



A Study on Coronavirus Disease-2019 Stigma Associated with Coronavirus Disease-2019 Warriors and an Insight into Community Perception

Koronavirüs Hastalığı-2019 Savaşçıları ile İlişkili Koronavirüs Hastalığı-2019 Stigması ve Toplum Algısı Üzerine Bir Araştırma

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ABSTRACT

Objective: In 2020, the world came to a standstill due to the havoc created by severe acute respiratory syndrome coronavirus-2. The onus of tackling the disease relies largely on healthcare workers. However, other members of society, such as police personnel and sanitary workers, also made a major contribution in disease prevention. Despite working relentlessly, they face stigma caused by misconceptions and false information that create a health gap. This study aimed to determine the level of stigma and discrimination against coronavirus disease-2019 (COVID-19) warriors, understand its effects, and assess the community perception of the causes of stigmatization.

Methods: A cross-sectional study was conducted for 6 months. The sample size was time-bound, and a mixed method of sampling was employed. A total of 78 COVID-19 warriors and 68 participants from the community were enrolled. Stigma assessment was based on four domains: anticipated stigma, experienced stigma, internalized stigma, and disclosure concerns. Relevant tests of significance were applied, and the data are presented in percentages and ratios.

Results: Of the participants, 46.1% were in the age group of 30-40 years, 47% were males, and 81% were doctors by profession and were engaged in a minimum of 6-12 h of duty for 2 weeks. Of the study population, 85.5% had anticipated stigma, whereas 72.2% had experienced stigma, 43.4% had internalized stigma, and 76.3% had disclosure concerns. Internalized stigma was found to be significantly associated with age ($p<0.05$) and personal attributes ($p<0.05$). Of the community participants, 47.1% had a doctor in their neighborhood, and contracting COVID-19 was the primary concern of 44.1% due to the presence of a COVID-19 warrior in their vicinity. Other concerns, such as having to take extra precautions and social distancing being compromised, were also reported.

Conclusions: A significant level of stigma was experienced by COVID-19 warriors, causing a negative impact on their mental well-being.

Keywords: Stigma, domains, COVID-19

ÖZ

Amaç: 2020'de, şiddetli akut solunum sendromu koronavirüs-2'nin yarattığı tahribat nedeniyle dünya durma noktasına geldi. Hastalıkla mücadele sorumluluğu büyük ölçüde sağlık çalışanlarına yüklenmiştir. Bununla birlikte, polis ve temizlik işçileri gibi toplumun diğer üyeleri de hastalığın önlenmesine büyük katkı sağlamışlardır. Durmaksızın çalışmalarına rağmen, sağlık açığı oluşturan yanlış anlamalar ve yanlış bilgilerden kaynaklanan stigmatla karşı karşıya kalmaktadırlar. Bu çalışma, koronavirüs hastalığı-2019 (COVID-19) savaşçılarına karşı stigma ve ayrımcılık düzeyini belirlemeyi, etkilerini anlamayı ve stigmatın nedenlerine ilişkin toplum algısını değerlendirmeyi amaçlamıştır.

Yöntemler: Altı aylık bir kesitsel çalışma yapıldı. Örneklem boyutu zamana bağlıydı ve karma bir örnekleme yöntemi kullanıldı. Toplam 78 COVID-19 savaşçısı ve toplumdan 68 katılımcı dahil edildi. Stigma değerlendirmesi dört alana dayanıyordu: Öngörülen stigma, deneyimlenen stigma, içselleştirilmiş stigma ve ifşa endişeleri. İlgili anlamlılık testleri uygulanmış ve veriler yüzde ve oranlar halinde sunulmuştur.

