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Research

Exploring Doctors' Willingness of Providing Service on COVID 19: A Case Study in Bangladesh

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ABSTRACT

Background: Doctors were doing the hardest to deal with COVID-19 emergency medication deliberately when Bangladesh experienced doctors' shortage along with a high mortality rate for Coronavirus. The study aimed to identify and evaluate the key factors affecting doctors' willingness of health services providing as front-line workers by doctors of Bangladesh with the proper concern of being infected.
Subjects dan Method: The study design was exploratory. The study was based on Dhaka division. The total population for this study was 5956 doctors who provided their service in Dhaka during the COVID-19 pandemic. By using the Yamane sampling technique, 100 respondents were chosen as the sample size from the population. Five-point Likert scale, ordinal scale, and interval scale were used to measure the variables. Here willingness of providing service is the variable of interest. Univariate as well as bivariate data analysis were used to avail the research objective. - Regression Analysis used to find out the relationship between the independent factors and the doctors' willingness.
Results: The results showed that doctors willing to provide health service were 11 times more likely to spend more time than unwilling doctors did having (OR=11.448; 95% CI=1.951 to 67.166; p= 0.050). Moreover, positive social support increased doctors' willingness to service by 14 times. In the amid of this pandemic, ensuring safety harness with personal protective equipment (PPE), monitoring health guidelines, and enhancing social support for doctors will be the unavoidable things to do for Bangladesh. The study was only limited to Dhaka, which hindered getting pertinent information because the practices and demographics vary from place to place.
Conclusion: Gender, working hour, information satisfaction, spend time, social support, interaction, self-safety, and devotion had substantial effects on the eagerness of providing health service in this crisis moment.
Keywords: COVID-19, willingness, personal protective equipment, pandemic, safety.

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BACKGROUND

Coronavirus dominated the public health infrastructure and became a worldwide threat (Wang et al., 2020a). Coronavirus suggested a substantial disparity between the impoverished community and the rest of the world from the very beginning of spreading Coronavirus. In slum areas, people reside nearby and cannot sustain social distance; for this, the worse condition

occurred. Coronavirus tends to be quickly distributed through the slum region to the more susceptible. Although the information was provided, most people either did not have access to running water, soap or did not have space in this atmosphere to retain social distance (Thakur et al., 2020). Bangladesh was considered one of the world's high-risk countries during the COVID-19 situation (WHO, 2020).

Since the spread of Coronavirus in December 2019 in China (Mahase, 2020), people were relentlessly looking forward to coping with it. The latitude became pandemic at the local and international levels within a short period (WHO, 2020; Zhu et al., 2020). This novel Coronavirus was devastating people's lives irrespective of their ethnicity, religion, or income ability of those infected (Thakur et al., 2020). Bangladesh was considered as one of the most populated countries in the world, as well as a lower-middle-income nation. Now the country tried to fight against Coronavirus and reduce spreading the virus (Anwar et al., 2020).

Bangladesh first confirmed the COVID-19 case on March 7, 2020 (IEDCR/ DGHS/GOB, 2020). The country declared nationwide lockdown certainly then, but it was hard to follow lockdown for an extended period (Tareq et al., 2020). As a result, spreading Coronavirus was a vehement burden for the capacity of the health system. Moreover, the infection possibility among health care workers was higher than in any other occupation (Wei et al., 2020). The doctors' mortality rate in Bangladesh was 2.99 percent by June 14, 2020 (Tajmim, 2020). Medical professionals were addressed as the real rock stars and heroes for every nation for their honorable contribution to defeating COVID-19. They were going way beyond their zeal to put down the impendence of COVID-19 (Utaraitė, 2020).

