Research Report

WILLINGNESS AND PSYCHOLOGICAL PREPAREDNESS AMONG HEALTHCARE WORKERS TO ATTEND TO COVID-19 PATIENTS IN A TERTIARY CARE PRIVATE HOSPITAL IN KERALA - A MIXED METHOD STUDY

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ABSTRACT

Background: The COVID-19 pandemic has made an unprecedented psychological impact on healthcare workers. The objective of this study was to appraise the willingness, attitudes and psychological preparedness of the frontline healthcare workers to respond to the COVID-19 pandemic. **Methodology:** This was a mixed-method study combining a web-based cross-sectional survey, focus group discussions and semi-structured interviews. The cross-sectional survey covered 202 healthcare workers, and the qualitative assessment was done on 16 frontline healthcare workers. **Results:** The willingness to respond to the pandemic was found to be significantly higher among doctors and nurses compared to medical interns. Among demographic factors increasing age and female gender were the key factors in determining willingness and positive emotional response. While anxiety was the most common emotional response, the fear of infecting family members was found to be the most common risk perceived in qualitative analysis. The study highlights the altruistic attitude of frontline health workers to be the most important contributing factor for psychological preparedness. **Conclusion:** This study outlines the fact that willingness to respond in a pandemic is an innate response in healthcare workers. Considering the risks, workload and socioeconomic stressors, proactive psychosocial support should be given to frontline healthcare workers by the institutions, governments, and society.

Keywords: willingness to respond, psychological preparedness, COVID-19, health care workers, qualitative

INTRODUCTION

Pandemics are the simultaneous global transmission of emerging and re-emerging infectious disease epidemics affecting a large number of people across continents, often causing substantial deaths and socioeconomic disruption.[1] COVID -19, which was detected in Wuhan, China in late last December, fits this description and has been declared as a pandemic on 11th March 2020 by WHO.

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Being in the frontline of battling pandemics, health care workers are the most vulnerable to health risks. It was reported from West Africa during the Ebola epidemic that health workers were 20 to 30 times more likely to get infected than the general population.[2] Similar were the figures during SARS and MERS outbreaks.[3] Working with pandemic can affect mental

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health adversely. Investigations during the SARS and MERS found that high levels of stress in frontline medical staff led to posttraumatic stress disorder (PTSD).[4,5] Incidence of depression (38.5%), insomnia (37%) and PTSD (33%) were reported from Taiwan among nurses who cared for SARS patients.[6]

For an effective response to infectious disease emergencies, willingness and readiness of the public health workforce are equally important as their competency.[7] During SARS, a Canadian study reported that 25% of nurses stayed out of work to avoid exposure.[8] Health care worker's willingness to report to work ranged from 25% to 82%% in studies done during the influenza pandemic.[9]

Maintaining an adequate health care workforce with maximum ability and willingness is important during the times of COVID-19 pandemic. High risk of exposure, higher workload, moral dilemmas and an uncertain, unfamiliar work scenario and uncertainty of the duration of COVID-19 pandemic can influence the willingness and attitude of healthcare workers. These can even redefine their outlook towards the profession.[10] In this context, we attempted to find out the attitudes and emotional responses of health care workers in a tertiary care hospital.

MATERIALS AND METHODS

A combination of quantitative and qualitative methods was used in this research. The descriptive study (quantitative) preceded the qualitative component to facilitate the recruitment of subjects for the Focus Group Discussions (FGDs) and interviews. The study setting was a tertiary care teaching hospital with 1800 beds and 1900 health care workers in Thrissur district of Kerala, where the first case of COVID-19 was reported in India. The study was undertaken during the last week of March 2020 coinciding with the implementation of nationwide lockdown.

Quantitative assessment.

