was conducted from October 10, 2020 to October 30, 2020, in the Department of Anaesthesia and Critical Care. The survey was distributed among frontline HCWs using Google Forms as well as Bilingual Physical Form. Total stigma and subgroups of stigma scale were measured for different sociodemographic parameters and compared. Data were presented as mean  $\pm$  standard deviation.  $p$ -value  $<0.05$  was taken as significant.

**Results:** Out of 120 frontline HCWs participated in the study, 68 (56.6%) reported severe level of COVID-19-related stigma. The mean score of COVID-19-related stigma was  $41 \pm 7.69$ . Mean scores for subgroups of stigma scale, i.e., personalized stigma, disclosure concerns, negative self-image, and concerns with public attitude, were  $15.60 \pm 4.01$ ,  $6.68 \pm 3.21$ ,  $5.46 \pm 3.22$ , and  $13.25 \pm 2.44$ , respectively. In the univariate analysis, the overall COVID-19-related stigma scores were associated with age  $>30$  years, male gender, lower designation (technicians and nursing orderly), lesser education, and married HCWs. In logistic regression model, only male gender was significantly associated with severity of COVID-19 stigma.

**Conclusion:** This study concluded that more than half of frontline HCWs in the Department of Anaesthesia and Critical Care experienced severe social stigma during COVID-19 pandemic, with highest stigma in concerns with public attitude subgroup. Severity of stigma was associated with age, male gender, designation, education, and marital status of HCW.

**Keywords:** Discrimination, Healthcare workers, Negative attitude, Personalized stigma, SARS-CoV-2.

**Highlights:** Frontline HCWs of Department Anaesthesia and Critical Care experienced significant stigma related to COVID-19.

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## INTRODUCTION

Stigma is a multidimensional challenge and a discrediting social label that changes the way the individual looks at himself/herself. It has a negative impact on the individual's mental health and disqualifies them from full social acceptance. The concept of stigma was defined by Goffman as an attribute that is deeply discrediting, "that devalues the individual from a whole and usual person to a tainted, discounted one."<sup>1</sup>

The COVID-19 pandemic created a stressful situation in the society. Insufficient knowledge, improper understanding of mode of transmission, and unfamiliar protective measures, such as social distancing, frequent handwashing, use of face masks in public, and lockdown, were associated with anxiety and fear in the population. Moreover, shortage of health resources and conflicting messages from authorities also contributed to fear in public.<sup>2,3</sup> Healthcare workers (HCWs), who are supposed to look after the COVID-19 patients, are themselves more prone to getting infected and can be a potential source of infection for their contacts.<sup>4</sup> All these gave rise to stigma not only toward individuals who were suffering from the disease and their families, but also toward HCWs (doctors, nurses, paramedical staffs, and sanitary workers) who were involved in the care of patients.

Unfortunately, many cases of physical and mental harassment of HCWs working in the COVID-19 facility were reported in

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developing as well as developed countries.<sup>5-7</sup> In these incidents, HCWs faced social isolation, public harassment, denial of public transportation, and even eviction from rented accommodation. Such actions can negatively affect the mental health of HCWs and quality of care provided by them.<sup>8</sup> Despite these incidents,

COVID-19-related stigma among frontline HCWs has not been adequately investigated.

Anesthetists and intensivists are at high risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection because they treat the sickest patients, who require intensive care, and they undertake high-risk procedures that involve spreading of aerosols. Therefore, this cross-sectional study was planned to assess the prevalence of social stigma experienced by frontline HCWs in Department of Anaesthesia and Critical Care and to assess the relationship between their sociodemographic characteristics and stigma.

**MATERIALS AND METHODS**

After taking clearance from the institutional ethical committee, a cross-sectional study was conducted in a tertiary care hospital with a dedicated COVID-19 treatment facility. Senior residents (SRs), postgraduate (PG) students, technicians (Tech), and nursing officers (NOs) working in the intensive care unit (ICU) of COVID-19 facility in the Department of Anaesthesia and Critical Care were recruited using convenient sampling. HCWs on psychiatric medication were excluded from the study. The survey was conducted using either Google Forms or Bilingual (English/Hindi) Physical Forms according to the convenience of HCWs. The participation was voluntary, and data collected were anonymous. Data collection, data entry, and statistical analysis were done by different authors, to maintain anonymity and confidentiality. The questionnaire had two components. The first part contained the sociodemographic

data, such as age, gender, education, designation, marital status, living arrangement, and whether they were asked to leave rented accommodation or not, and the second part contained the stigma scale.