Healthcare workers were the key person involved in screening and treatment in adverse circumstances (Spoorthy et al., 2020b). The African healthcare system was dealing with quite several challenges like many countries, including Bangladesh (Oleribe et al., 2019). Management and leadership, health information and technologies, health workforce, and health information managers were playing a significant role in building up a typical and functional healthcare system (WHO, 2007). Viral epidemics significantly affected mental health and clinical staff (Wu et al., 2009, Chong et al., 2004). Maintaining social isolation, working in high-risk positions, balancing a high workload, observing direct insult by patients, and contacting with infected people lead to trauma for doctors (Wu et al., 2009; Maunder et al., 2006; Joob and Wiwanitkit, 2020). An excessive workload especially works hours was responsible for the adverse psychological condition that doctors were suffering during COVID-19 pandemic situation (Lee et al., 2018; Styra et al., 2008). In this regard, many cross-sectional mental health studies were carrying on COVID-19 (Wang et al., 2020b), especially for doctors and other medical staff (Kang et al., 2020; Joob and Wiwanitkit, 2020a; Tan, et al., 2020). This needed in-depth analysis to identify risks for mental health and specific problem outbreaks with Coronavirus (Qiu et al., 2020). However, coping with Coronavirus was like a shock for doctors in the world as well as in Bangladesh. The public saw this effort when doctors of this country kept their oath to continue services instead of life risk. However, many researches took place for dealing with traumatic situations for medical staff during Coronavirus.

Therefore, this study tried to reveal doctors' willingness to serve on COVID 19 in Bangladesh. Identifying the willingness of their service and finding the causes of doctors' shortage were the aim of this study.

SUBJECTS AND METHOD

1. Study Design

This was a descriptive study. This study identify the willingness to provide health service in the COVID-19 pandemic among doctors. Data had been collected through a questionnaire survey. To collect data, a convenience-sampling procedure had been followed because all respondents were picked up based on their availability. Both primary and secondary information had been used for that purpose.

2. Population and Sample

Data was collected from doctors working in Dhaka, Bangladesh, and tackling the COVID-19 situation as the front-line service providers. The respondents were participated in this survey from May 12 to May 30, 2020. The target population was the citizen of Bangladesh age from 25 to 55 and involved in COVID-19 service in Dhaka, Bangladesh

3. Study Variables

The dependent variable was doctors' willingness of their service. The independent variables were cautiously chosen based on statistical significance independent variables. These consist of gender, working hour, information satisfaction, spend time, social support, interaction, self-safety, and devotion.

The dependent variables measured the willingness to provide health services. This was measured by asking participants to rate on a five-point Likert scale (1= strongly unwilling; 2= unwilling; 3= neutral; 4= willing agree; 5= strongly willing). In this regard, independent variable age and working hour were measured with interval scale as well as gender was measured by ordinal scale and working hour, information satisfaction, spend time, social support, interaction, self-safety, and devotion were measured with the help of a five-point Likert scale.

4. Operational Definition of Variables

Doctor's willingness of their service is defined as whether the respondents are performing their duty with eagerness or not.

Gender is the characteristics of a person categorized as male or female based on the respondent's response.

Working hour is the period of time (hours) an individual spends in the workstation.

Information satisfaction refers to the required information provided by the responsible authorities to handle Covid-19 patients.

Spend time is defined as respondents' eagerness to spend time in the workstation.

Social support is the behavior of the neighbors towards the respondents.

Interaction refers to the fear of the respondents to communicate with family protective equipment, hand sanitizer, oxygen, etc.

Devotion is the passion of the respondents to work despite enormous difficulties.

5. Study Instrument

Data was collected with the help of a self-rated questionnaire using an online survey method, semi structured questionnaire was distributed to all doctors with the help of the internet. All participants got an information consent electronically before registration. The consent page presented two options (agree/disagree). Participation of the respondents was voluntary. Only the participants who chose agree they got the questionnaire page, and participants had the opportunity to quit the process at any

time. The study respondents were 100 front-line doctors.

Semi structured interview schedule used as a tool for collecting quantitative data from the respondents. The questionnaire consisted of three parts: basic demographic data, service willing/unwilling assessment, the problem facing to deal with COVID-19 outbreak.

6. Data Analysis

To avail the study objective univariate analysis as well as bivariate analysis were used. In this study the aim of univariate analysis is to describe the data and find its' patterns. Univariate data displayed frequency distribution table. Moreover, bivariate analysis is to find out whether there is a relationship between two variables. To identify the empirical relationship between perceptions of providing service on COVID 19 pandemic situation and demographic, social variables included other variables Chi-Square test had been conducted.

7. Research Ethics

This study has followed some core principles of research ethics such as honesty, follow informed consent rules, respect confidentiality, and privacy. Participant name and contact information's were recorded during the online survey. In every level of analyzing data, the anonymity and confidentiality were obeyed. In this consequence, participants were clearly informed about the purpose of the study before collecting data as well as authors representing proper respect to the participants for their valuable time and willingness of the vulnerary participation.

