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RETROSPECTIVE STUDY TO ASSESS KNOWLEDGE, ATTITUDE AND RECOVERY PRACTICES OF NON-HOSPITALIZED COVID-19 SURVIVORS IN PAKISTAN

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ABSTRACT

In the current time of the COVID-19 pandemic, effective measures are being taken worldwide to combat the disease outbreak. Initially the global mortality rate was so high but many people contracted the disease with mild symptoms and got recovered at home while other remained asymptomatic. As there is a surge in COVID-19 cases amid recent wave in Pakistan, it is important to assess the disease awareness, perception and the practices followed by the recovered people who got infected during the previous infectious wave. The aim of this retrospective study was to evaluate the knowledge, attitude and practices of the Mildly Symptomatic COVID-19 recovered patients. A Cross-Sectional Survey was conducted online and a Google Questionnaire was generated covering socio-demographics, knowledge, attitudes and practice-based questions. Using statistical analysis, the data suggests that most of the participants 101(89.3%) had good knowledge score of >7 (Range: 0-13), positive attitude score of >3 (Range: 0-6) 84(73.6%) and good practice score of >5 (Range: 0-10) 106(92.9 %). Income was significantly correlated to all three variables of KAP. Recovery practices involved intake of fresh fruits, vegetables, nuts, protein rich food, having steam 3 to 4 times a day had been noticed in 93% respondents. Females' recovery practices were statically significant (p=.049). This survey is among the first to assess KAP of COVID-19 survivors in Pakistan. The results may prove helpful in the recovery of the new COVID-19 cases amid future waves. Awareness campaigns for eradicating shame and fear of sharing disease experience of the survivors is suggested. Future studies needed to be done on larger population size.

KEYWORDS: Knowledge, COVID-19, Recovered patients, Attitude, Mildly Symptomatic.

INTRODUCTION

Year 2020 is marked in the worst years of the history due to the death and economic destruction caused by the curse of pandemic around the globe. The kingpin for the title **Worst Year** is COVID-19, a causative agent of Coronavirus disease. COVID-19 has been declared a pandemic by the World Health Organization (WHO). Coordinated efforts from the whole world are very important to minimize the spread of this virus. It started in Wuhan (city of Hubei province in China), where suddenly large number of pneumonia cases were reported in December, 2019. Initially, the cause of this pneumonia was unknown. A virus which was unknown previously, was identified in January 2020. WHO named this virus Coronavirus Disease 2019(COVID-19) and the genotypic analysis of this virus revealed its zoonotic origin declaring it to be the major cause of the out-break. So, it was given the name SARS-CoV-2 and the disease was named as COVID-19 (Coronavirus Disease (COVID-19) (contributors, 2020).

The genomic data of nCov-2019 when passed through phylogenomic analysis showed that nCoV-2019 is most closely related to SARS-CoV (severe acute respiratory syndrome) which was isolated from bat in 2015 to 2017 indicated that the bats' CoV and those of human are sharing common ancestor. A hypothesis suggests that the new nCoV-2019 has been originated from somewhere near Zhou Shan as the first virus was collected from the stallholders working in Wuhan at South China Super Market. Sea Food and other mammals like bats are used to be sell in this market so these bats are considered as the intermediate hosts of this nCoV-2019. (Zhang, Shen, Chen, & Lin, 2020).

SARS-CoV-2 is extremely infectious in nature. In air, the virus can survive for two hours. The Incubation time of SARS-CoV-2 has also been observed to be 4 to 8 days after contracting infection. All groups of ages could be the victims of this virus but adults with medical conditions and people of older age are at higher risks of getting infections. The most commonly observed carriers of this virus are those who are asymptomatic and those who are developing early-stage symptoms. The major route considered for the transmission of the virus is respiratory droplets till date (Rabaan et al., 2020). Different studies gave different values for the Incubation period of Novel Coronavirus. The median calculated for

incubation period is 5.1 days and the expected days in which a patient fully developed the symptoms is 12 day. It is also analyzed as 7 to 9 days. Most of the people who got infection started developing symptoms in 11.5 days and an estimated incubation periods after several statistical analysis is of 14 days (Lauer et al., 2020).

