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Impact of COVID-19 Risk Communication on Knowledge and Mental Status of Food Handlers': A Cross Sectional Study in a Tertiary Care Setting

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ABSTRACT

Introduction: The mental health impact of COVID-19 among food handlers working in food establishments/canteens of Dedicated COVID Health Centers and Hospitals are unrecognized.

Aim/Objectives: This was an analytical cross-sectional study conducted among all the food handlers working in food establishments/canteens of a tertiary care hospital in central India using a pre-designed, pre-tested proforma that included Depression, Anxiety and Stress Scale 21 (DASS 21).

Results: Out of 76 study subjects, 9 (11.8%) had some form of mental illness; 7(9.2%) had depression, 3(3.9%) had anxiety and 1(1.3%) had stress. It was observed that study subjects travelling to the worksite in their own vehicle (OR=5.75, 95% CI=1.29-25.72), difficulty with transport during lockdown (OR=14.75, 95%CI=3.07-70.92) and those with active complaints (OR=16.25, 95%CI=2.25-117.10) were at increased risk of some form of mental illness in comparison to their counterparts (p<0.005). The study subjects who received training or attended sessions had significantly better knowledge on COVID-19 prevention and control measures than those who didn't (t=2.448, mean difference= 0.82, 95%CI= 0.13-1.51).

Conclusion: It has to be reiterated that an effective risk communication and periodic reinforcement of the non-pharmacological measures focusing food handlers to curb the spread of infection has to be continued in the fight against COVID-19.

Key Words: COVID-19, Risk communication, Food handlers, Mental health, Knowledge, India

INTRODUCTION

Covid-19 is now a global pandemic.[1] The challenges and concerns regarding direct and indirect health, economic and social consequences are many. Also, the multitude of target population compounds the prevention, control and risk communication efforts. Health care professionals, police personal and sanitary workers are called COVID warriors or frontline soldiers battling COVID-19.[2]At the same time there is an unrecognized workforce behind these frontline workers keeping them in good health supporting the fight against COVID-19.

Currently, the Dedicated COVID Health Centers (DCHC) and Dedicated COVID Hospitals (DCH) are predominantly the tertiary care hospitals/teaching hospitals in the State in addition to District Hospitals (DH).[3] The tertiary care/teaching hospitals across the country are mostly residential for doctors through provision of hostels and quarters. With the lockdown in place the only source of food and refreshments for them are the food establishments/canteens in these hospitals and residential hostels/quarters. Also, these food establishments/canteens are obliged to provide food to those admitted in hospitals including patients admitted in COVID-19 isolation wards and/or critical care units. In a study conducted by Singh A et al among food handlers in food establishments of five teaching hospitals of North India, it was found that there are eight food handlers per hundred doctors/medical students.[4]

The mental health impacts of crisis situations to mankind are well known.[5] It was reported during severe acute respiratory syndrome(SARS) outbreak of 2002 that 93.5% of frontline workers experienced mental trauma, 45.7% had stress, 45% had emotional distress, 37.2% had diminished social life and 60% had depression.[6] In a study conducted by Lai J et al. dur-

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ing the current COVID-19 pandemic, considerable proportion of frontline workers reported symptoms of depression (50.4%), anxiety (44.6%), insomnia (34.0%), and distress (71.5%). Nurses, frontline health care workers especially women and those working in Wuhan, China, reported more severe degrees of mental health symptoms.[7] Thus during times of crisis the psychiatric morbidities range from persistent depression, anxiety, stress, panic attacks, psychomotor excitement, psychotic symptoms, delirium, and even suicidality.