Bulgular: Katılımcıların %46,1'i 30-40 yaş aralığında, %47'si erkek, %81'i doktordu ve 2 hafta boyunca en az 6-12 saat görev yapıyordu. Çalışma popülasyonunun %85,5'i stigmatı öngörürken, %72,2'si stigma deneyimlemiş, %43,4'ü içselleştirilmiş stigma ve %76,3'ü ifşa endişesi içindeydi. İçselleştirilmiş stigmatın yaş ($p<0,05$) ve kişisel nitelikler ($p<0,05$) ile anlamlı şekilde ilişkili olduğu bulundu. Toplum katılımcılarının %47,1'inin çevrelerinde bir doktoru vardı ve çevrelerinde bir COVID-19 savaşçısının bulunması nedeniyle %44,1'inin birincil endişesi COVID-19'a yakalanmaktı. Ek önlemler alma zorunluluğu ve sosyal mesafeden taviz verilmesi gibi diğer endişeler de bildirildi.

Sonuçlar: COVID-19 savaşçıları, zihinsel sağlıkları üzerinde olumsuz bir etkiye neden olan, anlamlı düzeyde bir stigma deneyimlemişlerdi.

Anahtar kelimeler: Stigma, etki alanları, COVID-19

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INTRODUCTION

In 2020, the world came to a standstill due to the severe acute respiratory syndrome (SARS) coronavirus-2 causing coronavirus disease-2019 (COVID-19). The world witnessed a pandemic after nearly 100 years of lacunae exposure; thus, there was a lack of experience in dealing with such major health disasters. The onus of tackling the disease and its containment measures largely relies on healthcare workers; however, other members of society, such as police personnel and sanitary workers, also made a major contribution in disease prevention.

People's fear and anxiety resulted in prejudices against the frontline and healthcare workers during certain public health emergencies caused by outbreaks of communicable and infectious diseases, leading to social isolation and stigma. Additionally, the sense of irritability and hostility of people toward each other rose. Amid such a spread of COVID-19, the stigmatization of COVID-19 warriors is an important concern¹.

The term COVID-19 warriors has been coined to include all frontline workers dealing with the containment of this pandemic, such as doctors, nurses, allied healthcare staff, police officers, and other sanitary workers. Confirmed COVID-19 cases have been reported in people among the community, as well as in COVID-19 warriors. Even after relentlessly and selflessly working to contain this pandemic, they are haunted by a bigger challenge, which is the stigma caused by misconception and false information that created a gap in the health-seeking behavior of the community.

Goffman² was the first person to introduce the term stigma. Stigma implies certain behavior that makes the society devalue a certain group and prevents their inclusion in the mainstream society. Stigma refers to prejudices, negative attitudes, and abuses that are directed toward people who are involved in the measures to contain the disease per se.

Not only the warriors but their family and dear ones also face the brunt of this. In the present pandemic, the stigma of COVID-19 is a social process that emphasizes a certain group of people who are perceived to be a potential source of infection and might pose a threat to spread the disease in society^{3,4}. Addressing such prejudices is the need of the hour that facilitates the empowerment of a community through health literacy that appropriately responds toward such adversities.

Instances of alleged discrimination and harassment toward the frontline workers have come to the attention

of the authorities through the letters by the association. Many doctors and other frontline workers were stranded on the streets with nowhere to go after being driven out of their rented homes by their landlords⁵. These incidents were reported merely days after Prime Minister Narendra Modi appreciated the services rendered by the healthcare workers and asked the citizens to express gratitude by clapping their hands, clanging vessels, or by ringing bells, lighting candles, showering petals, etc. Additionally, deplorable incidents of physical violence were also reported against the doctors and other frontline workers⁶⁻⁹.

Discrimination and stigmatization promote cynicism in the healthcare workers along with mass panic and social ostracism. The doctors, nurses, police department, and other COVID-19 warriors are the nation's resource, and preserving their dignity and respecting their associated services is important. Hence, this study addresses the stigmatization that is faced by frontline workers who tackle the pandemic. The study hypothesis is to reflect the mental and social health aspects of the personnel employed in containing the COVID-19 crisis by assessing various stigma domains. This is the first of this kind of study, thus we aimed to provide a baseline framework for developing a validated scale to assess stigmatization for any pandemic in the future. Additionally, this further serves as a baseline for developing modules for stigma evaluation. The knowledge about the causes and the extent of stigma will help us develop strategies to reduce its impact in their life for their better productivity and indirectly preserve the nation's best interest.