An online study was conducted in Bangladesh and the Knowledge, attitude and practices of the citizens were assessed. The study showed that the practice and attitude were very much influenced by the knowledge of the residents of Bangladesh. The awareness about COVID-19 was present in those who were in the category of educated people. KAP studies are very important in assessing the awareness level in the people and help the government in making policies accordingly to overcome the spread of this contagious virus. (Haque et al., 2020). A large cross-sectional survey was done in China, among the workers of the country for the assessment of their knowledge, attitude and practices in the emerging spread of disease. The main findings of the study were that very few people were aware of the practice of gargling with salt water is helpful in avoiding symptoms and that taking vitamins is important. However, the education level and age was very much related to good attitude and practices (Li et al., 2020). Different countries are conducting KAP studies to combat this pandemic situation. As KAP is related to compass the spread of virus and public awareness is very important. A Cross-Sectional Survey help in Pakistan during the time of lock down. The main findings of this study were that good knowledge, optimistic attitude and good practice was more in women with high literacy rate. Men were less concerned about this pandemic situation are good practice and attitude was less common in them despite of their good knowledge and literacy rate. Although health education related to COVID-19 was getting common but more steps and surveys were needed to check the knowledge, attitude and practice among the public with less educational level and high illiteracy rate to improve the condition of the country in this pandemic. (Muhmmad Saqlain et al., 2020b).

On Feb 26, 2020 the first case of Coronavirus was reported in Pakistan. It has been reached to maximum number of cases per day in June, 2020 as 6,472 new cases were reported on June 13, 2020. Due to strict lock down and SOP strategies implemented in the country the Corona cases started decreasing per day and in the late August. People started their gatherings and social events as the Government ended the strict lockdown. But in the first wave thousands of people died due to this virus. In early November due to the negligence in the following of SOPs, Corona cases started increasing on daily bases as 1,123 confirmed cases according to WHO reported on 3rd November, 2020 and this number was increasing on daily bases. The suspected cases were increasing at an alarming rate. In the first wave many COVID-19 confirmed patients showing mild symptoms got recovered at home without getting hospitalized. Although it was very disastrous for the nation in its first wave but Pakistanis' rate of recovery was good and the mortality rate reduced rapidly in shorter time in comparison with the world. This rapid recovery prior getting vaccinated in the Asian country caused a curiosity around the globe so it is very important to short list the recovery practices of mildly Symptomatic Corona recovered patients. The current study is done through an online survey to evaluate the practices of mildly Symptomatic Corona patients who recovered at homes without being admitted to hospitals so that it could provide helpful information for the people to be recovered at homes if got infection in further waves of Coronavirus and lower the massive patient load on the Hospitals and Healthcare departments. KAP studies are very common nowadays but it is very important to correlate Knowledge, Attitude and Practice variables and gather healthy information which would be beneficial for the world in fight against this deadly Virus.

METHODOLOGY

Data Collection Tool

The survey was designed in Google forms considering the current pandemic situations and the lockdown policies of isolation and social distancing. Due to the surging cases of COVID-19 in the country all the activities like public gatherings were suspended and most of the official work and academics have been shifted to online platforms. The targeted population got reached through different social media platforms like Facebook, WhatsApp groups, some people were approached personally from 24th Nov to 15th Dec 2020 to approach maximum people.

Sample Size Estimation

Using Rao soft Inc., an online sample size calculator, for a population size of 20,000 or more, the survey sample size came out to be 377 to achieve the confidence level of 95% keeping a 5% of margin of error and response distribution to be 50%. The efforts were made to approach as many COVID survivors as possible to collect maximum possible data in order to increase the validity and generalizability of the current study.

Inclusion/Exclusion Criteria

Only those people were included in the survey who showed mild symptoms of COVID-19 infection and got recovered in the first wave of the disease without being hospitalized. All those people who showed severe symptoms of COVID-19 infection and were hospitalized for the treatment were excluded from the survey as they were critical cases who were under prolonged observation of Health officials. National ethical guidelines were followed while collecting data. Concealment and privacy of the data was maintained properly. The study has been conducted after having the approval from the Ethical Review Board of University of Central Punjab, Lahore. (Ref no. FLS/113/UCP2240). Electronic informed consent was taken from the respondent which appeared in the beginning of the

survey and the participants showed their willingness by choosing a question based on a Yes/No option before completely filling the online questionnaire while keeping their identity confidential/anonymous.