RESULTS

Table 1 represents the pervasiveness of doctors' willingness in coronavirus healthcare service impacted by various factors.

Table 1. Representation of descriptive statistics with Chi-square test

Factors	The willingness of coronavirus service		OR	p
	Yes	No		
Gender			0.07	0.810
Male	44	11		
Female	35	10		
Information satisfaction			13.40	0.000
Satisfied	65	12		
Unsatisfied	9	14		
Spend time			26.81	0.000
More	71	8		
Less	8	13		
Social support			11.74	0.001
More	66	10		
Less	13	11		
Interaction			10.23	0.001
Less fear	17	12		
More fear	62	9		
Self-safety			14.48	0.000
More	58	6		
Less	21	15		
Devotion			9.62	0.002
Yes	64	10		
No	15	11		

There is a highly significant association in information satisfaction, spend time and self-safety with doctors' willingness to provide healthcare service. The value of chi-square was 13.400, 26.810, and 14.482 having ($p<0.001$). Working hours, social support, interaction, and devotion had a close relationship with doctors' willingness having chi-square values respectively 25.33, 11.74, 10.23, and 9.63 here, the significance level was ($p<0.01$).

Logit Model:

This model is used to identify the estimated correlation between the dependent and independent variables based on a reference category.

Table 2. Binary Logit Model

Variables	B	OR	95% CI		p
			Lower limit	Upper limit	
Gender	-0.97	0.38	0.05	2.65	0.328
Information satisfaction	1.95	7.05	1.12	44.53	0.038
Spend time	2.44	11.45	1.95	67.17	0.007
Community support	2.69	14.68	1.89	113.49	0.010
Interaction	2.41	11.17	1.28	97.55	0.029
Self-safety	2.64	13.97	1.85	105.52	0.011
Devotion	1.76	5.83	1.05	32.47	0.044

The likelihood chi-square statistic for this model was 61.864 with 9 degrees of freedom and the result was highly significant [$\chi^2(9)= 61.86$; $p<0.001$]. By measuring doctors' satisfaction level about information, satisfied doctors' probability was seven times higher willing to service in coronavirus pandemic than unsatisfied doctors do. Statistically, a significant association was between the information satisfaction and willingness to provide health service during COVID-19 (OR=7.05; 95% CI=1.12 to 44.53; p= 0.038). Compared to less time spending doctors in the hospital, more time spending doctors' probability was 11 times higher than satisfaction level on perceived of health service for Coronavirus according to (OR=11.45; 95% CI=1.95 to 67.17; p= 0.008).

Result describes that willing doctors wanted to spend more time in the hospital for Coronavirus related health service where unwilling respondents were less likely to spend time in hospital. The result denotes that there was a significant relationship between community support and perceived Coronavirus service. Less social support led doctors to be unwilling to provide service in an adverse situation. Compared to less community support, more community support derived doctors' probability approximately 15 times higher on willingness to provide health service during the COVID-19 crisis (OR=14.68; 95% CI= 1.89 to 113.49; p= 0.010). That was why; the doctors who had less community support are unwilling to involve in Coronavirus-related health services. Result describes that doctors who had less fear in interacting with the patient were almost 11 times more willing to provide health service during COVID-19 compare to the doctors who had a fear of interacting with people. In this matter, the result shows a significant association with (OR=11.17; 95% CI=1.28 to 97.55; p=0.029). Compared to respondents who had less self-safety equipment, others who had more self-safety equipment were 13 times more eager to provide health service in coronavirus situations having (OR= 13.97; 95% CI= 1.85 to 105.52; p= 0.011). The doctors who had a devotion for their job were a 5.832 times higher probability of willing to service instead of life risk,

compare to the doctors who had less devotion for their job. There was a significant relationship between devotion and health service during the COVID-19 situation having (OR= 5.83; 95% CI=1.05 to 32.47; p= 0.044).

DISCUSSION

The largest public health emergency has been exerted in China because of COVID-19. As Fletcher and Sarker (2013) noted, to deal with this health crisis, young healthcare professionals take active involvement (Fletcher and Sarkar, 2013).

It is now the highest mental health challenge to fresh health care workers (Chen et al., 2005). According to this study, there is no statistically significant association between the gender of the respondents and perceptions of the service in the coronavirus pandemic. This result shows that male doctors were 37% less willing to serve the COVID-19 situation than female doctors.

