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**PERCEPTIONS OF HEALTHCARE WORKERS REGARDING COVID-19  
OUTBREAK: A CROSS-SECTIONAL STUDY**

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**ABSTRACT**

**Introduction:** The coronavirus disease 2019 (COVID-19) has become a global emergency and healthcare workers (HCW) are more likely to feel under pressure due to huge number of patients rushing to the hospitals.

**Objective:** This study was designed to determine the perception of HCWs regarding effects of COVID-19 and precautionary measures against COVID-19 on personal and professional lives.

**Methods:** Online cross-sectional study was conducted during the first week of April 2020, among the HCWs. A total of 449 forms were received through electronic media. The survey instrument contained 19 close-ended questions. The responses of the survey were coded, and data was analyzed in SPSS 24.

**Results:** Majority of participants were male (53.9%, n=242) and young within the age group of 18-28 years (47.9%, n=215). More than half of the respondents believed that their routine job has been affected a lot (56.1%, n=252) while 51.9% (n=233) also believed that their finances have also been affected a lot by the current pandemic. Furthermore, 46.8% (n=210)

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believed that their family life has been affected a lot. It was also observed that 47.4% (n=213) of the HCWs believed that their routine performance of duties was not affected by precautionary measures. However, 37.6% (n=169) believed that the facemask was most irritating precautionary measure.

**Conclusion:** COVID-19 outbreak has caused huge impact on HCWs personal and professional lives. Significant distress can affect HCWs routine outputs. Therefore, health policy makers should incorporate interventions that can provide psychosocial and financial support which can help to overcome their concerns and associated suffering.

**Keywords:** COVID-19, Pandemic, Awareness, Safety, Healthcare workers

## INTRODUCTION

Coronaviruses belong to Nidovirales order and are a family of enveloped positive single stranded RNA viruses. This family of coronavirus infects human and many animal species. Coronaviruses have been described for more than 50years [1]. The coronavirus disease 2019 (COVID-19) is a disease of infectious nature, produced by severe acute respiratory syndrome coronavirus (SARS-CoV-2) [2].

The epicenter of this infection was Wuhan city, capital of Hubei province of China in December of 2019. The novel coronavirus SARS-CoV-2 was isolated by Chinese scientist by 7<sup>th</sup> January 2020, which was previously called 2019-nCoV. This SARS-CoV-2 was isolated from patients with this virus infected pneumonia [3].

World Health Organization (WHO) declared COVID-19 as pandemic and global health emergency on 31<sup>st</sup> January 2020 [4]. In February 2020, WHO named this SARS-CoV-2 to Coronavirus Disease

2019 (COVID-19). Although the initial transmission was likely to be zoonotic from large seafood market, which also traded live wild animals, but later outbreak occurred by person to person transmission. The clinical spectrum of COVID-19 seems to be extensive such as asymptomatic illness, mild upper respiratory tract infection, severe viral pneumonia, respiratory failure and even death [3].

As of 12<sup>th</sup> June 2020, the virus affected 216 countries and territories around the world with a total 7,390,702 confirmed cases and 417,731 confirmed deaths [5]. In Pakistan, first case of COVID-19 was confirmed in February 2020 and as per of 12<sup>th</sup> June 2020, the total number of confirmed cases are 125,933 and 2,463 deaths [4, 6].

The uncertainty and long incubation time of COVID-19 is threatening for people's physical and mental wellbeing, particularly with respect of cognition and emotion as many theories have indicated. The

Behavioral Immune System (BIS) theory suggests that for self-protection, people tend to develop negative emotions and cognitive assessment. They may develop avoidance behavior or try to bound to social norms of conformity in order to fight against possible disease threats [7].

In particular, healthcare workers (HCWs) more likely to feel in stress and under pressure in experiencing avoidance by their own family due to fear of infection as they are around the people affected with COVID-19 [8].