Objectives

1. To identify and estimate the level of stigma and discrimination against COVID-19 warriors.
2. To know the effect of stigma on the lives of COVID-19 warriors.
3. To know the community perception of the causes of stigmatization.

MATERIALS and METHODS

This cross-sectional observational study was conducted for 6 months from June 2020 to November 2020. Ethical approval was obtained from the MVJ Medical College and Research Hospital (decision no: MVJMC&RH/IEC/2020/006, date: 23.05.2020) and consent was obtained from the participants before conducting the study. The sample size was calculated

using the formula, $n=(z_{\alpha/2})^2 pq/e^2$, with $z_{\alpha/2}=1.96$, $p=$ assuming 50% of COVID-19 warriors who experience stigma in one or other form (since no previous studies were reported on the assessment of stigma among COVID-19 warriors), $q=1-p$ with $e=20\%$ of p as an allowable error at 95% level of significance and 80% power. The sample size was calculated as 96 and rounded off to 100.

The sample size included the study subjects who render any kind of service during the pandemic and those who consented to the study. As no previous studies were available, we decided that convenient and time-bound sampling would be appropriate in this context after consulting with experts. The following are the inclusion criteria for the study:

1. COVID-19 warriors [those working in the hospital (including doctors, nurses, sanitary workers, and technicians) and police personnel] have done at least one 24-h duty.

2. COVID-19 warriors who are willing to participate in the study.

Participants without any COVID-19-related duty but who were expecting the duty in the future were excluded. The initial 20 participants of the pilot study were obtained by simple random sampling and a further sample was obtained by Snowball sampling. The effort was made to collect equal representation from all cadres of COVID-19 warriors.

Participants from the community were enrolled by convenient method sampling during the study period. The community participant sample size was determined using the obtained number for COVID-19 warriors. The ratio of 1:1 for the study was operationally defined and enrolled. The information regarding the residential stay was taken from the COVID-19 warriors. The informed consent was taken from the participants. A house-to-house survey of the neighbors was done and was contacted for their responses regarding the community perception of stigma. The responses of only one representative from each household were taken into consideration. Bangalore apartment federation and Resident welfare association were contacted for listing out apartments surrounding the COVID-19 designated hospitals and contacted for further data collection. Those who did not give consent were excluded from the study. Hence, a total of 74 COVID-19 warriors and 68 community participants were finally included in the study.

A pre-structured and pre-tested (pilot study with 20 participants to validate) questionnaire was used for collecting the data. The questionnaire was validated by a

pilot study and the reliability of the study was assessed using Cronbach's alpha method. The analysis of various domains showed good internal reliability, with the overall Cronbach's alpha value of 0.76. The questionnaire consisted of questions on sociodemographic details including their work pattern, duration of COVID-19-related work, and questions on assessing the stigma faced by them because of their role as COVID-19 warriors. The assessment of stigma was based on the following four domains:

1. Anticipated stigma,
2. Experienced stigma,
3. Internalized stigma,
4. Disclosure concerns.

The questions were developed in line with diseases with prior stigma association, such as a human immunodeficiency virus (HIV), leprosy, and SARS. A single positive response to the domain questions was taken as the stigma associated.

Statistical Analysis

The data was entered in MS Excel and analyzed using the Statistical Package for the Social Sciences version 21 (IBM Corp, New York). The data is presented in percentages, proportions, ratios, and tests of significance. The chi-square and Fisher Exact test were employed to know the association, and p-values of <0.05 are considered significant.

RESULTS

The majority of the COVID-19 warriors were in the age group of 30-40 years, wherein 46.1% were the youngest being 23 years old and the oldest 51 years old. Sociodemographic details, such as age, sex, type, and duration of COVID-19-related work are presented (Table 1). The personal attributes related to COVID-19-related work, such as willingness to work and support from their family are presented in Table 2.