Three categories of health workers, namely doctors, medical interns and nurses, were selected for the study. Individual participation in the survey was voluntary, and all the participants were guaranteed anonymity. A twenty-one item tool was developed by compiling a set of potential items selected by the investigators after discussion among the authors. The survey tool assessed self-reported perceptions of attitudes and emotions regarding the following: willingness to respond, personal safety, psychological readiness and personal preparedness. The content validation of the questionnaire was done by a panel of five experts, and the mean item-level content validity was 0.81. The questionnaire was then pilot tested on a group of five physician colleagues who were not in the sample. The final questionnaire had a total of ten questions, first five questions exploring attitude and the other five examining emotions. After getting clearance from the ethics committee of the institution, an online version of the survey tool was sent to all the selected groups of employees of the institution via e-mail. The purpose of the survey was mentioned in the tool and consent sought for online participation. The survey links were closed after seven days.

Statistical Package for Social Sciences software (version 25.0; SPSS, Inc, Chicago, IL) was used for all analyses. Pearson chi-square test was used to compare the age groups, gender and job categories of the respondents and the dichotomised questions in the survey. A p-value of less than 0.05 was considered statistically significant.

Qualitative assessment

In the second component, a methodology combining Focus Group Discussions and In-depth interviews were used to gather data regarding the emotions and perceptions of healthcare workers regarding COVID-19. Participants for focus groups were selected by convenient non-probabilistic sampling to ensure a mix of job category, age, gender and roles in COVID-19 response. A series of open-ended questions which concentrated on the following areas related to COVID-19, like staff preparedness, support from hospital management and superiors; willingness to work in COVID ward, difficulties encountered during COVID duty and concerns about family were prepared. The reactions of the participants were, and key themes were noted down by the moderators. All focus groups/interviews were transcribed verbatim and were formally reviewed by three of the authors (nv, rt, cv). The general themes that emerged out of the discussion were coded by the inductive approach, as there were no pre-determined frameworks.

RESULTS

Characteristics of the study population

Table1. The response rate among doctors, interns and nurses to the e-mail questionnaire

Category of staff	e-mails sent	e-mails reached(%)
Doctors	110	50(45.4)
Medical Interns	100	40(40)
Nurses	700	112(16)
Total	910	202(22.2)

There were 202 responders from 910 Health Care Workers (HCW) who were mailed. The response rate was highest among doctors, followed by interns and lowest in nurses. Amongst the responders, 45 were males, and 157 were females. A total of 50 doctors, 41 interns, and 111 nurses participated in the survey.

Most of the responders were ready to participate in COVID-19 management in the capacity as volunteer, isolation room staff or caring diagnosed cases (Table 2) irrespective of their gender. They were willing to support the public health sector, and the majority disclosed that social media influenced them. Though not statistically significant, the positive attitudes were seen to be higher among females in most of the areas enquired.

The first emotional response to COVID-19 in the majority was anxiety, and this was found to be more in females. Nevertheless, the majority expressed psychological readiness with more positive responses from females. (p-value=0.001) (Table 3). Denial of leaves and entering self-quarantine were not taken well by the males. (p-value-0.055).

Age: The willingness to treat COVID-19 cases increased with age in all domains studied, and it has statistical significance in three out of four domains (Table 4).

As the age advanced, the emotional responses also tilted towards positivity (Table 5). Conversely, participants below thirty years showed more anxiety and had lesser psychological readiness than the other groups. On curtailing privileges like leave, the younger generation was the most enraged (21.7%) as compared to the other two age groups making it statistically significant (p-value<0.001).

Job category: Majority of the respondents in all groups showed willingness, though there were significant differences in domains (Table 6). Compared to doctors and nurses, a lesser number of interns expressed willingness to be part of the COVID response team. This difference was statistically significant (p value=<0.001). However, willingness to part take in isolation ward duties was highest among the nurses compared to interns and doctors (p-value -0.001). Doctors and nurses believed that the private sector should support the public health system when the need arises. Relatively few interns shared the same attitude (p value=<0.001). Willingness to receive a COVID positive patient into their care was also less among interns as compared to doctors and nurses.

