Original Article

Perception, Attitude, And Behavior Of Covid-19 Patients About Plasma Donation: A Cross-Sectional Study

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Abstract

Objective: Current study aims to identify the perception, attitude, and behavior about Covid and plasma donation in Covid cases.

Methodology: This descriptive cross-sectional study was conducted at DHQ/RMU. Adult COVID-19/post-Covid patients were *included* by consecutive sampling. The critically ill, mechanically ventilated cases were *excluded.* A special questionnaire was developed including the demographic variables, mode of transmission, personal hygiene, prevention, post covid immunity, re-infection, psychosocial factors, financial reservations, and post covid life. Willingness for plasma donation, laboratory diagnostics, and blood groups inquired. Data was collected by direct interview by the researcher and analyzed by SPSS V.20.

Results: Mean age was 39.8±15 years; 122(54%) females and 104(46%) males. A total of 163(73%) participants said Covid has an impact on health, economy, social, mental, and psychological states. 188(83%) considered Covid a threat to human life. 142(63%) had a close Covid contact and 15(6.6%) had recently travelled. 131(58%) said they could have prevented getting infected. 171(75.7%) considered handwashing and 208(92%) cleanliness and158(77%) considered natural, herbal remedies as preventive. 191(84.5%) wore masks most/all of the time. 130(57.5%) said they will be immune to Covid post-recovery. 179(79.2%) were aware of re-infection. 169(74.8%) considered smoking as a risk for Covid and137(60.6%) aimed to quit smoking. 204(93%) committed to hand washing and 210(92.9%) to wearing masks post-Covid. 127(56%) were concerned about their food, 78(34.5%) about finances, 103(45.6%) about their family getting infected. 213(94%) expected life to normalize post-Covid. Most frequent blood group was B+ 67(29.6%) followed by A+ 42(18.6%) and O+ 41(18.1%). 128(66.6%) participants showed a willingness to donate their plasma after recovery. 24(10.6%) refused the donation. 134(59.3%) agreed that plasma donation won't reduce their immunity. 186(82.3%) were clinically recovered at the time of the interview.

Conclusion: Our Covid patients had a positive approach toward plasma donation. They expected normalization of life post-Covid and showed commitment toward the continuation of preventive habits and smoking cessation. However, there were significant concerns about finances, the safety of loved ones, and mental health.

Key Words: Plasma Donation. Covid-19.

Introduction

Covid-19 is a novel viral infection. This is also called nCov-19. The epidemic initially appeared in Wuhan city of China and then converted into a pandemic involving more than two hundred countries. COVID-19 has resulted in more than two hundred thousand deaths with more than three million confirmed cases worldwide. While these are the most sensational numbers, healthcare practitioners must be cognizant that the true impact counter of those affected is much more. It includes nearly half a million of those recovered (and hopefully many more), their families, and friends as well. It involved everyone as it is the single most collective human experience since World War II. COVID-19 has proven Einstein's statement that 'our separation from each other is an optical illusion'.

Every single individual in the world has been impacted by COVID-19, physically, psychologically, and socially and many more will continue to be. COVID-19 has made us all potential or actual patients, awaiting exact diagnosis. Despite lockdown and social distancing being a legal proviso, research has indicated that most individuals were not strictly following the recommended social distancing and were engaging in hoarding behavior.[1] Research has also indicated that individuals have shown a bias regarding their perception of catching an infection, they are undue optimistic regarding their contacts to be Covid free.[2]

Collaborative research has also provided an in-depth vignette on extant circumstances and using social behavioral sciences to bolster the COVID-19 response.[3] Keeping in mind that social distancing and isolation go against the human need for social interaction, several calls have been made for spatial/physical distancing and social closeness.[3,4]

Healthcare practitioners must be conscious of the underlying comorbidities that COVID-19 and the lockdown have brought with it. Although data is scarce, domestic violence and child abuse have increased in countries where complete lockdown has been implemented in a naturalistic proof of the frustration-aggression hypothesis.[5]

Preliminary findings indicate that there is a major psychological impact associated with spending 20-24 hours per day at home resulting in higher stress anxiety levels and depressive symptoms.[6] Although deterministic predictions are difficult in rapidly evolving situations such as these, it can be logically deduced that during the extended lockdown, isolation, and post-COVID-19 times, there will be a surge in addiction and withdrawal behaviors (especially online addiction), emotional instability, chronic high-stress levels, and aggravation of pre-existing benign psychopathological symptoms. Sudden loss and death due to the outbreak and inability to engage in closure and grief behavior can trigger helplessness, anger, shame, and guilt.[7]