Designing of Questionnaire

The Questionnaire was designed after deep study of literature available and observation of the common habits and recovery practices of people who got infected in the first wave of corona virus. Maximum efforts were done to make it easily understandable by using the simplest English language. Considering the population targeted through social media could understand simple English, the medium of language was kept English. The Questionnaire had total of 35 questions and was divided into four sections such as in the 1st section, 6 questions related to demographic information were asked, 2nd section comprised of 13 questions to access Knowledge about COVID-19, the 3rd section included 6 questions related to Attitudes and 10 questions in the last section for getting information about Recovery Practices. Questionnaire is added in (Table: 1)

Table 1: Questions included in questionnaire.

Serial No.	Demographic Information	Knowledge	Attitude	Practice
1	To which group of age, you belong? **20 – 30 years** **30 – 50 years** **Above 50 years**	Did you believe that COVID-19 (Coronavirus infection) really exists? **Yes** **No**	Did you get RT-PCR test for Coronavirus diagnosis? **Yes** **No**	Have you increased liquid intake in the form of warm water, fresh juices or soup in your diet during illness? **Yes** **No**
2	Gender? **Male** **Female** **Other**	How did you come to know of COVID-19 pandemic? **News/TV** **Doctor** **Social media** **Friends or family** **Literature**	Did you get antibodies test for diagnosis of Coronavirus? **Yes** **No**	Have you increased the intake of fresh fruits, vegetables and nuts during the time of illness? **Yes** **No**
3	Which group of income you belong to? **Below 30,000** **30,000 – 50,000** **50,000 – 1 lac** **1 lac above**	What was the source of infection you got? **Personal contact with infected person** **Grocery store** **Family gathering** **Visit to a Crowded place** **Other _____** **Don't know**	Did you consult a doctor when you got positive for COVID-19? **Yes** **No**	Did you increase the intake of protein (egg, chicken, lentils etc.) in your daily diet? **Yes** **No**
4	What is your education? **Primary** **Intermediate** **Graduation or above**	Which of the mild symptoms made you know that you have Coronavirus infection? **Frequent dry cough** **Body aches** **Fever** **Sore throat** **Eye conjunctivitis** **Loss of taste and smell**	Were you admitted to the hospital? **Yes** **No**	Did you get any of the mentioned supplements during the time of illness? **Vitamins C (Cal C)** **Zinc supplements (Surbax Z)** **No**
5	Which city of Pakistan you belong to? _____	Did you travel a week or less than a week before you got the infection? **Yes** **No**	Were you mentally stressed when you developed the symptoms of COVID-19? **Yes** **No**	Did you get any of the mentioned medications? Paracetamol **(Metacin/Meftal/Crocin)** Tylenol **(Motrin)** Azithromycin **(Azomax)** **No any**
6	Do you have any of the mentioned serious medical condition? **Diabetes** **Hypertension** **Cancer** **Respiratory Disorder**	After how many days of continuous symptoms you decided to get tested for Coronavirus? **5-6 days** **14 days** **More than 14 days**	Were you optimistic of recovery at home as you know your symptoms were mild? **Yes**	Did you get any type of tea including lemon, black seeds, honey, turmeric, ginger, cinnamon or Senna Makki (Cassia angustifolia Vah) to cure your infection? **Yes**

	No		**No**	**No**
7		Did you know that Incubation Period of COVID-19 is mostly 14 days? **Yes** **No**		Did you self-isolate yourself and avoid any type of physical contact with others? **Yes** **No**
8		Were you suggested by friends or family to get tested for Coronavirus? **Yes** **No**		Had you started doing things you like (reading books, painting, watching movies, talking to your friends etc.) to divert your mind and keep it relax at the time of illness? **Yes** **No**
9		Do you believe that the Coronavirus infection you developed was mild (the patients who were not hospitalized and recovered at home)? **Yes** **No**		Did you get steam 3 to 4 times a day to cure yourself from Coronavirus infection? **Yes** **No**
10		Do you believe that avoiding physical contact, eating healthy, consuming adequate amount of liquid and adopting healthy lifestyle could cure you at home? **Yes** **No**		Had you avoided consuming processed and junk food when you were ill? **Yes** **No**
11		Do you think that mental health and relaxed mind is important for cure of any disease? **Yes** **No**		
12		Are you familiar with the term herd immunity? **Yes** **No.**		
13		Did you get COVID reinfection after being recovered? **Yes** **No**		

Collection of data

The link of Google form was electronically shared through different social media platforms. The link was posted with a brief description of the study questionnaire, purpose of study, and instructions to fill the questionnaire. The criteria of recruitment were firstly those who have got their Coronavirus detection tests (PCR test) done but due to the reluctance of people in filling form and providing required information the criteria was set to recruit all people who have developed maximum symptoms of Coronavirus.