**COVID-19 Stigma Scale**

Being a new disease, there is no scale or tool to measure COVID-19-related stigma. While searching for a scale for measuring stigma in a similar epidemic, we found that Verma et al.<sup>9</sup> adapted the Berger HIV Stigma Scale<sup>10</sup> to measure stigma against HCWs during the 2004 SARS epidemic in Singapore. So, we also adapted Berger HIV Stigma Scale to measure COVID-19 stigma against frontline HCWs. It focuses on experiences, feelings, and opinions as to how HCWs feel and how they were treated during the COVID-19 outbreak. The COVID-19 Stigma Scale consisted of 15 questions (Table 1). The first set of questions (five items) were related to personalized stigma which measured the consequences like rejection, loss of friends, and social avoidance by others.<sup>11</sup> The second set of questions referred to disclosure concerns (three items), which measured issues related to whether or not HCWs told others about their working in a COVID-19 hospital.<sup>12</sup> The third set of questions measured negative self-image (three items), which dealt with one’s feelings toward oneself, such as shame, guilt, and self-worth.<sup>11</sup> Last set of questions were related to concern with public attitudes (four items), which measured HCWs’ perceptions of the public’s attitudes toward those working in a COVID-19 hospital.<sup>13</sup> The answers were ranked as per four-point Likert scale responses: “strongly disagree,” “disagree,” “agree,” and “strongly agree,” scoring 1–4, respectively.<sup>10</sup> The total or overall

**Table 1:** COVID-19 stigma scale

	<i>Disagree</i>	<i>Strongly disagree</i>	<i>Agree</i>	<i>Strongly agree</i>	<i>Score</i>
<b>Personalized stigma</b>					
1	Some people close (e.g., family members) to me are afraid that others will reject them if they know that I work in COVID hospital.				
2	People have physically backed away from me when they learn I work in COVID hospital.				
3	I have stopped socializing with some people because of their reactions to my working in COVID hospital.				
4	People seem afraid of me once they learn I work in COVID hospital.				
5	I have been hurt by how people reacted to learning that I work in COVID hospital.				
<b>Disclosure concerns</b>					
6	I worry that people who know I work in COVID hospital will tell others.				
7	I regret having told some people that I work in COVID hospital.				
8	I worry that people may consider me infectious when I will tell them that I work in COVID hospital.				
<b>Negative self-image</b>					
9	Working in COVID hospital makes me feel unclean.				
10	Working in COVID hospital makes me feel that I’m disgusting.				
11	Since working in COVID hospital, I feel set apart and isolated from the rest of the world.				
<b>Public attitude</b>					
12	Most people believe that a person who is working in COVID hospital is infectious.				
13	Most people working in COVID hospitals are rejected by others.				
14	People may be evicted from their home when their landlords find out that they are working in COVID hospital.				
15	Most people are fearful of meeting a person working in COVID hospital.				



COVID-19-related stigma score was calculated as the sum of the scores of these 15 items, ranging from 15–60, with a higher score indicating a higher level of stigma. Based on stigma scores, HCWs were divided into two groups: mild-to-moderate stigma (score <40) and severe stigma (score ≥40).

### Validation and Pilot Study

The questionnaire was designed in English language, and its content and validity were assessed by three experts: one each from anesthesia, psychiatry, and public health. The questionnaire was then translated into Hindi by members of the research team who were fluent in both English and Hindi, translated back into English by an independent person not involved in the project and checked for comparability with the original English questionnaire. Both the translators agreed on the necessary modifications, restatement and rewording. A pilot study was carried out in 15 HCWs working in ICU of COVID-19 facility to assess the feasibility and the reliability of questionnaire. Those participated in the study were excluded from the study. For internal consistency, Cronbach's alpha was used. Cronbach's alpha is excellent when it is ≥0.9. The questionnaire had sufficient reliability, with a Cronbach's alpha 0.905 (for depersonalized, it was 0.840, for personalized stigma 0.919, for disclosure concerns 0.844, for negative self-image 0.865, and for public attitude 0.846).

### Statistical Analysis

In our pilot study, higher percent of the HCWs (9/15, 60%) had reported stigma. Taking this value as reference, the minimum required sample size with 10% margin of error and 5% level of significance was 118 patients. We recruited 120 HCWs for our study.

After collection of data, it was double-entered in Microsoft Excel sheet and validated. The data were analyzed using SPSS version 23. Descriptive statistics, including mean ± SD, were used to characterize the study population. Shapiro–Wilk test was used to determine the normality of data. Nonparametric tests, such as Mann–Whitney *U* and Kruskal–Wallis *H* tests, were used for two groups and for more than two groups, respectively. Association between categorical variables was assessed using Chi-square test (or Fisher's exact test). In logistic regression model, significant factors of stigma in univariate analysis, such as age, gender, education, designation, and marital status, were included, and *p*-value <0.05 was taken as statistically significant.