The consequences of COVID-19 have been observed globally and have led to industry closure, change in daily patterns of living, economic crisis, unemployment, and withdrawal of supportive behavior by the society and community. As such, there is an increased chance of quarantine and COVID-19-induced posttraumatic stress disorder symptoms correlated with depressive symptoms[8] as seen in earlier epidemics. COVID-19 has exposed the 'fragility of mental resilience'.[9]

Convalescent plasma has been used for decades for several infectious and non-infectious diseases to provide passive immunity. This has been considered a safe and potential therapy for COVID-19. The research is still in progress regarding the mortality benefits and efficacy.[10] Plasma is obtained from the recovered cases of donors having significant antibody titers and transfused to the eligible recipient.

COVID-19 has thus brought about a common yet culturally diverse human experience. In the era of this information technology, certain misconceptions and fallacious information have been passed on to the community. There is a significant impact of awareness, disease knowledge, and perceptions upon the practice and behavior of the population. The clarification of the perceptions of the public is pivotal in determining the outcome of Covid-19.

The current study aims to identify the perception, attitude, and behavior of Covid cases about the disease itself and plasma donation for therapy of the affected.

Materials and Methods

This descriptive cross-sectional study was conducted at DHQ/RMU Current study aims to identify the perception, attitude, and behavior about Covid and plasma donation in the Covid cases. The study areas are Islamabad and Rawalpindi. ***Inclusion criteria:*** All the presenting COVID-19 patients aged above 17 years undergoing treatment/recovering or have recovered from Covid. ***Exclusion criteria:*** COVID-19 patients below age of 17 years, critically ill cases, patients with

impaired GCS, pregnant women and those unable to give consent were excluded.

The confirmed COVID-19 patients who were recovering or have recovered were included in this study by consecutive sampling. In view of the varying prevalence of Covid between 2.5-18% during the ongoing epidemics, the sample size was calculated by using the WHO calculator taking 18% prevalence, 5% precision and 95% confidence interval. A questionnaire was developed and then mailed to five faculty members for content validity. Initially, the questionnaire was piloted on ten participants to check its content and face validity, necessary modifications were done before the collection of main data.

The various aspects covered in the first section of the questionnaire were the demographic variables, education, co-morbid, employment, smoking, and illicit drug abuse. The second section included awareness questions regarding the mode of transmission, the role of personal hygiene and preventive measures; and the post covid immune status, chances of re-infection, and continuation of safety measures.

The third section included questions regarding the psychosocial impact of covid, fears, anxiety, concerns about the family and dependent members, financial reservations, and post covid life. The fourth section included the willingness for plasma donation, laboratory diagnostics results, and blood groups of the participants.

The data was collected by direct interview by the researcher on a specially designed proforma. The data collected from COVID-19 patients were entered and analyzed using descriptive indexes (frequency and percentage) in SPSS V.20.

Results

Amongst 226 participants of the study, the mean age was 39.8±15 (range 17-50) years. There were 122(54%) females and 104(46%) males. 158(69.9%) were married, 62(27.4%) were unmarried and 05(2.2%) were widowed. Regarding the qualification, 184(81.4%) were graduates or above. 65(28.8%) had various co-morbid conditions. 59(26%) were unemployed and 167(74%) were employed. Sixteen (7%) were smokers. Three (1.3%) had a history of illicit drug use.

Regarding the impact of Covid on our lives, 163(73%) participants said it has an impact on health, economy, social, mental, and psychological state. 188(83%) said that they consider Covid to be a threat to human life.

Regarding the source of catching infection 142(63%) had close contact with Covid cases, and 15(6.6%) had a traveling history. However, 52(23%) had no idea where they got infected from. 131(58%) said they could have prevented themselves from getting infected. 171(75.7%) agreed that frequent effective handwashing is preventive. While 208(92%) said that cleanliness is the key to prevention. 158(77%) had the concept that natural, herbal remedies are preventive.

191(84.5%) confirmed wearing a mask for most or all of the time during the last week. While 35(15.5%) wore masks some or none of the time. 130(57.5%) said that they will have a certain level of immunity against Covid after recovery. However, 179(79.2%) said that the chances of re-infection do exist. 169(74.8%) said that smoking makes you prone to Covid. 137(60.6%) said that Covid cases should quit smoking after recovery, 42(18.6%) said they will continue to smoke and 47(20.8%) said they don't smoke at all. 204(93%) said they will continue hand washing habits post-Covid and 210(92.9%) said they will continue wearing masks in public after recovery.