The Questionnaire variables

There was total four variables of the questionnaire. First section comprised of demographic information which included the questions of socio-demographic information like gender, age, income group, education, city and medical condition. The second section comprised of questions related to Awareness of the participants about their contraction of the COVID-19 infection. The questions included the knowledge about the existence of virus, the source of information about COVID-19 pandemic, the possible source of contraction of their infection, knowledge about symptoms, travelling, Incubation period, herd immunity, expected ways to cure the disease, value of mental health and occurrence of reinfection. The third sections included questions to access the Attitude of the patients towards the disease like the diagnostic tests, mental stress, consultation with health professionals or doctors, admission in the hospital and expectations of cure. The fourth and last section was to access practices which include questions related to eating habits, intake of dietary supplements, herbal remedies, medications, isolation were asked.

Survey Questionnaire Scoring

Scoring of questions was done in the sections of Awareness, Attitude and Practices. In the

AWARENESS section, a total of 14 questions were asked, out of which 9 were having answers in the format of Yes or No. "Yes" was given "1" score and "No" is assigned "0" score. On a scale of 9, the people showing the score of >6 were considered to be having enough awareness about the contraction of infection. Other 5 questions which were not included in scoring were related to symptoms, source of information about pandemic, the duration of continuous symptoms after which the person was suspected to have infection, sources of disease contraction (as the options were not in Yes/No format). Total 9 questions were scored in awareness section and >60% scores were considered having good knowledge of COVID-19. The **ATTITUDE** section included 6 questions with answers in Yes/No format. All "Yes" were given "1" score and all "No" were given "0" The people with score >4 were considered to be having positive attitude and less than 4 were considered having negative attitude. The **PRACTICE** section comprised of 10 questions, out of which 8 questions were with options in Yes/No format. "Yes" was given "1" score and "No" was given "0" score. The other two questions had names of the supplements/medication taken during the recovery process and the "No" option if not taken any. "No" was given "0" score and other options were given "1" score. People with 6 or more scores out of 10 were considered to be following good practices during the time of infection.

Statistical analysis

SPSS version 19 was used to analyze the data. Percentages and frequencies were calculated for all the variables. Correlation between Knowledge, Attitude and Practice variables were analyzed using Pearson tests. The associations between awareness, attitude and practices with different demographic variables were computed using T tests and ANOVA keeping the confidence level of 95%.

RESULTS

Socio demographic

The total number of respondents were 132, out of which, 114 responses were selected as final sample for further analysis and 7 responses were excluded due to inadequate information. Demographic session contained total 6 questions. Age vise participation of participants is shown in (Table: 2, Figure: 4) In gender larger group of participants were male with the frequency of 68 (59.6%), females were 46 in number (40.4%) as shown in (Table: 2)

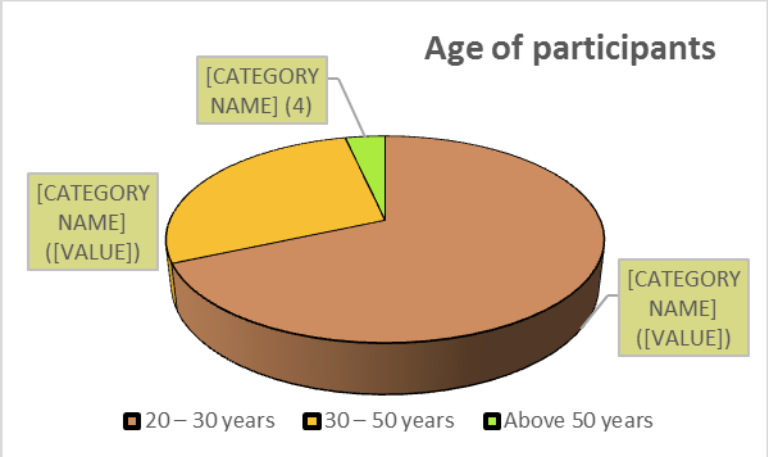

Figure 1: Pie chart showing age-wise distribution of sample participants.