When emotional responses towards COVID-19 were examined among the three professions, there were significant differences (Table 7). Compared with doctors and nurses, a lesser number of interns showed

Table 2. Presence of willingness to take responsibility for COVID-19 patient care according to gender.

attitude domains	Total N (%)	Males	Females	P-value
Will you volunteer to be a part of the COVID response team?	188 (93.1)	40 (88.9)	148 (94.3)	0.21
Are you willing to undertake duty in COVID isolation ward?	177 (87.6)	37 (82.2)	140 (89.2)	0.21
Do you think the private Health Care Workers should help the public health system & supplement their work?	192 (95)	41 (91.1)	151(96.2)	0.17
Would you be willing to receive patients with confirmed COVID-19 in your hospital/clinic/ward?	178 (88.1)	41 (91.1)	137(87.3)	0.48
Has social media influenced your attitude towards COVID-19?	71 (35.1)	20 (44.4)	51(32.5)	0.33

Table 3: Emotional responses to COVID-19 according to gender

Domain- Emotion		Total (%)	Males	Females	P-value
What will you feel when you hear that there is a patient in Govt. Medical College, Thrissur tested positive for COVID-19?	Ready to take up any challenge	188 (93.1)	37(82.2)	151 (96.2)	0.001*
	Relieved but scared	14(6.9)	8(17.8)	6 (3.8)	
The hospital has not given you leave. How do you feel in the event of a community spread?	Anxious	95 (47)	19(42.2)	76 (48.4)	0.105
	Enraged	26 (12.9)	10 (22.2)	16 (10.2)	
	Not bothered	81 (40.1)	16 (35.6)	65(41.4)	
What did you feel when you first heard about COVID-19?	Anxious	178 (88.1)	37 (82.2)	141(89.8)	0.166
	Not bothered	24 (11.9)	8 (17.8)	16 (10.2)	
How would you feel if you had to self-quarantine oneself	Frustrated	14 (6.9)	6 (13.3)	8 (5.1)	0.055
	Willing for Quarantine	188(93.1)	39 (86.7)	149 (94.9)	
Has friends and relatives been reluctant to come to you as you work in a healthcare facility?	Yes	47(23.3)	9(20)	38 (24.2)	0.020*
	No	155(76.7)	36 (80)	119 (75.8)	

*P<0.05

Table 4. Willingness to respond to COVID-19 according to age

Attitude domains	response	Total N (%)	Age <30	Age 31-50	Age >50	P-value
Will you volunteer to be a part of the COVID response team?	Yes	188(93.1)	94 (88.7)	88 (97.8)	6(100)	0.035*
	No	14 (6.9)	12 (11.3)	2 (2.2)	0 (0)	
Are you willing to undertake duty in COVID-19 isolation ward?	Yes	177(87.6)	89 (84)	82 (91.1)	6 (100)	0.205
	No	25 (12.4)	17 (16)	8 (8.9)	0 (0)	
Do you think the private Health Care Workers should help the public health system & supplement their work?	Yes	192 (95)	96(90.6)	90(100)	6 (100)	0.009*
	No	10 (5)	10 (9.4)	0 (0)	0 (0)	
Would you be willing to receive patients with confirmed COVID-19 in your hospital/clinic/ward?	Yes	178 (88.1)	88 (83)	84 (93.3)	6 (100)	0.04*
	No	24 (11.9)	18 (17)	6 (6.7)	0 (0)	

*P<0.05

a positive response. To the possibility of 'no leaves during the pandemic', more interns were enraged, doctors were anxious, and nurses were not bothered.