Safety precautions are of prime importance to inhibit human to human transfer by direct contact or by respiratory droplets emitted during sneezing or coughing of infected person. Masking play a key role in these precautions as it protect the non-infected person from getting infected as well as prevent transmission of infection from infected patient [9, 10]. However, HCWs must wear gowns, gloves, goggle or face shields along with masks as they are in direct care to COVID-19 patients [11]. But use of personal protective equipment (PPE) for longer duration of time may cause skin irritation and may result to frequent face touching leading to spread of infection. Indeed, the role of these behaviors such as touching face or surface has been documented as a major factor of viral transmission for decades [12].

Since the COVID-19 has become a pandemic affecting all the world, and Pakistan already being in economic crisis, the negative effects on the HCWs will be greater as compare to various pandemics in the last few decades and even the century. This study has been designed to determine the perception of HCWs regarding effects of COVID-19 and effects precautionary measures against COVID-19 on personal and professional lives.

## METHODS

It was an online cross-sectional study conducted during the first week of April 2020. The survey was conducted among the HCWs (doctors, nurses, pharmacists, physiotherapists, paramedical staff, and non-medical staff) in different healthcare facilities (HCF) of Pakistan.

During the study period, a total of 449 forms were received through electronic media. The confidentiality of study participants was maintained throughout the survey as well as online consent was taken from the study participants. The HCWs were asked to fill the questionnaire honestly and no compensation was paid to the study participants.

The survey instrument contained 19 close-ended questions, that required 5 minutes to be completed. The survey instrument was divided into three sections, including demography (eight items), perceptions

regarding effect COVID-19 pandemic on personal lives (six items), and perceptions regarding precautionary measures against COVID-19 (five items).

Before full scale study the survey instrument was disturbed among 20 HCWs of Peoples Medical College Hospital Nawabshah, for clarity and comprehension. The suggestions given in the pilot study were incorporated in the survey instrument and then the survey instrument was circulated among different HCWs in Pakistan through electronic media.

The responses of the survey were coded, and data was analyzed in SPSS 24 (Chicago, USA). Descriptive statistics was used to determine the frequencies and percentages while Chi-square test was used to determine the relationship between the different variables.

## RESULTS

During the study period, 449 responses were received. Among them majority were male (53.9%, n=242) and 46.1% (n=207) were females. About half of the study participants (47.9%, n=215) were young within the age group of 18-28 years, while only 4% (n=18) HCWs were having the age of 59 years or above. It was found that more than half of the HCWs were having bachelor's degrees while there was also participation from some Ph. Ds (2.2%, n=10). From that 49.7% (n=223) were

doctors and there was also participation from the non-medical staff (3.8%, n=17). Furthermore, about half of the participants were from tertiary care government hospitals (49.7%, n=223), however least responses came from the HCWs performing duties in District headquarter hospitals (7.8%, n=38). Moreover, 60.6% (n=272) were having the experience of 1-5 years, though there was also participation from HCWs with more than 20 years of experience (10.2%, n=46). It was found that most respondents (79.7%, n=358) were full time employees while only 20.3% (n=91) were doing part time job. When the HCWs were asked to self-rate personal health, more than half (56.1%, n=252) rated good health, while only 1.6% (n=7) rated poor health as mentioned in **Table 1**.

**Table 2** and **Figure 1** shows the perception of HCWs regarding effect of COVID-19 pandemic on personal and professional life. It was found that about half of the HCWs (46.3%, n=208) were worried a lot about their own health while only 10.9% (n=49) were not worried about their health. However more than two-third of the HCWs were worried about their family's health (67.7%, n=304). Furthermore, when asked about whether COVID-19 outbreak has affected their routine job, more than half of the respondents believed their routine job has been affected a lot (56.1%, n=252)

while only 8.2% (n=37) were of the opposite opinion. Moreover, when asked about whether the current pandemic has increased their duty hour, more than half (51.7%, n=232) thought that their duty hours have not been increased, while more than one-fourth (26.3%, n=118) disagreed. However, when asked about whether they are facing any financial losses due to current situation, more than half of the HCWs were of the opinion that their finances have been affected by the current pandemic a lot (51.9, n=233), while only 13.8% (n=62) were not facing any financial losses. Furthermore, when asked about whether their family life has been affected due to COVID-19 outbreak, 46.8% (n=210) believed that their family life has been affected a lot, whereas family life of 17.8% (n=80) HCW's was not affected.