Income group of the maximum participants was 50,000 pkr to 1 lac pkr i.e. 37 respondents (32.5%), then 30 participants (26.3%) have the monthly income from 30,000-50,000 pkr, there were 24 participants (21.1%) in the income group below 30,000 pkr and 23 participants (20.2%) have income above 1 lac pkr (Table: 2, Figure: 7). Most of the respondents were having education level of graduation or above i.e. 92 participants (80.7 %), 20 (17.5%) belong to intermediate level of education and only 2 participants (1.8 %) were having primary level education as shown in (Table: 2) and the provincial distribution of participants is shown in (Table: 3 Figure: 2)

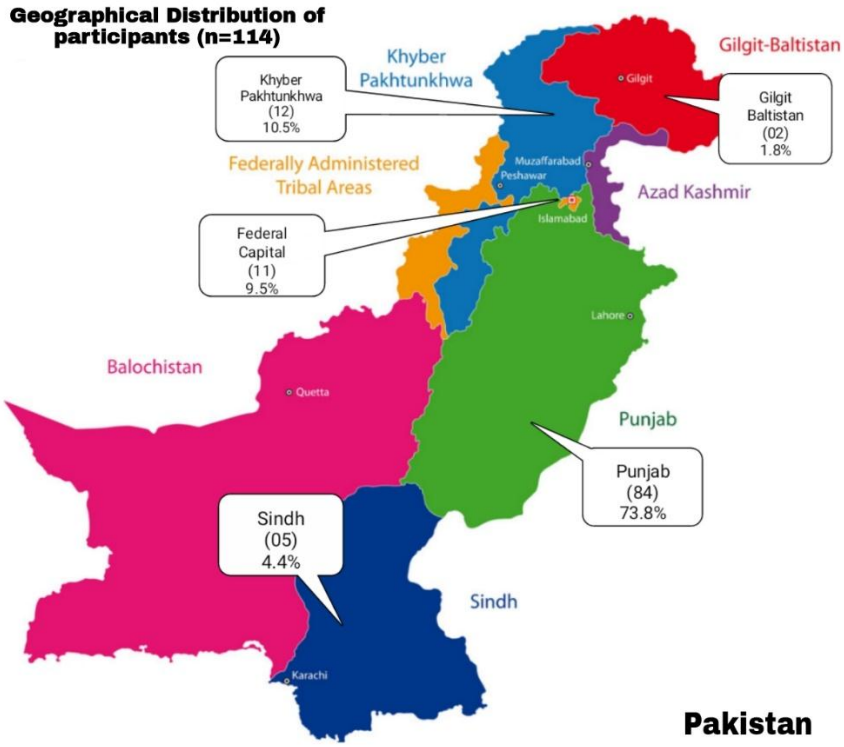

Figure 2: Distribution of sample participants among Provinces of Pakistan.

99 respondents (86.8%) did not have any morbidity, 5 (4.4%) were having hypertension, 5 (4.4%) were diabetic, 3 respondents (2.6%) had respiratory disorder, 1 (0.9 %) had cancer and 1 participant (0.9 %) had all mentioned morbidities as shown in (Table: 2).

Table. 2: Demographic characteristics of the respondents with KAP Scores.