The primary concerns of the COVID-19 warriors include the absence of personal protective equipment (PPE), underpayment, and fear of spreading the infection to family members as depicted in Graphic 1.

The questions of various domains were put forth for the assessment, and positive response for anyone question was taken as stigma faced. Of the study population, 85.5% had anticipated stigma, whereas 72.2% had experienced stigma, 43.4% had internalized stigma, and 76.3% had disclosure concerns (Table 3).

The association of all four domains of stigma was assessed with different sociodemographic variables, such as age, sex, type and duration of work, and personal attributes. Our study revealed a statistically significant

Table 1. Demographic details of the study group.

Demography		Number	Percent
Age	20-30 years	29	38.2
	30-40 years	35	46.1
	40-50 years	10	13.2
	50-60 years	2	2.6
	Total	76	100.0
Sex	Male	36	47.4
	Female	40	52.6
	Total	76	100.0
Type of work	Doctor	62	81.6
	Nurse	7	9.2
	Allied healthcare	6	7.9
	Police personnel	1	1.3
	Total	76	100.0
Duration of work	6-12 hours	43	56.6
	12-24 hours	2	2.6
	1-7 days	6	7.9
	1-2 weeks	7	9.2
	>2 weeks	18	23.7
	Total	76	100

association of internalized stigma with age, ($p < 0.05$) and personal attributes, such as willingness to work and duty not being imposed ($p < 0.05$) (Table 4).

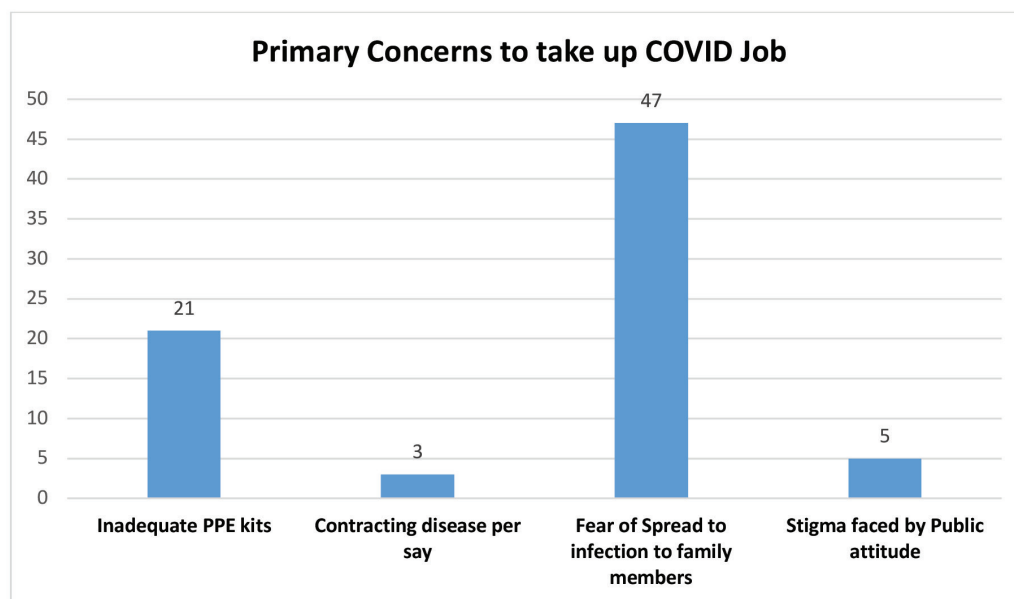
The majority of the community participants were in the age group of 20-30 years, 52.9% are aged 21-48 years. The demographic details of community participants are presented in Table 5.

Contracting COVID-19 was the primary concern among 44.1% of community participants. The study

Table 2. Willingness for COVID-19-related to work.