**Table 3** shows the perception of HCWs regarding precautionary measures and COVID-19. When HCWs were asked about the precautionary measures at their HCF, about half of the HCWs informed that the precautionary measures at their HCF were at moderate level (47.2%, n=212), while only 7.6% (n=34) reported very high level. It was also found that the better

precautionary measures were practiced at tertiary care private hospitals (high to very high 43.7%) in comparison to tertiary care government hospitals (high to very high 19.7%) ( $p<0.05$ ). **Table 2** also shows that about half of the HCW (47.4%, n=213) believed that their routine performance of duties was not affected by precautionary measures whereas only quarter (25.6%, n=115) of the HCWs thought that their routine job is highly affected. However, it was found that the most irritating precautionary to the HCWs were the face masks (37.6%, n=169) and among those the reason behind getting irritated from face masks in most of the cases was physical disturbance (49.6%, n=83).

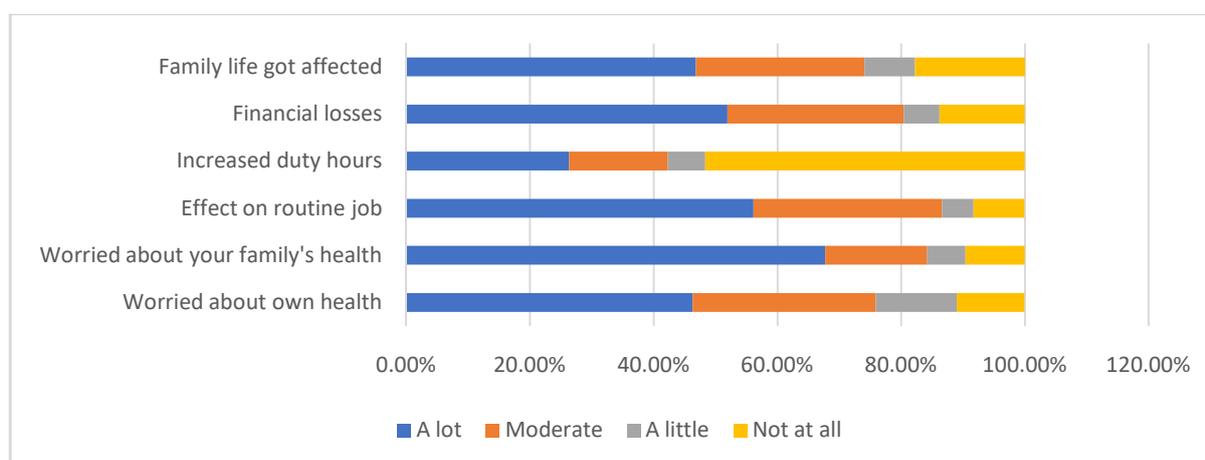
Finally, when asked about any positive outcomes of COVID-19 outbreak, 65.5 (n=294) believed that it will increase disease control awareness, 45.7% (n=205) thought that it will provide learning experience, 39.0% (n=175) were of the opinion that it will increase sense of togetherness and cooperation, 37.0 (n=166) believed that it will give great appreciation of life and work, while only 11.6% (n=52) thought that it will not have any positive impacts at all.