Bianchi et al. (2012) studied the X chromosome and immune-associated genes; the result suggested that there was a significant difference between men and women. This X chromosome is not only renowned for its general reaction to infection but also famous for its specific response to microbes, including antibody formation. X chromosome also has a better ability to deal with adaptive immunity (Bianchi et al., 2012; Klein and Flanagan, 2016). Here we have come to know that females were more willing to provide service at this time, which was related to the report of Bangladesh suggested that female doctor's mortality rate in Coronavirus is lower than that of males. The male mortality rate was almost ten times higher than females in Bangladesh, as reported on July 4, 2020 (Independent Television, 2020).

In this study, we saw that positive community support derives willingness to deal with critical situations. Health workers, especially doctors, have to limit their direct social interaction with people; moreover, they are spending their free time alone after finishing their work. As a result, doctors require social support; it is as same as Chen et al. (2005) pointed out good social support might have painted positive energy among people in high-risk work (Dyregrov et al., 1996, Chen et al., 2005). Plaisier et al. (2007) explained that sometimes lack of social support leads to depression and anxiety. In this case, the people who work in high-risk conditions are more vulnerable (Plaisier et al., 2007). This is properly associates with the study it describes that lack of social support leads doctors to the unwillingness of working. Having association with contaminated patients primarily through work in high-risk divisions. Work over-burden brought about in need of rest. Moreover, doctors are now working a long time and introducing themselves to infected patients. Therefore, they are now working under pressure to interact with infected people directly. Fare of interaction leads doctors to unwillingness for their service. Schwatz (2020) was also addressed the situation and pointed out that long-time interaction with patients increased the pressure in work. (Wang et al., 2020c, Schwartz et al., 2020).

This study discloses that not having enough personal protective equipment, health care workers were infected rapidly in this regard with inadequate personal protective equipment hinders doctors from handling patients directly during COVID-19. For reducing risk, limiting physical contacts and ensuring personal protection doctors are using surgical gowns, face shields, or goggles, double gloves, FFP2-3 or N95-99 respirator masks. They also try to

operate with telemedicine for personal safety. Proper personal safety encourage doctors towards serve their level best. Study of Sporty (2020), reported that, inadequate personal protective equipment is a concern issue for doctors as directly handling COVID-19 patients (Spoorthy et al., 2020a).

Working from home is not possible for doctors' profession during the COVID-19 crisis. Despite being a huge health risk, doctors have to do their work as front-line health service providers. This novel profession and the dedication of doctors' is a matter of inspiration for all people. The doctors' community tirelessly works for the mitigation of the world health crisis. The dedication, devotion, and resilience of the doctors keep them more willing to serve this pandemic. Devoted doctors were 5.832 times more willing to provide service than that of indifferent doctors'. As similar as Kumar (2020) pointed out that, Doctors are keeping an uttermost promise for ensuring health security for the people (Kumar, 2020).

The COVID-19 disaster extent from China henceforward the world health system became vulnerable. Doctors take a gamble of life to keep our families secure and handle this violent disease. Physicians are the first-line suppliers of clinical care at the very early stage of coronavirus expansion. In this ticklish situation, they also have to deal with some issues like lack of social support, work overload, restriction of interaction with the patient, lack of proper information, lack of personal protective equipment. Because of their attachment to the work, they used to provide service by risking their life. Bangladesh falls behind in the doctors and patients ratio compared to its neighbor countries, but the county also fails to maintain the minimum threshold of doctors.

Nonetheless, Bangladesh's doctors hold their oath in good form, so they are not allowed to sacrifice patients. A practical and productive environment is also critical in reducing the likelihood of infection with Coronavirus. A wider degree of social support is also required to counter COVID-19, a decent arrangement of personal protective equipment, and a convenient information system.

AUTHORS CONTRIBUTION

Sayeda Kamrunnahar Bristy: Conceptualization, Methodology, Investigation, Writing original draft, Data curation, Formal analysis, Kamrul Hasan: Resources, Investigation, Writing original draft, Formal analysis, Dr. Muhammad Ariful Haque: Data collection, Writing- Reviewing and Editing, Umme Habiba: Writing original draft, Writing- Reviewing and Editing.

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CONFLICT OF INTEREST

There was no conflict of interest.

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