		Number	Percent
Willingness to work because of the nature of their job	Yes	64	84.2
	No	12	15.8
	Total	76	100
Was the duty imposed upon by superiors?	Yes	16	21.1
	No	60	78.9
	Total	76	100
Was their family supportive?	Yes	62	81.6
	No	14	18.4
	Total	76	100
Willingness to take COVID-19 duties in the future	Yes	42	55.3
	No	10	13.2
	Maybe	24	31.6
	Total	76	100

COVID-19: Coronavirus disease-2019



Graphic 1. Primary concerns before taking up the COVID-19 warrior status.

COVID-19: Coronavirus disease-2019

Table 3. Assessment of stigma based on four domains.

The stigma of various domains		Yes	No
Anticipated stigma	Do you feel that you will be treated as a public nuisance, even after serving as a COVID-19 warrior?	65 (85.5%)	11 (14.5%)
	Do you feel that you will be discriminated against by family/friends?		
	Do you think that most people will feel uncomfortable around you?		
	Do you think that you will be denied any social role/responsibility?		
Experienced stigma	Have people kept their distance from you/your family?	55 (72.4%)	21 (27.6%)
	Did you lose friends/relatives' touch and felt isolated?		
	Have you suffered from any kind of physical harm due to your COVID-19 involvement?		
	Were the general public unkind to you and denied any social service?		
Internalized stigma	Do you feel guilty about being in this nature of a job for contracting COVID-19?	33 (43.4%)	43 (56.6%)
	Do you/your family regret that you are a frontline COVID-19 warrior?		
	Have you suffered from low self-esteem?		
	Do you feel suicidal for acquiring the disease?		
Disclosure concerns	Are you/your family careful of who you tell that you have/had COVID-19?	58 (76.3%)	18 (23.7%)
	Do you/your family feel the need to hide the status if contracted COVID-19?		
	Do you believe that telling someone about you being posted to COVID-19 duties is risky?		

COVID-19: Coronavirus disease-2019

subjects thought that they have to take extra precautions and their social distancing was being compromised. However, 23.6% were happy and expressed no concerns about staying close with COVID-19 warriors. Only 35% stated that COVID-19 warriors should relocate to another place, which can be provided by the health authorities (Table 6).

DISCUSSION

COVID-19 is a highly contagious disease that has affected millions of people worldwide with devastating health and societal impact, including stigmatization of its victims. The victims here are not only the patients but also the COVID-19 warriors. The fear and confusion associated with this pandemic have fostered stigma in various communities.

The present study assessed the stigma among the COVID-19 warriors and is one of the kind owing to the novelty of the disease and its impact in the present century. Studies about stigmatization have been done for diseases like leprosy, SARS, and HIV using the validated scale. The scale was directed toward the assessment of the stigma that is faced by patients. However, the present study revealed that a considerable level of stigma was faced by the healthcare workers due to COVID-19. Hence, measuring the levels of stigma and addressing this burning issue is necessary.

COVID-19 warriors were highly motivated to work toward the containment of the pandemic. Among the participants, 84.2% were willing to work because of the nature of their job and their moral responsibility, while 21.1% felt that the job of tackling COVID-19 was imposed upon them as their current specialty differed. The absence of a PPE kit, underpayment, and no special incentives were the most common reasons for their unwillingness to work in the COVID-19 wards. The primary concern during these COVID-19 duties was the fear of the spread of infection to family members in 61.8% of participants followed by inadequate PPE kits in 27.6%. Stigma was the concern in only 6.6% of participants before taking up the duty. COVID-19 warriors were very much willing to discharge their duties during the much need time of pandemic; however, infrastructure that failed to address the large inflow of patients was well noted and was the major drawback for them to perform their duties to the optimum.

The assessment of stigma domains in our study revealed that 85.5% of participants anticipated the stigma, 72.4% had experienced stigma-related events, 43.4% reported internalized stigma, and 76.3% had disclosure concerns. Reported stigma was not only confined to the COVID-19 warriors but it extended to their family members, which caused them great agony and distress. Similarly, a study conducted by Yadav et al.¹⁰ on stigma

Table 4. Association of stigma with sociodemographic details.