## RESULTS

Seventy-five questionnaires were sent via Google Forms, out of which 55 responded. Sixty-five HCWs filled physical forms. None of the returned questionnaire was incomplete. A total of 120 HCWs' data was analyzed. Mean age of HCWs was 29.2 ± 6.65 years (range 21–58 years), with majority in the age group of 21–30 years (*n* = 90). Majority were males (*n* = 63); most of the HCWs had received education up to graduation and beyond (*n* = 110) and 55 of them were doctors. Majority were unmarried (*n* = 71), 54 lived in joint family, and 66 resided in rented accommodation.

The mean stigma score was 41 ± 7.69. Mean scores for subscales, such as personalized stigma, disclosure concern, negative self-image, and public attitude, were 15.60 ± 4.01, 6.68 ± 3.21, 5.46 ± 3.22, and 13.25 ± 2.44, respectively. Fifty-two participants had mild-to-moderate stigma while 68 (57%) had severe stigma.

HCWs in younger age (21–30 years) group had more stigma related to disclosure concerns and negative self-image while older population (>40 years) had more personalized stigma and concerns of public attitude. Mean value of stigma score was significantly higher in male in all scores except disclosure concern and negative self-image. Lower designation (Tech and NO) was significantly associated with all the subscales and total score of stigma. Higher qualification was associated with mild-to-moderate stigma score. Personalized stigma was significantly higher in nuclear family, and negative self-image was significantly higher in single member family. Marital status and accommodation were not significantly associated with any subscale and total stigma. Out of 66 participants who lived in rented accommodation, 32 were asked to vacate the house. However, it did not significantly affect the stigma score (Table 2).

On univariate analysis of different variables and severity of stigma, it was found that age >30 years, male gender, designation (Tech and NO), education less than graduation, and married HCWs had significant association with severity of stigma (Table 3).

However, when all such variables were put in logistic regression model, only male gender was independent factor associated with stigma (Table 4).

## DISCUSSION

Currently, many unknowns around COVID-19 and fear of getting infection have given rise to stigma in communities. COVID-19-infected persons together with their close contacts were identified and have been blamed for spreading infection. A “witch-hunt” hysteria developed worldwide and attacks against vulnerable people, such as COVID-19 patients and their caregivers, have been reported, and many times, it is implicated due to infodemic.<sup>14–17</sup>

There have been media reports from around the globe describing how frontline HCWs have been assaulted, spit on, hit with rocks, sprayed with bleach, denied rides to work, and made homeless because of fears that they would transmit SARS-CoV-2 to the people around them. COVID-19-related stigmatization was addressed in press in other countries as well, such as Egypt, Malawi, and Mexico. COVID-19 pandemic has led to stigmatizing experiences, such as social exclusion, discrimination, self-blaming, and shame.<sup>14–17</sup>

Frontline HCWs working in the high-risk area, such as ICUs, are at a higher risk of exposure to infection.<sup>18</sup> It is not uncommon for HCWs to work with limited supply of personal protective equipment adding to fear of infection and mental health problems.<sup>19</sup> This gets compounded by the unprecedented need of quarantine/isolation and strict maintenance of interpersonal distancing, depriving them of much-needed social and emotional support from colleagues and family.<sup>19–21</sup> Further, exposure to end-stage resuscitative procedures to save the lives of the patients leads to stress disorders among frontline HCWs in ICU.<sup>19</sup>

This study is an attempt to explore COVID-19-related stigma among frontline HCWs of Department of Anaesthesia and Critical Care working in a COVID-19 facility.

Our study reported similar total stigma score against HCWs, as reported by Verma et al.<sup>9</sup> in SARS and by Mostafa et al. in COVID-19, in Egypt.<sup>22</sup> Similarly, participants reported higher stigma score in relation to concerns with public attitude subscale and lower stigma in relation to the negative self-image subscale.<sup>9,22</sup> Higher stigma in relation to public attitude suggests that mass media and government should address this issue and public should be made more aware about the role of HCWs during this pandemic.