Regarding psychosocial health, 163(71.7%) said that Covid cases do need mental health support post-recovery. 127(56%) had various levels of concerns about whether they will be having enough to eat in the coming week. 78(34.5%) had concerns about household finances in the coming month. Regarding their family, 103(45.6%) were very much worried about their family members catching Covid. 163(72%) said they felt nervous and faced difficulty calming down. 213(94%) said they hope that they will be able to lead a normal life post-Covid.

Most frequently observed blood group was B+ 67(29.6%) followed by A+ 42(18.6%) and O+ 41(18.1%). 128(66.6%) participants showed a willingness to donate their plasma after recovery. 24(10.6%) refused the donation and 74(32.7%) were indecisive of donation. 134(59.3%) agreed that plasma donation won't reduce their immunity, while 15(6.6%) said that it will reduce and 77(34%) were unsure.

171(75.7%) had Covid confirmed by laboratory investigation initially. 186(82.3%) were clinically recovered and asymptomatic at the time of the interview while 40(17.7%) were still symptomatic. 152(67.3%) had follow-up laboratory tests for Covid to declare a cure, while 73(32.3%) didn't have any follow-up tests.

Table-1 Presenting the demographic variables of study participants (n=226)

Demographic Variable		*Frequency*	*Percentage*
Gender	Female	121	53.5%
	Male	104	46.0%
Marital Status	Married	158	69.9%
	Unmarried	62	27.4%
	Widow	05	02.2%
Qualification	Graduate or Above	184	81.4%
	HSSC	18	80.0%
	SSC	15	06.6%
	Un-Educated	08	03.5%
Co-Morbids	Yes	65	28.8%
	No	161	71.2%
Employment	Own Business	18	08.0%
	Private	63	27.9%
	Public	86	38.0%
	Un-Employed	59	26.0%
Smoker	Yes	16	7.1%
	No	205	90.7%
	May be	05	2.2%
Illicit drug use	Yes	03	1.3%
	No	221	97.8%
	May be	02	0.9%

Table-2 Presenting the perception of personal hygiene, mode of transmission, and preventive measures for COVID *(n=226).*

Question	***Response***	***frequency***	***percentage***
What kind of impact will this emerging disease have on our lives?	No impact	01	0.4%
	Economic	09	04%
	Health	31	13.7%
	Mental	01	0.4%
	Psychological	02	0.9%
	Social	19	8.4%
	All of above	163	72.1%
Do you think it is a threat to life?	Yes	188	83.2%
	No	37	16.4%
	Don't know	52	23%
How did you get infected?	Travel history	15	6.63%
	Family gathering	07	3.09%
	From hospital	04	1.76%
	Attended covid case	05	2.21%
	Close Contact	142	62.8%
Do you think there was a way that you could have saved yourself from getting infected?	Yes	131	58%
	No	95	42%
Do you think washing hands every hour for 20 seconds will protect you from this disease?	Yes	171	75.7%
	No	55	24.3%
Do you think cleanliness is the key to protection?	Yes	208	92%

	No	18	08%
In the last seven days, how often have you washed your hands with soap after being in public?	All of the time	49	21.6%
	Most of the time	103	45.6%
	Some of the time	64	28.3%
	None of the time	10	4.42%
Do you think natural herbal remedies like gargles with hot water, lemon, honey, and black seeds are effective in prevention?	Yes	158	69.9%
	No	68	30.1%
In the last seven days, how often have you worn a mask when in public?	All of the time	115	50.9%
	Most of the time	76	33.6%
	Some of the time	22	8.4%
	None of the time	13	5.8%
Do you think you will be immune once you have recovered?	Yes	130	57.5%
	No	96	42.4%
Do you think there is a chance of getting reinfected?	Yes	179	79.2%
	No	47	20.8%
Do you think smokers have a greater chance of getting infected?	Yes	169	74.8%
	No	57	25.2%
If you were a smoker, would you have stopped smoking once recovered?	Yes	137	60.6%
	No	42	18.6%
	I don't smoke	47	20.8%
Do you think you need to continue washing your hands?	Yes	204	90.3%
	No	08	3.5%
	I don't know	14	6.2%
Do you think you need to continue wearing a mask when going out in public?	Yes	210	92.9%
	No	09	04%
	I don't know	06	3.1%

Table 3: **Presenting the psychosocial perceptions, fears regarding health of self and family members, finances, post covid life *(n=226).***