Categories	Anticipated stigma		Experienced stigma		Internalized stigma		Disclosure concerns	
	n (%)	Chi-square p-value	n (%)	Chi-square p-value	n (%)	Chi-square p-value	n (%)	Chi-square p-value
Age (in years)	21-30	24 (31.6%)	19 (25%)		13 (17.1%)		23 (30.3%)	
	31-40	30 (39.5%)	26 (34.2%)	$X^2=1.8$	19 (25%)	$X^2=7.78$	29 (38.2%)	$X^2=5.57$
	41-50	9 (11.8%)	8 (10.5%)	$p=0.878$	1 (1.3%)	$p=0.05^*$	5 (6.6%)	$p=0.135$
	51-60	2 (2.6%)	2 (2.6%)		0		1 (1.3%)	
Sex	Male	32 (42.1%)	31 (40.8%)	$X^2=2.083$	20 (26.3%)		29 (38.2%)	$X^2=0.680$
	Female	33 (43.4%)	24 (31.6%)	$p=0.149$	24 (31.6%)	$X^2=1.48$	29 (38.2%)	$p=0.410$
Duration of work	Up to 24 hrs	43 (56.6%)	36 (47.4%)		22 (28.9%)		34 (44.7%)	
	1-2 weeks	11 (14.5%)	9 (11.8%)	$X^2=2.364$	3 (3.9%)	$X^2=2.30$	11 (14.5%)	$X^2=3.755$
	>2 weeks	11 (14.5%)	10 (13.2%)	$p=0.307$	8 (10.5%)	$p=0.854$	13 (17.1%)	$p=0.153$
Type of work	Doctor	53 (69.7%)	44 (57.9%)		24 (31.6%)		46 (60.5%)	
	Nurse	7 (9.2%)	6 (7.9%)	$X^2=7.117$	5 (6.6%)	$X^2=4.20$	7 (9.2%)	$X^2=2.946$
	Allied health worker	5 (6.6%)	5 (6.6%)	$p=0.06$	3 (3.9%)	$p=0.240$	6 (7.9%)	$p=0.400$
Personal attributes	Willingness to work	53 (69.7%)	46 (60.5%)	$X^2=2.412$	24 (31.6%)	$X^2=5.78$	49 (64.5%)	$X^2=0.014$
	Is duty imposed	16 (21.1%)	12 (15.8%)	$p=0.120$	11 (14.5%)	$p=0.016^*$	15 (19.7%)	$p=0.907$
				$X^2=3.43$		$X^2=5.29$		$X^2=3.408$
				$p=0.06$		$p=0.021^*$		$p=0.06$

*Values were found to be statistically significant for the chi-square and Fisher's Exact test. Other associations were not statistically significant.

and apprehensions related to COVID-19 among healthcare professionals in Delhi revealed similar facts, wherein 50.9% of participants had experienced some kind of stigma, 46% had perceived change in the behavior of their neighbors, and 19.3% had experienced stigma.

The association of stigma domains with various sociodemographic variables showed statistically significant association of internalized stigma with age ($X^2=7.78$, $p=0.05$) and certain personal attributes like willingness to work ($X^2=5.78$, $p=0.016$) and duty being imposed ($X^2=5.29$, $p=0.021$). Thus suggesting that people rendering services had cognitively or emotionally absorbed the negative stereotypes about the disease. Similarly, various studies have reported that older adults with HIV faced significant stigma with multiple factors and attributes like age, etc¹¹.

Among the community participants, the majority (52.9%) were in the age group of 20-30 years. The COVID-19 warrior in their vicinity was a doctor in 47.1% followed by the nurse in 23% of the study group. Contracting COVID-19 was the primary concern of having a COVID-19 warrior in their neighborhood among the 44.1% of the study population. However, 23.5% stated that they were under the constant stress of having to take extra precautions to prevent the spread of the disease, and social distancing was compromised in 8.8% of the study population. Additionally, 23.6% were happy and expressed no concerns about staying close to a COVID-19 warrior.