Table 2: COVID-19-related stigma subscale scores

Variables	Personalized stigma		Disclosure concern		Negative self-image		Public attitude		Total score	
	Mean ± SD	p value	Mean ± SD	p value	Mean ± SD	p value	Mean ± SD	p value	Mean ± SD	p value
<b>Age (in years)</b>										
21–30 (n = 90)	15.61 ± 4.06		6.50 ± 3.01		5.44 ± 2.91		13.20 ± 2.40		40.81 ± 7.79	
31–40 (n = 23)	14.52 ± 3.85	0.009	7.87 ± 3.03	0.006	6.13 ± 2.67	0.026	12.70 ± 2.57	0.008	41.35 ± 8.75	0.741
>40 (n = 7)	19.14 ± 2.27		4.00 ± 2.65		3.43 ± 1.13		15.71 ± 0.76		42.29 ± 0.76	
<b>Gender</b>										
Male (n = 63)	16.54 ± 3.60		6.79 ± 3.34		5.65 ± 3.07		13.75 ± 2.24		42.29 ± 6.98	
Female (n = 57)	14.58 ± 4.26	0.008	6.42 ± 2.80	0.731	5.25 ± 2.57	0.720	12.70 ± 2.57	0.026	39.02 ± 8.08	0.007
<b>Designation</b>										
No (n = 37)	16.27 ± 3.99		5.65 ± 2.97		4.84 ± 2.62		13.68 ± 2.44		40.03 ± 5.97	
Tech (n = 28)	17.86 ± 2.89	0.001	6.14 ± 3.44	0.002	4.54 ± 2.69	0.002	14.54 ± 1.69	0.001	43.07 ± 5.60	0.001
PG (n = 38)	13.18 ± 3.83		6.92 ± 2.77		6.13 ± 2.77		11.84 ± 2.43		38.21 ± 9.19	
SR (n = 17)	15.88 ± 3.66		8.82 ± 2.32		6.82 ± 3.03		13.35 ± 2.15		45.06 ± 8.45	
<b>Education</b>										
Intermediate (n = 10)	17.90 ± 2.42		10.30 ± 1.64		6.50 ± 3.69		13.70 ± 1.34		48.40 ± 4.74	
Graduate (n = 93)	15.31 ± 4.18	0.178	5.82 ± 2.85	0.001	5.10 ± 2.63	0.053	13.18 ± 2.60	0.922	39.46 ± 7.16	0.001
Postgraduate (n = 17)	15.88 ± 3.66		8.82 ± 2.32		6.82 ± 3.03		13.35 ± 2.15		45.06 ± 8.45	
<b>Marital status</b>										
Married (n = 49)	16.00 ± 3.80	0.425	7.00 ± 3.27	0.399	5.39 ± 2.89	0.669	13.67 ± 2.38	0.097	42.08 ± 7.08	0.111
Unmarried (n = 71)	15.34 ± 4.19		6.35 ± 2.95		5.51 ± 2.82		12.96 ± 2.47		40.25 ± 8.11	
<b>Family arrangement</b>										
Single member (n = 30)	15.17 ± 2.96		7.60 ± 2.84		7.20 ± 3.24		13.00 ± 2.08		43.17 ± 8.73	
Nuclear family (n = 36)	16.97 ± 3.61	0.037	6.22 ± 3.24	0.084	4.56 ± 2.48	0.001	14.00 ± 2.39	0.058	41.78 ± 6.65	0.095
Joint family (n = 54)	14.94 ± 4.62		6.33 ± 3.06		5.09 ± 2.43		12.89 ± 2.60		39.28 ± 7.55	
<b>Accommodation</b>										
Own (n = 54)	15.06 ± 4.41	0.269	6.59 ± 3.03	0.953	5.17 ± 2.50	0.510	12.93 ± 2.52	0.186	39.76 ± 7.74	0.204
Rented (n = 66)	16.06 ± 3.67		6.64 ± 3.17		5.70 ± 3.09		13.52 ± 2.37		42.02 ± 7.63	
<b>Asked to leave the house</b>										
Yes (n = 31)	16.06 ± 3.74	0.984	6.58 ± 3.09	0.948	5.32 ± 2.82	0.405	13.55 ± 2.32	0.984	41.52 ± 6.99	0.846
No (n = 35)	16.03 ± 3.68		6.66 ± 3.28		5.86 ± 3.31		13.49 ± 2.45		42.03 ± 7.97	

NO, nursing orderly; Tech, technicians (healthcare); PG, postgraduate, Anaesthesia and Critical Care; SRs, senior residents, Anaesthesia and Critical Care

Similar to findings reported by Mostafa et al.,<sup>22</sup> our study also found that the overall COVID-19-related stigma score and its subscale scores were inversely associated with higher educational qualifications. But, contrary to it, our study reported significant association of increasing age to severity of stigma. This may be because the mean age of their study was  $41.5 \pm 10.2$  years in contrast to ours which was  $29.2 \pm 6.65$  years. This highlights the need of giving psychological support especially to the older and junior staff of the hospital.