The identified literature reports negative impact of COVID-19 on individual's mental health especially those involved directly or indirectly with COVID-19 mitigation efforts. Stressors include threat and risk of contagion, perception of safety, information overload versus the unknown, confinement and quarantine, financial loss and job insecurity as well as stigma and social exclusion.[8] Moderating factors that aggravate or mitigate COVID-19's effects on employee's mental health can be organizational, institutional and individual.[9] The organizational factors include occupational role and working environment of the employee, availability of occupational safety and health management measures in place and availability of tele working systems. The institutional factors include programs that aim to support employees financially and psychologically during and after the pandemic. The individual factors encompass socio-demographic factors (gender, age and education), the history of the individual's mental illness, and the perception of physical health vulnerability.[10]

In an article published by Human Resource Executive, it was reported that majority (88%) of the workers experienced moderate to extreme stress over the past month. Importantly, it was noted that, almost two thirds (62%) of workers with stress lost at least 1 hour a day in productivity and 32% lost at least 2 hours a day due to COVID-19 related stress. These findings indicate that work related or workplace stress not only affect employees, but their implications or consequences are for employers as well.[11]

With this background the present study was carried out to assess the mental health status of food handlers working in a tertiary care hospital from central India. In addition, the knowledge of food handlers in relation to COVID-19 pandemic and other factors associated with mental health status were studied.

MATERIALS AND METHODS

This is an analytical cross-sectional study conducted among all the food handlers working in food establishments/canteens of a tertiary care hospital in central India. It is a Dedicated COVID Care Hospital/Medical college, involved in COVID-19 screening, diagnosis and treatment. The hospital has 4 canteens in total. There are different class of workers in a canteen; from the manager, cook, server, cleaner to the owner. All were included in our study. Those who refused consent to answer the questions were excluded. The data was collected by personal interviews during the months of June and July, 2020. The respective canteen in charge was contacted and the nature of the study was explained. After obtaining their permission, the canteen staff were interviewed ensuring privacy. The data was collected after clearance from Institutional Ethics Committee, All India Institute of Medical Sciences, Raipur.

The study was carried out using a pre-designed, pretested proforma made using Google forms for the ease of data collection. The proforma was made quantitative and included three sections namely demographic factors, knowledge assessment and Depression, Anxiety and Stress Scale 21 (DASS 21). DASS 21 instrument developed by Lovibond and Lovibond is used to assess subjective depression and anxiety and stress signals in participants. It is easy to administer, quick to score, and is freely available with a sensitivity and specificity of 78–89% and 71–76% respectively. Each interview lasted for not more than 20-30 minutes. After the interview, the participant's gap in knowledge was addressed appropriately. The data from Google forms were transferred to Microsoft Excel and analyzed using SPSSv23. Appropriate statistical tests were applied.

RESULTS

The mean age of the study population was 25.6±7.1 years [Median= 23 years, Range= 30 (18 to 48 years)]. Enrollment was found to be higher for females 41 (53.9%) as compared to males 35 (46.1%) and majority, 73 (96.1%) were literate. The mean duration of current employment of the study subjects were 12.9±14.4 months (Median= 8 months) and mean duration of work hours per week was 62.7±17.9 hours (Mode= 70 hours per week). Most of the study subjects, 59 (77.6%) were from Chhattisgarh and of those from Chhattisgarh, 30 (50.8%) are from Raipur. The distance between worksite and accommodation site of study subjects was 3.7±3.6 kilometers. The primary mode of transport for majority of the study subjects was on foot (Figure 1).

Out of 76 study subjects, 9 (11.8%) had some form of mental illness; 7 (9.2%) had depression, 3(3.9%) had anxiety and 1(1.3%) had stress. It was observed that study subjects travelling to the worksite in their own vehicle (OR=5.75, 95%CI=1.29-25.72), study subjects having difficulty with transport during lockdown (OR=14.75, 95%CI=3.07-70.92) and those with active complaints (OR=16.25, 95%CI=2.25-117.10) were at increased risk of some form of mental illness in comparison to their counterparts ($p<0.005$) (Table 1).

It was found that 28 (36.8%) study subjects had complete knowledge (answered all 6 questions correctly) of COVID-19 prevention and control whereas 6 (7.9%) had little knowledge (answered 3 or less questions correctly) of COVID-19 prevention and control (Table 2).