Categories	Groups	Frequency n	Percentage%	Knowledge score(Baden et al.)± SD	Attitude score(AS)± SD	Practice score(PS)± SD
Age	20 – 30 years	78	68.4	6.65±1.017	3.96±1.025	8.12±1.598
	30 – 50 years	32	28.1	7.28±1.053	4.13±.833	9.38±.976
	Above 50 years	4	3.5	6.50±.577	4.75±.500	8.75±1.258
Statistical Analysis KS(F=4.517 , **p= .013**), AS(F=1.466 , p=.235), PS(F=8.756 , **p=.000**)						
Gender	Female	46	40.4	6.83±1.158	3.89±.991	8.82±1.211
	Male	68	59.6	6.82±.877	4.13±.925	8.28±1.683
Statistical Analysis: Male KS(t= -.013, p=.990), AS(t=1.309 , p=.193), PS(t=1.866 , p=.065) Female KS(t= -.013, p=.989), AS(t=1.326, p=.188), PS(t=1.992 **p=.049**)						
Income (pkr)	1 lac above	23	20.2	6.13±1.014	4.13±.815	8.39±1.530
	30,000 - 50,000	30	26.3	7.53±.776	4.30±.952	7.70±1.743
	50,000 – 1 lac	37	32.5	6.81±.908	4.05±.970	8.83±1.642
	below 30,000	24	21.1	6.63±1.096	3.58±1.018	8.78±1.109
Statistical Analysis KS(F=10.210 , **p= .000**), AS(F=2.686 , **p=.050**), PS(F=3.239 , **p=.025**)						
Education	Graduation or above	92	80.7	6.83±1.012	4.50±.976	8.49±1.479
	Intermediate	20	17.5	6.85±1.268	3.90±.968	8.55±1.731
	Primary	2	1.8	6.50±.707	4.05±.707	8.00±2.828
Statistical Analysis KS(F=.100 , p=.905), AS(F=.439 , p=.646), PS(F=.116 , p=.891)						
Region	Lahore	56	49.1	-	-	-
	Other cities	58	50.9	-	-	-
Morbidities	Cancer	1	0.9	-	-	-
	Diabetes	5	4.4	-	-	-
	Multiple	1	0.9	-	-	-

	Diseases					
	Hypertension	5	4.4	-	-	-
	Respiratory Disorder	3	2.6	-	-	-
	No	99	86.8	-	-	-

Knowledge

110 (96.5%) out of 114 participants believed that Coronavirus exists before their contraction with the infection, only 4 (3.5%) did not believe in the existence of COVID-19. The source of knowledge of maximum participants 67 (58.8%) was NEWS/TV, social media was the source of information about pandemic for 28 (24.6 %) participants, doctors were the source for 8 (7.0%), friends and family were source of information for 7 (6.1%). Only 4 (3.5%) were having literature as the source of information (Table: 4). Infection contraction source was unknown to 39 (34.3%) participants, 29 (25.5%) believed that the source of infection they got was personal contact with the infected patient, 30 (26.3%) participants have got the infection due to their visits to crowded place. 11 (9.6%) believed to have infection from family gatherings, 3 (2.6%) got their contact with infection due to the visit to a grocery store. 1 (0.9 %) participant got infection from his father who got it from public gathering and 1 (0.9 %) participant believed that his visits to bank and dentist were the sources of his Coronavirus infection (Table: 4, Fig: 3).

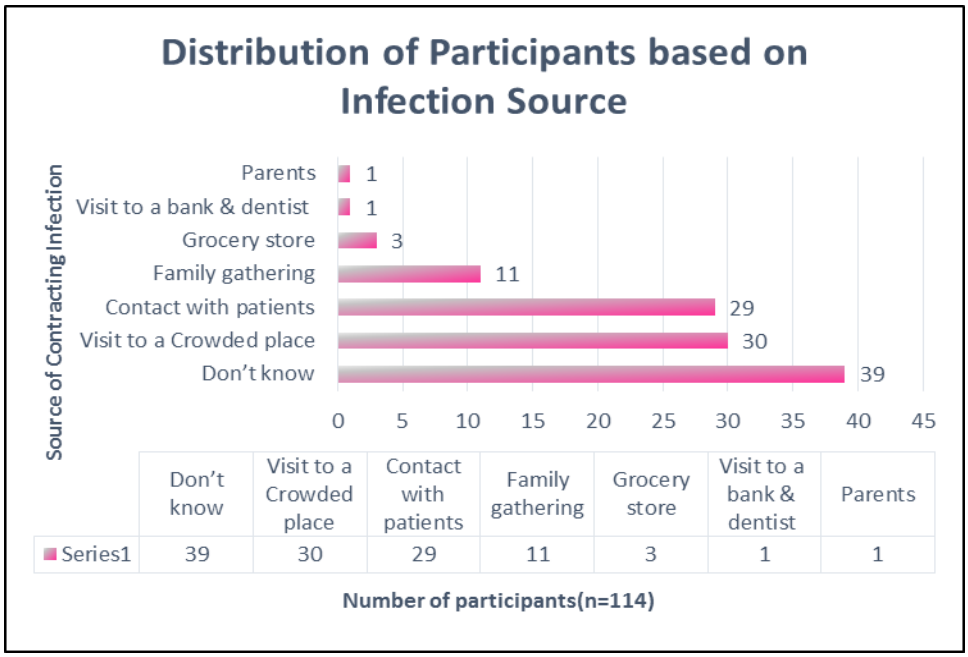

Figure 3: Infection contraction source of participants.