**Table 1: Demography of the participants of the study**

Variables	Groups	No. (and %)
Gender	Male	242 (53.9)
	Female	207 (46.1)
Age	18-28 years	215 (47.9)
	29-38 years	136 (30.3)
	39-48 years	52 (11.6)
	49-58 years	28 (6.2)
	59 and Above	18 (4.0)
Education	Intermediate	18 (4.0)
	Diploma	15 (3.3)
	Bachelors	231 (51.4)
	Masters/Specialization	175 (39.0)
	Ph. D	10 (2.2)
Profession	Doctor	223 (49.7)
	Pharmacist	132 (29.4)
	Physiotherapist	13 (2.9)
	Nurse	38 (8.5)
	Paramedical staff	26 (5.8)
	Non-Medical Professional	17 (3.8)
Type of Health Care Facility	Tertiary Care Hospital (Govt.)	223 (49.7)
	Tertiary Care Hospital (Pvt.)	148 (33.0)
	District Head Quarter Hospital	35 (7.8)
	Taluka/Tehsil Hospital	43 (9.6)
Experience	1-5 years	272 (60.6)
	6-10 years	74 (16.5)
	11-15 years	39 (8.7)
	16-20 years	18 (4.0)
	>20 years	46 (10.2)
Employment Status	Full Time	358 (79.7)
	Part-Time	91 (20.3)
Personal Health Status	Poor	7 (1.6)
	Average	75 (16.7)
	Good	252 (56.1)
	Excellent	115 (25.6)

**Table 2: Perceptions of HCWs regarding effect of COVID-19 pandemic on personal lives**

Variable	A lot N (%)	Moderate N (%)	A little N (%)	Not at all N (%)
Are you worried about own health?	208 (46.3)	133 (29.6)	59 (13.1)	49 (10.9)
Are you worried about your family's health?	304 (67.7)	74 (16.5)	28 (6.2)	43 (9.6)
Is your routine job affected?	252 (56.1)	137 (30.5)	23 (5.1)	37 (8.2)
Are your duty hours increased?	118 (26.3)	72 (16.0)	27 (6.0)	232 (51.7)
Are you facing financial losses?	233 (51.9)	128 (28.5)	26 (5.8)	62 (13.8)
Is your family life got affected?	210 (46.8)	122 (27.2)	37 (8.2)	80 (17.8)



**Figure 1: Bar chart of perceptions of HCWs regarding effect of COVID-19 pandemic on personal lives**

Table 3: Perceptions of HCWs regarding precautionary measures against COVID-19

Variable	Perception	No. (and %)
Precautionary measure at your HCF	Low	103 (22.9)
	Moderate	212 (47.2)
	High	100 (22.3)
	Very high	34 (7.6)
Precautionary measures affecting the performance of duty	Not at all	213 (47.4)
	A little	43 (9.6)
	Moderately	78 (17.4)
	A lot	115 (25.6)
Irritating precautionary measure	Masks	169 (37.6)
	Gloves	81 (18.0)
	Goggles	26 (5.8)
	Restricted Meetings	87 (19.4)
	Not irritated	197 (43.9)
The reason behind getting irritated from a mask	Physical disturbance	83 (49.6)
	Difficulty in communication	54 (32.3)
	Sense of isolation	21 (12.3)
	Difficulty in recognizing people	9 (5.8)
Positive impacts of COVID-19 outbreak	Disease control awareness	294 (65.5)
	Learning experience	205 (45.7)
	Increased sense of togetherness and cooperation	175 (39.0)
	Great appreciation of life and work	166 (37.0)
	No positive impact at all	52 (11.6)

## DISCUSSION

Epidemics and pandemics caused huge impact on HCWs as communicated by various studies. As each epidemic or pandemic shared different characteristics such as geographical area, transmissibility, pathogenesis, and mortality rate, HCWs were also affected in different manner depending upon these properties. Present study results showed the perception of HCWs regarding the first pandemic of the century, COVID-19 outbreak and reveal their concerns that are affecting their personal and professional lives.

Majority of HCWs in this study reported that they are extremely concerned about their health (46.3%, n=208), while only 24.0% (n=108) reported that they have little or no concern. A similar degree of concern of getting sick by A/H1N1

influenza virus outbreak was reported among the HCWs in Australia. But, concern about own health was comparatively less during MERS outbreak in Saudi Arabia. However, in these countries HCWs' primary concern was about their family health and in this study, subjects also reported that they are more concerned about their family health [13-17].