Question	***Response***	***frequency***	***percentage***
Will you suggest COVID-19 patients for obtaining mental health help after recovery?	Yes	163	71.7%
	No	64	28.3%
How worried are you about having enough to eat in the next week?	Very much worried	11	4.86%
	Somewhat worried	44	19.5%
	Not much worried	72	31.9%
	Not at all worried	99	43.8%
How worried are you about your household's finances in the next month?	Very much worried	20	8.86%
	Somewhat worried	58	25.7%
	Not much worried	68	30.1%
	Not at all worried	80	35.4%
How worried are you that you or someone in your family might become seriously ill from COVID-19?	Very much worried	103	45.6%
	Somewhat worried	91	40.3%
	Little worried	20	8.8%
	Not worried at all	11	4.9%
During the last seven days, how often have you felt so nervous that nothing could calm you	All of the time	07	3.1%
	Most of the time	25	11.1%

down?	Some of the time	61	27%
	A little bit of time	70	31%
	None of the time	63	27.9%
Do you think you will be able to live a normal life after recovery?	Yes	213	94.2%
	No	13	5.7%

Table-4 Responses of the participants regarding their blood group, willingness for plasma donation and their laboratory diagnostics (n=226).

Question	*Response*	*frequency*	*percentage*
What is your blood group?	A+	42	18.6%
	A-	05	2.2%
	B+	67	29.6%
	B-	08	3.5%
	AB+	26	11.5%
	AB-	02	0.9%
	O+	41	18.1%
	O-	09	4%
	I don't know	26	11.5%
If you recover/have recovered, will you donate plasma for COVID19 Patients?	Yes	128	56.6%
	No	24	10.6%
	I don't know	74	32.7%
Do you think donating plasma will decrease your immunity?	Yes	15	6.6%
	No	134	59.3%
	I don't know	77	34.1%
Was your COVID-19 diagnosis confirmed by a lab test?	Yes	171	75.7%%
	No	45	19.9%
	I don't know	10	4.4%
Do you currently have symptoms?	Yes	40	17.7%
	No	186	82.3%
Has it been at least 14 days since the last day of your COVID-19 symptoms including fever, cough, and shortness of breath)?	Yes	163	72.1%
	No	63	27.9%
Have you had a follow-up test that was negative for COVID-19 or shows you no longer have COVID-19?	Yes	152	67.3%
	No	73	32.3%

Discussion

In this study, we have mapped out the attitude and perceptions regarding COVID-19 patients towards different aspects of the disease. Women, graduates and postgraduates, previously healthy individuals, and non-smokers made up the greater part of our study subjects. Most of them (72%) are of the opinion that covid has a notable effect on health status both physically and mentally, along with significant economic and social impacts. 83% of them considered it a threat to life. These findings are in line with an analysis of 10 countries in which risk perception of covid-19 related fatality was maximal in the UK (M: 5.45). Next ranked was Spain (M:5.19), on a risk perception scale of 7 [11].[11] However, there are several determinants that modify this perception e.g., level of education, knowledge, standard information, personal and family experience with the virus, psychological factors, and socioeconomic status. This study included

cases presented predominantly from Islamabad and Rawalpindi. Islamabad is the capital of Pakistan having an estimated population of 1.015 million and Rawalpindi had an estimated population of 2.098 million in 2017 according to Wikipedia.

Knowledge about the source of infection is of utmost importance to avoid undue exposure to viruses. The majority (62.8%) of our patients thought that they got infected from close contact with Covid-19 patients. While 23% are unaware of their source of illness. Travel history, family gatherings, and hospital visits are among other possible sources of exposure (13.69%). This perception is contrary to the WHO recommendation of social distancing and home isolation as effective ways of prevention.[12] Preventive measures are key to halting the spread of Covid-19. The current study encompasses the opinion and practices of people towards important preventive gadgets including face masks, sanitizers, and other personal protective equipment devised by reliable health authorities. Fifty-eight percent of patients believe that they could have saved themselves from getting infected. Hand washing (75%), cleanliness (92%), and wearing a mask in public (84.5%) are considered to be effective measures to prevent the disease's spread. Most of them practiced wearing masks and hand washing while going in public. Only 4-5 % don't observe these measures. Despite these beliefs about hand washing and use of masks, they got the infection. This conveys the message that all other preventive measures should also be practiced as recommended by WHO.[12] Although, the difference might be due to disparities among beliefs, practices, and some still unknown facts about novel diseases.