Loss of taste and smell was the symptom of 17 participants (14.9%) which made them think that they got Coronavirus infection, 11 participants (9.6%) have fever as the Coronavirus detecting symptom, body aches were observed in 6 (5.3%), eye conjunctivitis in 2 (1.8%), sore throat was the COVID detecting symptom for 6 (5.3%) and frequent dry cough for 11 (9.6%) participants other 67 participants (58.7%) have multiple symptoms. 64 (56.1%) patients did not travel a week before they got the infection and 50 (43.9 %) participants travelled one week before getting infected. Continuous days of symptoms after which respondents decided to get tested were 5-6 day for 92 participants (80.7%), 14 (12.3%) decided to get tested after 14 days and 8 (7.0%) after more than 14 days. Knowledge of Incubation period was good as 108 participants (94.7%) knew that the Incubation period of Coronavirus was 14 days, only 6 (5.3 %) did not know about the Incubation period of COVID-19. Most of the participants 89 (78.1%) were suggest by family or friends to get tested for COVID-19 whereas 25 (21.9%) were not suggested by anyone. 101 (88.6%) participants out of 114 believed that they were among the mild cases of COVID-19 and 13 patients (11.4%) did not believe themselves mildly Symptomatic. Curing at home by adopting healthy lifestyle was the assumption of 111 patients (97.4%) only 3 (2.6%) did not believe that they can cure at home. 112 (98.2%) participants believed that mental health is important for cure from COVID-19 whereas 2 (1.8%) patients did not think that. Out of 114 participants a good number of patients were familiar with the term herd immunity i.e. 87 participants (76.3%), 27 participants (23.7%) did not aware of herd immunity. 10 participants (8.8%) got reinfected by COVID-19 which shows that long term immunity is not developed in some patients after getting cured of the infection other factors could also be involved. 104 (91.2%) did not get reinfection. (Table: 4)

Table 3: Knowledge of Sample Population about COVID-19.

Knowledge Section				
Sr.No	**Questions**	**Response**	**Frequency n**	**Percentage %**
1.	Did you believe that COVID-19 (Coronavirus infection) really exists?	**Yes** **No**	4 110	3.5 96.5
2.	How did you come to know of COVID-19 pandemic?	**News/TV** **Doctor** **Social media** **Friends or family** **Literature**	67 8 28 7 4	58.8 7.0 24.6 6.1 3.5
3.	What was the source of infection you got?	**Visit to a bank & dentist** **Contact with patients** **Don't know** **Family gathering** **Grocery store** **Parents** **Visit to a Crowded place**	1 29 39 11 3 1 30	0.9 25.5 34.3 9.6 2.6 0.9 26.3
4.	Which of the mild symptoms made you know that you have Coronavirus infection?	**Frequent dry cough** **Body aches** **Fever** **Sore throat** **Eye conjunctivitis** **Loss of taste and smell** **Multiple Symptoms**	5 6 11 6 2 17 67	4.4 5.3 9.6 5.3 1.8 14.9 58.7
5.	Did you travel a week or less than a week before you got the infection?	**Yes** **No**	50 64	43.9 56.1
6.	After how many days of continuous symptoms you decided to get tested for Coronavirus?	**5-6 days** **14 days** **More than 14 days**	92 14 8	80.7 12.3 7.0
7.	Did you know that Incubation Period of COVID-19 is mostly 14 days?	**Yes** **No**	108 6	94.7 5.3
8.	Were you suggested by friends or family to get tested for Coronavirus?	**Yes** **No**	89 25	78.1 21.9
9.	Do you believe that the Coronavirus infection you developed was mild (the patients who were not hospitalized and recovered at home)?	**Yes** **No**	101 13	88.6 11.4
10.	Do you believe that avoiding physical contact, eating healthy, consuming adequate amount of liquid and adopting healthy lifestyle could cure you at home?	**Yes** **No**	111 3	97.4 2.6
11.	Do you think that mental health and relaxed mind is important for cure of any disease?	**Yes** **No**	112 2	98.2 1.8
12.	Are you familiar with the term herd immunity?	**Yes** **No**	87 27	76.3 23.7
13.	Did you get COVID-19 reinfection after being recovered?	**Yes** **No**	10 104	8.8 91.2