And when participants were asked about concern upon their family life, majority of them (46.8%, n=210) reported that their family life suffered due to COVID-19 pandemic. While previous studies have also reported about pandemics affected family life of HCWs. During SARS outbreak in 2003, 37.7% (n=749) of HCWs reported that their family life was affected because of less interaction [18]. Joanna raven et al

2018 study on Ebola epidemic also revealed about effect on family life as HCWs reported that they limited their contact with family members by practicing social distancing and some did not visit their home for prolong duration and they also experienced pressure by family members to quit their job [19].

Moreover, a big portion of participants, comprising 56.1% (n=242), had opinion that COVID-19 pandemic created such circumstances which result in alteration in usual execution of their job responsibilities which is in accordance with the study conducted during Ebola outbreak where HCWs also experienced similar challenges in Seirra Leone in 2015 [20]. While on the other hand 51.5% (n=1015) of Candian HCWs during SARS outbreak reported that they faced changes in their routine duties, whereas remaining disagreed (48.5%, n=957) [18]. More than half of the HCWs (51.7%, n=232) reported in this study that their job duration was not increased which corroborated by study conducted during 2003 SARS outbreak [18]. Furthermore, prevoius studies also showed that stress level of HCWs was also reduced when they were not performing extra hours [16].

Additionally, some studies showed that HCWs did not faced any sort of loses with regard of finances. The reason might be

that they were serving in developed counties with less financial issues [18]. However, in this study and Pakistan being developing country, more than half of the HCWs (51.9%,n=233) reported that they are facing financial losses, which may be result of lockdown because most of private clinics are unreachable for patients and private clinics are a major source of income for HCWs during off-hours.

Moreover, the availability of precautionary measures is one of the essential factors which cannot be avoided, especially in health care sectors. In our study, nearly half of the participants reported the precautionary measures were at a moderate level. On the brighter side, majority of the HCW in this study were not bothered by these precautionary measures as happens in the developed countries [16, 18]. Despite of the availability of protection gear, the comfort of using those also matters. Like in the studies conducted in Sierra Leone during the Ebola outbreak and in Hong Kong, during a human swine influenza outbreak They observed that the use of Personal Protective Equipment (PPE) had decreased bonding with the patients, lessen communication, and caused discomfort [17, 20]. Interestingly, in this study, the most irritating precautionary measure was wearing a mask (37.6%, n=169) and the common reason reported by nearly half of

the participants was that it created physical distance. This could be true because wearing a mask while seeing the patient may cause communication hindrance and disturbance. Another reason observed was the sense of isolation (12.3%, n=21). Nickell et al had also reported in the SARS outbreak in Canada that wearing a mask causes physical disturbance up to 92.9% (n=1588) and a sense of isolation in about 13.0% (n=22) [18].

Though, there was a lot of impact of COVID-19 outbreak on HCWs but still there was positive approach among the HCWs. It was observed that 88.4% (n=397) HCWs reported positive outcomes of current pandemic while only 11.6% (n=52) reported that there will be no positive impact of COVID-19 pandemic. However, during the 2013 SARS outbreak in Canada, more than half of the respondents (58.0%, n=1161) believed that the outbreak had positive outcome while rest of them disagreed (42%, n=840).

Lastly, there were some limitations of this study, as it was conducted online for a week among HCWs of Sindh province of Pakistan during public Health Emergency of International Concern, data is dependent upon the respondent recall ability and honesty. And this study was self-reported so that may be subject to recall bias. But despite all these limitations, the findings of

this study are very valuable during this period of COVID-19.

## CONCLUSION

Present study results show that COVID-19 outbreak caused huge impact on HCWs personal and professional lives. Significant psychosocial distress can affect HCWs routine outputs. Therefore, Health policy makers should incorporate interventions that can provide psychosocial and financial support which can help to overcome their concerns and associated distress.

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