Most participants in all the groups shared the same emotion, i.e., anxiety when they first came to know about the COVID-19 pandemic. But a significantly

Table 5. Emotional response according to age group

Domain- Emotion		Total (%)	Age <30	31 to 50	>50	P-value
What will you feel when you hear that there is a patient in medical College, Thrissur tested positive for COVID-19?	Ready to take up any challenge	188 (93.1)	98(92.5)	84 (93.3)	6(100)	0.77
	Relieved and scared	14(6.9)	8(7.5)	6 (6.7)	0(0)	
The hospital has not given you leave. How do you feel in the event of a community spread?	Anxious	95 (47)	52(49.1)	40 (44.4)	3 (50)	<0.001**
	Enraged	26 (12.9)	23 (21.7)	3 (3.3)	0 (0)	
	Not bothered	81 (40.1)	31 (29.2)	47 (52.2)	3 (50)	
What did you feel when you first heard about COVID-19?	Anxious	178 (88.1)	94 (88.7)	78 (86.7)	6 (100)	0.60
	Not bothered	24 (11.9)	12 (11.3)	12 (13.3)	0 ()	
How would you feel if you had to self-quarantine oneself	Frustrated	14 (6.9)	9(8.5)	5 (5.6)	0 (0)	0.574
	Willing for Quarantine	188(93.1)	97 (91.5)	85(94.4)	6 (100)	
Has friends and relatives been reluctant to come to you as you work in a healthcare facility?	Yes	47 (23.3)	20 (18.9)	25(27.8)	2 (33.3)	0.284
	No	155(76.7)	86 (81.1)	65 (72.2)	4(66.7)	

**P<0.001

Table 6. Willingness to respond based on the job category

Attitude domains	response	Total (%)	Doctors	Medical interns	Nurses	p-value
Will you volunteer to be a part of the COVID response team?	Yes	188(93.1)	50 (100)	31 (75.6)	107 (96.4)	<0.001**
	No	14 (6.9)	0 (0)	10 (24.4)	4 (3.6)	
Are you willing to undertake duty in COVID-19 isolation ward?	Yes	177 (87.6)	38 (76)	32 (78)	107 (96.4)	<0.001**
	No	25 (12.4)	12 (24)	9 (22)	4 (3.6)	
Do you think the private Health Care Workers should help the public health system & supplement their work?	Yes	192 (95)	50 (100)	31 (75.6)	111 (100)	<0.001**
	No	10 (5)	0 (0)	10 (24.4)	0 (0)	
Would you be willing to receive patients with confirmed COVID-19 in your hospital/clinic/ward?	Yes	178 (88.1)	45 (90.0)	30 (73.2)	103 (92.8)	0.004*
	No	24 (11.9)	5 (10.0)	11 (26.8)	8 (7.2)	

*P<0.05, ** P<0.001

greater number of nurses experienced more anxiety compared to the other groups. (p-value=0.007). Majority of all subjects were willing to follow quarantine in case of exposure. But only a lesser number of interns were willing for it. However, there was no statistical significance. 23.3% of responders felt

Table 7. Emotional responses according to job category

Domain- Emotion		Total (%)	Doctors	Interns	Nurses	P-value
What will you feel when you hear that there is a patient in medical College, Thrissur tested positive for COVID-19?	Ready to take up any	188 (93.1)	48(96)	33 (80.5)	107(96.4)	0.002*
	Relieved and scared	14(6.9)	2(4)	8 (19.5)	4(3.6)	
The hospital has not given you leave. How do you feel in the event of a community spread?	Anxious	95 (47)	26(52)	17 (41.5)	52 (46.8)	<0.001**
	Enraged	26 (12.9)	4 (8)	18 (43.9)	4 (3.6)	
	Not bothered	81 (40.1)	20 (40)	6 (14.6)	55 (49.5)	
What did you feel when you first heard about COVID-19?	Anxious	178 (88.1)	40 (80)	33 (80.5)	105 (94.6)	0.007*
	Not bothered	24 (11.9)	10 (20)	8 (19.5)	6 (5.4)	
How would you feel if you had to self-quarantine oneself	Frustrated	14 (6.9)	3(6)	5 (12.2)	6 (5.4)	0.328
	Willing for Quarantine	188(93.1)	47 (94)	36 (87.8)	105 (94.6)	
Has friends and relatives been reluctant to come to you as you work in a healthcare facility?	Yes	47 (23.3)	12(24)	3 (7.3)	32 (28.8)	0.02*

*P<0.05, ** P<0.001

alienation from family and friends, being a worker in health care during the pandemic. This was expressed by relatively few interns, the difference being statistically significant (p-value = 0.02).