It was reported that the canteen administration including managers, dietician has had a training/session with 55 (72.4%) and hospital administration including faculty, interns of Community and Family Medicine and students' union has had a training/session with 33 (43.4%) of study subjects. It was found that the study subjects who received training or attended sessions hadsignificantly better knowledge on COVID-19 prevention and control measures than those who didn't (t=2.448, mean difference= 0.82, 95%CI= 0.13-1.51, p=0.021).

It was observed that study subjects not attended training/session on COVID-19 conducted by any of the above-mentioned source were 6.93 times at more risk of mental illness in comparison with study subjects who attended training/session on COVID-19 (OR=6.93, 95%CI=1.55-31.08) (Table 3).

DISCUSSION

COVID-19 pandemic has put the country in a state of Jeopardy. The health care professionals, police personnel, security staff and sanitation workers are being considered the front-line workers. There is a group of unsung work force who has been constantly providing support to all of the above-mentioned front-line warriors along with the COVID-19 patients themselves; the food handlers. This study is unique in that, the knowledge and mental status of the workers in food establishments/canteens of a COVID-19 hospital was surveyed. During the study period, there was a continuous rise in number of cases across Chhattisgarh and Raipur in particular.

The socio-demographic profile of the food handlers showed that, most of them were young adults (<35 years, 90.8%), females (53.9%) and literates (96.1%). It is similar to a study conducted among Vietnamese, where majority of the participants were young (54.8% were less than 35 years), females (65.7%) and literates (54%).[12] Majority of the study subjects were natives of Chhattisgarh (77.6%), working for more than 6 months in the food establishments/canteen of a tertiary care hospital.

It was found that more than one third of the study subjects were the sole bread winners of their families. This may explain the willingness to join or continue with the job despite having to work in

high-risk areas. But at the same time, working for almost 8-9 hours a day and continuing their routine rotational service having to travel around 4 kilometers every day even during lockdown reflects their commitment and willingness to serve.

Majority of the respondents were aware of the preventive measures to be taken to curb the spread of SARS COV-2 infection which was similar to Parikh et al. study among general population.[13]Awareness and training sessions had been appropriately planned and conducted in a timely manner by the institute and/or food establishment authorities focusing on food handlers. Similar sessions were conducted to police personnel also as they serve on forefront as well.[14]Majority had attended one or the other session (72.4%). Such sessions focusing on prevention and control strategies, early signs of SARS COV-2 infection are vital for food handlers because of their job profile which involves delivery of food to COVID-19 patients in isolation wards in addition to other in-patient wards and work in the food establishment which attracts patients, their attenders, doctors and other paramedical staff. Due attention and focus on food handlers have to be given to prevent super spreader events.

One of the foremost reasons for improved knowledge on prevention and control measures of COVID-19 could be these trainings/sessions conducted. In Lin et al. study conducted among general population, it was found that there was significant relation between knowledge and risk perception and practices during H1N1 pandemic.[15] In Lau et al. study, those who practiced precautionary measures were having more knowledge on routes of transmission of SARS CoV2.[16] This may also ensure workers a sense of protection, safe working environment and reduces absenteeism. Provided 60.5% of the workforce was not from Raipur district, such awareness and training sessions may also motivate them to continue with their respective jobs and alleviate unnecessary fears or worries on COVID-19.

It was found that 11% of the food handlers had either stress or anxiety or depression. Among the many different factors analyzed, food handlers using own vehicles and those having difficulty to reach to worksite were significantly affected by mental illness which may be explained by movement restrictions associated with series of lockdowns during the study period (Phase 1: 23rd March to 14th April 2020, Phase 2: 15th April to 3rd May 2020, Phase 3: 4th to 17th May 2020). It was also found also those with active complaints were more affected by mental illness. Having active complaints during an ongoing pandemic may put an individual under stress or anxiety or depression. It was similar to Rehman et al study where the fear of getting infected and the struggles during lockdown were attributed to such mental illness.[17]

Though complete enumeration of food handlers in food establishments/canteen of a tertiary care hospital was done, the generalizability of study findings is limited due to homogenous selection of study subjects; being a single center study. At the same time effective risk communication strategies do

minimize the impact of the pandemic on frontline workers including food handlers and general population.[18,19]

CONCLUSION

The improved knowledge on prevention and control measures, early signs and symptoms of COVID-19 and reduced impact on mental health of food handlers may be attributed to well-organized COVID-19 risk communication sessions/ trainings. It has to be reiterated that an effective risk communication and periodic reinforcement of the non-pharmacological measures focusing food handlers to curb the spread of infection has to be continued in the fight against COVID-19.