Male as well as married HCWs felt more of personalized stigma and had concerns with public attitude. This may be because they have more outdoor interaction with public. Mostafa et al. also reported similar findings for married HCWs, but didn't report significant difference between male and female HCWs.<sup>22</sup>

About 50% of the participants who lived in rented house were asked to evict the house. Though it wasn't significantly associated with total stigma or subscales scores, such actions may cause severe inconvenience to HCWs, affecting their morale and performance.<sup>23</sup>

Online support groups for HCWs should be established. Opportunities to talk openly about stigma may promote positive coping from stigma. Proper health education through news

outlets, pamphlets, and interactive sessions between public and epidemiologists appears to be the effective methods to reduce anxiety and fear among public. This will pave the way in preventing social harassments of both HCWs and COVID-19 survivors.<sup>24,25</sup> Systematic research is required for a deeper understanding of the underlying complexities concerning COVID-19-related stigma among HCWs.

There are some limitations of our study. First, there is the lack of a validated scale that specifically assesses the stigma associated with COVID-19. We therefore resorted to modify the available scale, and its face and content validity were ensured. The reliability of the scale was high (Cronbach's alpha 0.905). The present scale on COVID-19-related stigma among HCWs could be validated on larger population for future research. The study was conducted among staff of Department of Anaesthesia and Critical Care; therefore, results cannot be generalized to staff of other departments.

## CONCLUSION

This study concludes that more than half of frontline HCWs of Department of Anaesthesia and Critical Care experienced severe social stigma related to COVID-19, with highest stigma in concerns

**Table 3:** Background characteristics of HCWs working in COVID-19 facility

Variables	Stigma		Chi-square	p value
	Mild and moderate (less than or equal to 40)	Severe (more than 40)		
<b>Age (in years)</b>				
<30 (n = 87)	43 (82.70)	44 (64.70)	4.781	0.029
≥30 (n = 33)	9 (17.30)	24 (35.30)		
<b>Gender</b>				
Male (n = 63)	19 (36.5)	44 (64.7)	9.375	0.002
Female (n = 57)	33 (63.5)	24 (35.3)		
<b>Designation</b>				
NO (n = 37)	15 (28.8)	22 (32.4)	20.194	0.001
Tech (n = 28)	6 (11.5)	22 (32.4)		
PG (n = 38)	27 (51.9)	11 (16.2)		
SR (n = 17)	4 (7.7)	13 (19.1)		
<b>Education</b>				
Intermediate (n = 10)	0 (0.0)	10 (14.7)	12.959	0.002
Graduate (n = 93)	48 (92.3)	45 (66.2)		
Postgraduate (n = 17)	4 (7.7)	13 (19.1)		
<b>Marital status</b>				
Married (n = 49)	15 (28.8)	34 (50.0)	5.458	0.019
Unmarried (n = 71)	37 (71.2)	34 (50.0)		
<b>Family arrangement</b>				
Single member (n = 30)	15 (28.8)	15 (22.1)	3.446	0.178
Nuclear family (n = 36)	11 (21.2)	25 (36.8)		
Joint family (n = 54)	26 (50.0)	28 (41.2)		
<b>Accommodation</b>				
Own (n = 54)	26 (50.0)	28 (41.2)	0.927	0.336
Rented (n = 66)	26 (50.0)	40 (58.8)		
<b>Asked to leave</b>				
Yes (n = 31)	13 (50.0)	18 (45.0)	0.158	0.691
No (n = 35)	13 (50.0)	22 (55.0)		

NO, nursing orderly; Tech, technicians (healthcare); PG, postgraduate, Anaesthesia and Critical Care; SRs, senior residents, Anaesthesia and Critical Care

**Table 4:** Logistic regression for variables associated with stigma

Variables in the equation	B	S.E.	Wald	df	Sig.	Exp (B)	95% CI for Exp (B)	
							Lower	Upper
Age	-0.063	0.048	1.732	1	0.188	0.939	0.854	1.031
Sex	0.915	0.409	5	1	0.025	2.498	1.12	5.571
Designation	0.105	0.227	0.212	1	0.645	1.11	0.711	1.733
Education	0.262	0.525	0.249	1	0.618	1.299	0.464	3.637
Marital status	0.279	0.499	0.312	1	0.576	1.321	0.497	3.511

with public attitude subgroup. Severity of stigma was associated with age, male gender, designation, education, and marital status of HCW.

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