Qualitative analysis

This was undertaken in the later part of the lockdown when restrictions were mitigated. The basic themes which emerged were emotional responses, stifling experience, altruistic attitude, and societal stigma.

Attitudes and emotional reactions to COVID-19

The nursing staff expressed many apprehensions and the commonest being the fear of infecting one's family and loved ones. The nursing staff emphasised that their main fear was not about contracting COVID-19, but rather the fear of transmitting it to their children while being asymptomatic. Many shared their anxiety due to unfamiliarity with treatment guideline, the inadequacy of infrastructure and unavailability of personal protective equipment (PPE). Possibility of patients concealing relevant history was reported as a matter of concern as expressed by a head nurse.

"*Compared to doctors, we are more closely involved in patient care and have longer periods of exposure. My child is just three years old. My father in law is diabetic and hypertensive. My greatest fear is taking care of patients who deliberately hide the history of travel or contact for fear of being denied care.*"

A few nurses expressed suffocating experience when working in isolation wards. None of these hampered their working spirit.

"*Forget eating and drinking; we cannot even urinate for 6 to 12 hours. It is very hot inside the PPE, and sweat keeps dripping on to our eyes. Getting out from the suit is like getting out of the sea.*"

The altruistic attitude and professional obligation were evident during the interviews.

"*I volunteered to take duty in the COVID isolation ward. Many of my colleagues have children and elderly at home. Me, being a nun, had no such concerns. This will be a great relief to my superiors as well."*

Doctors also expressed readiness to treat but with adequate precautions. At the same time, they also said that they wouldn't shy away from any emergencies as it comes as an instinct being a doctor. Fear of infecting the family was the major concern for them also.

The most common theme that evolved from the discussion with both groups was the lack of teamwork and uncertainty about the guidelines between various medical fraternities. There was a lot of appreciation for the support and care given by colleagues and the management though there were few instances where negative comments caused pain and despair.

"*I cannot turn away from our duties, but I have to admit that there is no collective responsibility among doctors. Being in the emergency department, I can say that we are at a higher risk than the rest of the consultants. One consultant asked me to ensure that all patients admitted to his department do not have any respiratory symptoms. That is unprofessional behaviour*."

A few reported being stigmatised by the non-frontline health care workers, and the reason attributed to this was their lack of knowledge and anxiety.

A nurse said, "*I felt that some of my colleagues are distancing from me after my isolation ward duty*."

Doctors, though with anxiety regarding contracting the illness, continued their clinical practice as usual. None of them expressed much effect of the pandemic on their personal life. A notable positive change in their practices was the strict adherence to protective measures. Some planned to stay in the hospital in case of exposure. Lesser number of duties gave them more time with family, which was welcomed by everyone. The families were supportive and understanding. The financial constraints caused by lesser remuneration were accepted gracefully as "*it's not the time to complain*."

DISCUSSION

The main objective of our study was to bring out various perspectives and emotional responses to COVID-19 in different classes of healthcare workers in a tertiary health care hospital in Kerala. This study was conducted during the initial phase of the epidemic; so, the focus was on the willingness and psychological preparedness to be in the frontline of care delivery during the pandemic. Not many studies have examined this perspective.

There is a higher representation of females in our study group. This is understandable because nurses constituted the majority of the survey participants, and they are mostly females, as in any other hospital in Kerala. This disproportion in gender distribution has also been noted in other studies done exclusively in nurses[11], indicating a female dominance in the field of nursing globally. Also, a rising number of female medical professionals in Kerala in both undergraduate and postgraduate level[12] might have influenced the present gender distribution.