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Consent to participation: Obtained from study participants after explaining the study

Availability of data and material (data transparency): Can be obtained on request

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Table 1: Association between socio-demographic, transport and medical factors and mental illness

Variables		Mental illness			p Value
		Present n=9	Absent n=67	Total n=76	
Canteen	Hospital	7 (77.8)	54 (80.6)	61 (80.3)	1.000
	Hostel	2 (22.2)	13 (19.4)	15 (19.7)	
Gender	Male	2 (22.2)	33 (49.3)	35 (46.1)	0.166
	Female	7 (77.8)	34 (50.7)	41 (53.9)	
Education	<Primary	2 (22.2)	7 (10.4)	9 (11.8)	0.288
	>Primary	7 (77.8)	60 (89.6)	67 (88.2)	
Type of employment	Unskilled and semi-skilled	4 (44.4)	40 (59.7)	44 (57.9)	0.480
	Skilled and above	5 (55.6)	27 (40.3)	32 (42.1)	
Duration of current employment	<12months	7 (77.8)	48 (71.6)	55 (72.4)	1.000
	> 12 months	2 (22.2)	19 (28.4)	21 (27.6)	
Working hours per week	<48 hours	0	7 (10.4)	7 (9.2)	0.589
	>48 hours	9 (100)	60 (89.6)	69 (90.8)	
Only earning member in the family	Yes	1 (11.1)	24 (35.8)	25 (32.9)	0.257
	No	8 (88.9)	43 (64.2)	51 (67.1)	
Nativity (State)	Chhattisgarh	8 (88.9)	51 (76.1)	59 (77.6)	0.674
	Others	1 (11.1)	16 (23.9)	17 (22.4)	
Accommodation	Worksite	0	10 (14.9)	10 (13.2)	0.597
	Offsite	9 (100)	57 (85.1)	66 (86.8)	
Type of stay	With family	8 (88.9)	45 (67.2)	53 (69.7)	0.404
	With friends	1 (11.1)	20 (29.9)	21 (27.6)	
	Alone	0	2 (3)	2 (2.6)	
Mode of transport	On foot	3 (33.3)	46 (68.7)	49 (64.5)	0.027
	Own vehicle	6 (66.7)	16 (23.9)	22 (28.9)	
	Shared vehicle	0	5 (7.5)	5 (6.6)	
Difficulty with transport during lockdown	Yes	6 (66.7)	8 (11.9)	14 (18.4)	0.001
	No	3 (33.3)	59 (88.1)	62 (81.6)	
Active Complaints	Present	3 (33.3)	2 (3)	5 (6.6)	0.011
	Absent	6 (66.7)	65 (97)	71 (93.4)	
Chronic conditions	Present	2 (22.2)	3 (4.5)	5 (6.6)	0.104
	Absent	7 (77.8)	64 (95.5)	71 ()93.4	
Family member working outside state	Yes	0	12 (17.9)	12 (15.8)	0.339
	No	9 (100)	55 (82.1)	64 (84.2)	
Family member tested positive	Yes	0	1 (1.5)	1 (1.3)	1.000
	No	9 (100)	66 (98.5)	75 (98.7)	

Table 2: Knowledge of study subjects in relation to COVID-19

Knowledge	Known	Not known
Minimum distance to be maintained between 2 persons in public places is?	64 (84.2)	12 (15.8)
Do you think wearing face cover is compulsory in public places when social distancing is not ensured?	72 (94.7)	4 (5.3)
How frequently should the used cloth face mask be washed?	63 (82.9)	13 (17.1)
Can the face cover be shared among the family members?	68 (89.5)	8 (10.5)
Is using hand sanitizer sufficient when hands are visibly soiled?	50 (65.8)	26 (34.2)
Do you think it is correct to cough by closing mouth with hands?	61 (80.3)	15 (19.7)