Of the community participants, 41% stated that COVID-19 warriors should be relocated to the workplace campus until they finish their COVID-19 duties for the safety of themselves and to contain the pandemic spread from the healthcare workers. Additionally, 35.3% of the community participants had stopped any kind of interaction with the COVID-19 warriors out of fear of their life. However, only 5.9% thought of denying any social role or responsibility for them to follow COVID-19 duties and infection.

Table 5. Demographic details of the community group.

Demography		Number	Percent
Age	20-30 years	36	52.9
	30-40 years	16	23.5
	40-50 years	16	23.5
	Total	68	100
Sex	Male	28	41.2
	Female	40	58.8
	Total	68	100
COVID-19 warrior in their immediate vicinity	Doctor	32	47.1
	Nurse	16	23.6
	Allied healthcare	8	11.7
	Police personnel	12	17.6
	Total	68	100

COVID-19: Coronavirus disease-2019

Study Limitations

The prevalence of the stigma associated with the disease was unknown, thus convenient sampling was employed.

The questionnaire was developed on a prior validated scale; however, the validation of the study questionnaire in a larger population needs to be undertaken. Additionally, addressing the COVID-19-associated stigma serves as an important aspect.

The healthcare professional formed the majority of the study sample. The police personnel was unavailable due to mobility and different shift duties. Hence, they were excluded from the comparison when determining the association.

Table 6. Community perception of COVID-19 warriors.

Perception		Number	Percent
Are you okay with COVID-19 warrior staying in your neighborhood?	Yes	60	88.2
	No	4	5.9
	Maybe	4	5.9
	Total	68	100
Do you think it's in your best interest to stay away from COVID-19 warrior	Yes	20	29.4
	No	32	47.1
	Maybe	16	23.5
	Total	68	100
Do you think that COVID-19 warriors should relocate to an isolated place before rendering their services as COVID-19 warriors?	Yes	24	35.3
	No	40	58.8
	Maybe	4	5.9
	Total	68	100
Do you think that they should be denied any social role/responsibility following COVID-19 duties/infection?	Yes	4	5.9
	No	64	94.1
	Total	68	100
Will you stop any kind of contact with them or their family on learning about their COVID-19 duties/infection?	Yes	16	23.5
	No	44	64.7
	Maybe	8	11.8
	Total	68	100
Do you feel they are guilty of being to this nature of the job for contracting COVID-19?	Yes	4	5.8
	No	64	94.2
	Total	68	100
Are you/your family careful of who you tell that you stay close to a COVID-19 warrior?	Yes	52	76.5
	No	16	23.5
	Total	68	100

COVID-19: Coronavirus disease-2019

CONCLUSIONS

Stigma was experienced in some form during the execution of their duties among COVID-19 warriors. Internalized stigma domain associations were statistically significant and disclosure concerns were expressed to a larger extent among the COVID-19 warriors. The burden of stigma further translates into stress and further hampers the quality of life for the COVID-19 warriors as well as their family members.

Community perception of having a COVID-19 warrior in their vicinity was worrisome as they preferred them to relocate.

Stigma is an age-old phenomenon and it's difficult to overcome. It requires a rational attitude and a scientific approach to dispel misinformation and fake news. Evidence-based information about the disease and proper documentation can make changes in societal behavior.

Education through mass media will help alleviate the stigma faced by victims.

Further multicenter studies with larger sample sizes are necessary to develop a module for tackling stigma during pandemics.

Ethics

Ethics Committee Approval: Ethical approval was obtained from the MVJ Medical College and Research Hospital (decision no: MVJMC&RH/IEC/2020/006, date: 23.05.2020).

Informed Consent: Consent was obtained from the participants before conducting the study.

Peer-review: Externally and internally peer-reviewed.

Author Contributions

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