All healthcare workers were willing to partake in COVID care irrespective of their age, sex or profession. Whether this response is due to altruism or professional commitment has not been differentiated in this study. Perhaps both altruism and professional obligation might have contributed to it. The choice of one's profession itself may be influenced by altruistic elements in the personality.[13] Those who start their career after taking Hippocratic Oath[14] or Nightingale pledge[15] are bound to uphold their professional ethics.

Females showed more positive attitudes in all the areas inquired. Compassion in care by females in the profession has been reported earlier.[16] Holding of key posts by nun sisters in the Missionary hospital might have contributed to set the pattern.

In contrast, studies done in Hong Kong, and Yemen during the influenza pandemic showed males to be more willing to take part in patient care. Females showed unwillingness due to anxiety and fear for their loved ones.[17,18] In our study also, anxiety was the dominant emotional response in females. But this never dampened their enthusiasm. This may throw light on the resilience of Indian females.

The willingness to support public health sector is shared by all healthcare workers and is an eye-opener. A well-organised healthcare model adopted by the state government and its efficiency in handling Nipah pandemic in the recent past might have influenced this attitude.[19]

Both doctors and nurses were enthusiastic about being a part of the COVID response team. But, a metanalysis

done during the influenza pandemic in the UK showed greater response from doctors.[18,20] A disproportionately higher number of nurses in our study group may be responsible for this skewed result. Also, the fact that nurses had intense training sessions cannot be overlooked.

Lesser experience in the profession, lack of awareness regarding the treatment strategies adopted by the institution and greater anxiety regarding the pandemic may be the reason for lesser psychological readiness among the interns. The same may be the reason for their enragement regarding leave cancellation. Similar observations have been noted in a study by Khan and Johan.[21] Changes in ethical values in the newer generation[22] and the impact of commercialisation of medical education[23] also may be contributing factors.

The greater enthusiasm and willingness shown by the elder age group was noteworthy. This is probably because greater life experience gave them the confidence to face any crises. But, this cannot be generalised as the elder age group comprised a very small number in our study population.

In studies conducted in China during the COVID-19 pandemic, the elder age group showed more worries about seeing patients die, and regarding their safety[24] as opposed to our findings. There could be several reasons for this disparity. As participants in this age group are nearing the end of their career in s private institution, there is a need to project their enthusiasm to ensure continuity of their job. Or this could reflect our culture, where the elderly renounce all materialistic pursuits and engage in philanthropic activities.

The quantitative components explored the willingness to participate in the care of COVID patients while the qualitative aspect looked into the effect of COVID-19 pandemic on healthcare workers. Though both aspects were explored in different periods (one was in the beginning and the second was after suspected cases started coming into the hospital), the common observation is that the willingness and positive emotional response didn't change much. All of them were worried about the unfamiliarity of the condition, poor infrastructure and inadequate personal protective equipment. Most of the responders expressed concern over their family and loved ones getting infected by them. It is notable that world over, the concerns of HCW's in an infectious pandemic are the same.[9,17,25,26]

Despite having many COVID-19 cases around, the doctors didn't withdraw from practice, but more care was taken for personal protection. Stigma and exclusion experienced by the staff is a matter of concern, though they discarded it as arising from ignorance.

There are many limitations to our study. Our study was conducted in a private medical college in Kerala, where COVID-19 patients were not admitted during the study period. Also, when the study was conducted, the pandemic was well under control, and the 'no panic' situation may be the reason for perceived positive responses.

Our study population is limited to healthcare workers from a single institution; therefore, the results cannot be generalised. There is a huge disproportion in the representation of various groups within the study population which may cause skewing of the result. Another limitation is the lack of proper validation of the study tool; only content validation has been done due to time limitations. The study is descriptive and has not explored the reasons for the responses. There may be response bias as the authors are working in the same hospital where the study was conducted.

CONCLUSION

Our study concludes that willingness to engage in COVID-19 pandemic seems to be an innate response in most of the healthcare workers. This positive attitude needs to be recognised and encouraged. There's a need for further exploration into the various determining factors that are associated with the willingness of healthcare workers. This may reveal potential points of intervention and help improve the work environment of healthcare workers.

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