There has been a lot of debate about the use of some herbal remedies in Covid-19 prevention and treatment. In our study, 70% of patients believe in herbal remedies as a preventive tool. Several studies reveal the effectiveness of herbal medicine in Covid-19 [13].[13] This practice is commonly observed in India and China. In our opinion, these remedies can be used along with modern medicine, but quality control and standardization of herbal products should be ensured. Public awareness is needed in this aspect. Distress within the middle- and low-income groups, especially due to the lockdown, has driven the interest of these communities toward exploring herbal medicines. Social media and unauthentic sources of information also have a major role in developing this perception.

Regarding post-infection immunity and chances of re-infection, 57.5% and 79.2% of patients have a positive response respectively. Our patients show satisfactory awareness of this aspect as there are studies supporting the development of immunity after Covid-19 but chances of re-infection are low until get attacked by a mutated or more virulent strain. In a study conducted by Qureshi et al, amongst the 9119 people with previous Covid-19, only 0.7% had re-infection.[14] Keeping this in view, clinicians should counsel the recovered patients on their risk of re-infection, documentation of their illness, testing and keeping the medical record.

Smoking has detrimental effects on human health, especially the lungs. It decreases immunity and impairs mucociliary clearance of the respiratory tract. In our study subjects, 74.8% of people believe that smoking increases the chances of COVID-19 re-infection and 60% say that the Covid cases should quit smoking after recovery. Covid-19 can lead to ARDS in smokers, as smoking increases ACE-2 receptor production which is also known to be the receptor for coronavirus, causing a rise in viral load and replication. This results in a more severe infection. The general public perceives smoking as a contributory factor for acquiring Covid-19. The studies have demonstrated link between the severity of illness and active smoking but there is no notable association between it and an increased risk of contracting the illness.[15]

As far as psychological impact of Covid-19 is concerned, 71.1% of our study subjects think that they need mental health help after recovery. Many of them (45.6%) were worried about their family members who may get severely ill. However, they were comparatively less bothered about household finances, and food supply and were optimistic (94%) about having a normal life after recovery. We observed various levels of anxiety in 2/3rd of our cases i.e., approx. 70%. A study from Lahore showed that 14.6% of participants had anxiety and 19.6% reported obsessed behavior regarding Covid-19.[16] In contrast, studies from Africa and Lebanon showed moderate to severe psychological disturbances in 40%, and PTSD i.e., post-traumatic stress disorder in 62% of patients during 4th week of illness respectively.[17,18] This difference in perception and incidence of mental health issues may be influenced by awareness, religious beliefs, different mortality rates in different parts of the world, variable lockdown policies, and contrasting immunity levels to the pandemic.

The management by convalescent plasma therapy has been proven to reduce mortality in Spanish flu, SARS-COV-1, H5N1, H1N1, and Ebola.[19,20,21] SARS-CoV-2 is a β-coronavirus, which is covered by certain proteins

including the spike (S), envelop (E), and membrane (M) proteins. It binds the host cells via S protein and elicits T-cell and antibody-mediated immune response resulting in the formation of neutralizing antibodies, which activate the complement system, directly neutralize the virus, control cytokine storm, and immunomodulate hypercoagulability. A number of studies have demonstrated the efficacy of plasma therapy in severe Covid cases.[22] Convalescent plasma therapy resulted in a higher level of antibody formation, the disappearance of viremia within 7 days, improvement in clinical symptoms within 3 days, and in radiological changes within 7 days.[23]

In this study, more than fifty percent of the participants knew their blood groups, they wanted to donate plasma and believed that it won't reduce their immunity. The majority of them >70% were in their second week of illness, asymptomatic and had laboratory-confirmed Covid-19. More than 60% had a retest to confirm the cure. These figures are pretty encouraging and indicate the positive attitude and empathy of our patients toward those who need convalescent plasma therapy. This agrees with a study that demonstrated the satisfactory knowledge of young adults relating to the therapeutic properties of CP (convalescent plasma) and also expressed willingness to donate convalescent plasma.[24] However, another study showed contrasting results, in which, only one patient was willing to donate plasma and 1/3rd were not interested.[25] Plasma donation needs knowledge and motivation on part of the patient, easy processing and trust building on part of health authorities, and policy-making and compensation on part of the government. People should know that this is the most important therapeutic measure to cure severe illness and reduce mortality from coronavirus.

Conclusion

Our Covid patients had a positive approach towards plasma donation. They expected normalization of life post-Covid and showed commitment towards the continuation of preventive habits and smoking cessation. However, there were significant concerns about finances, the safety of loved ones, and mental health.

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