Table 3: Association between attending training/session on COVID-19 and Mental illness

Variables		Mental illness		Total	p value
		Present n=9	Absent n=67		
Attended training/session on COVID-19	Yes	3 (33.3)	52 (61.2)	55 (72.4)	0.005
	No	6 (66.7)	15 (38.8)	21 (27.6)	

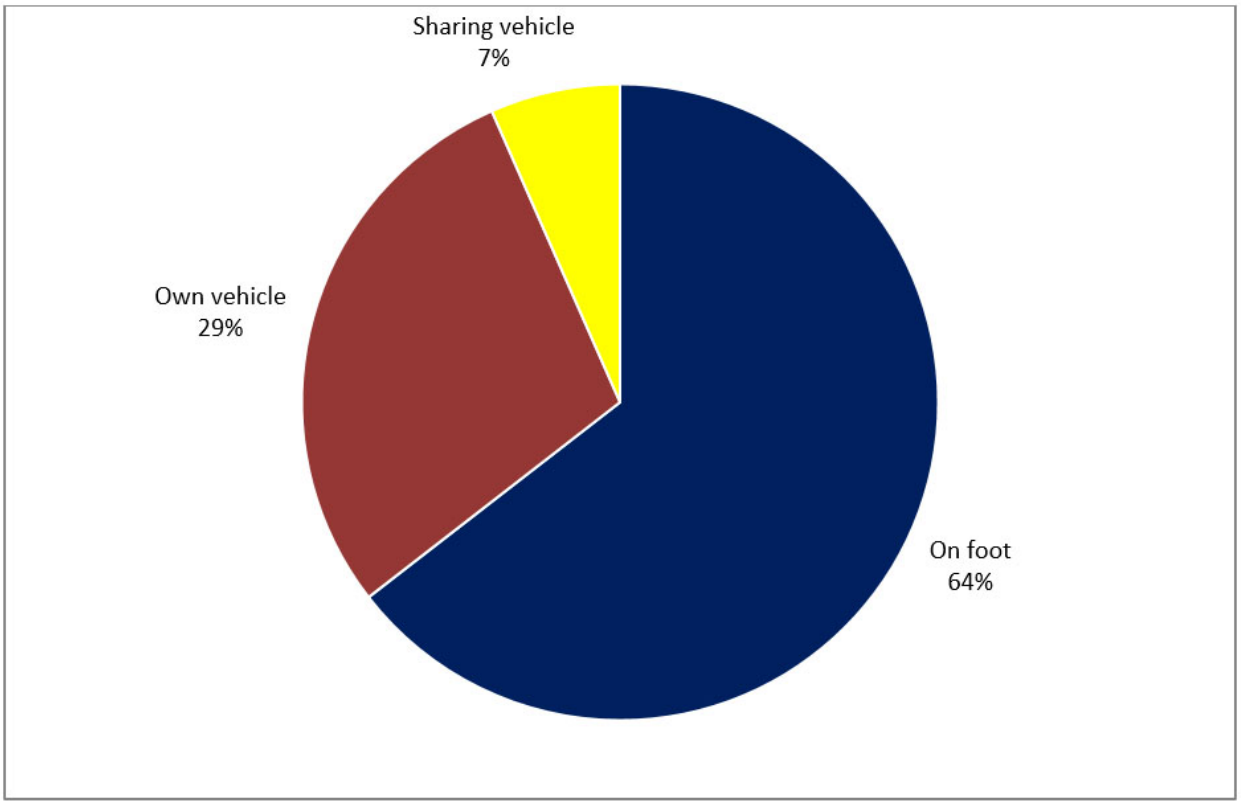

Figure 1: Distribution of mode of transport to the worksite.