Attitude

Getting tested for the virus was included in positive attitude and all the participants got tested for Coronavirus infection. 74 (64.9%) have got RT-PCR test and 40 (35.1%) have got antibodies test for detection of COVID-19. 95 patients (83.3%) have consulted doctors after their positive tests of Coronavirus infection whereas only 19 (16.7%) did not consulted any doctor or Healthcare professionals. All 114 patients (100%) were not admitted to any hospitals and got recovered in home as we included only mild cases in our study. Stressing out due to infection was observed in 84 patients (73.7 %), 30 patients (26.3%) have not got their mental health disturbed due to contraction of the disease. Being optimist about recovery was common attitude as 107 participants (93.9%) were optimistic about their recovery at home, 7 (6.1%) were not sure of their cure while staying at homes (Table: 5).

Table 4: Attitude of Participants about COVID-19.

Attitude Section				
Sr. N(	**Questions**	**Responses**	**Frequency n**	**Percentage%**
1.	Did you get RT-PCR test for Coronavirus diagnosis?	**Yes** **No**	74 40	64.9 35.1
2.	Did you get antibodies test for diagnosis of Coronavirus?	**Yes** **No**	40 74	35.1 64.9
3.	Did you consult a doctor when you got positive for COVID-19?	**Yes** **No**	95 19	83.3 16.7
4.	Were you admitted to the hospital?	**Yes** **No**	0 114	0 100
5.	Were you mentally stressed when you developed the symptoms of COVID-19?	**Yes** **No**	84 30	73.7 26.3
6.	Were you optimistic of recovery at home as you know your symptoms were mild?	**Yes** **No**	107 7	93.9 6.1

Practices

Increased intake of liquids in the form of warm water, fresh juices and soup was observed in 110 participants (96.5%), 4 patients (3.5%) did not increase their liquid intake. 106 patients (93.0%) increased their intake of fresh fruits, vegetables and nut when got infected, 8 patients (7.0%) have not increased their intake of fresh fruits, vegetables and nuts. Protein intake (egg, chicken, lentils) has been increased in 99 (86.8%) patients only 15 patients (13.2%) did not increase it. Vitamin C intake has been observed in 45 participants (39.5%), 30 participants 26.3%) used to take vitamin C and Zinc supplements, 11 participants (9.6%) have taken only zinc supplements and there were 28 participants (24.6%) who did not get any vitamin C or zinc supplements. (Table: 6). The most common medicine was Paracetamol i.e. 30 (26.3%) used to take it only and 28 patients (24.6%) used to take it with Azithromycin, 25 patients (21.9%) used to take Azithromycin only. 22 patients (19.3%) did not get any medicine, 4 patients (3.5%) used to take Tylenol with Paracetamol, 4 patients (3.5%) took Tylenol alone and 1 (0.9%) used to take all of the medicines as shown in (Table: 6). Intake of herbal remedies like lemon tea, black seed, honey, Senna Makki etc. has been observed in 92 patients (80.7%), 22 patients (19.3 %) did not take any of the herbal remedies as shown in the table. Self-isolating was a good practice as 111 (97.4%) patients self-isolated themselves only 3 (2.6%) did not practice self-isolation. Indulging in healthy brain activities was observed in 90 patients (78.9%), 24 patients (21.1%) did not indulge themselves in any healthy brain activity. Getting steam 3 to 4 times a day has been observed in 85 participants (74.6%), 29 participants (25.4%) were not used to get steam. Avoiding processed and junk food was observed in 97 patients (85.1%) only 17 patients (14.9 %) did not avoid it.

Table. 5: Practice of COVID-19 Recovered Patients.

Practice Section				
Sr. No.	**Questions**	**Responses**	**Frequency n**	**Percentage %**
1.	Have you increased liquid intake in the form of warm water, fresh juices or soup in your diet during illness?	**Yes** **No**	110 4	96.5 3.5
2.	Have you increased the intake of fresh fruits, vegetables and nuts during the time of illness?	**Yes** **No**	106 8	93.0 7.0
3.	Did you increase the intake of protein (egg, chicken, lentils etc.) in your daily diet?	**Yes** **No**	99 15	86.8 13.2
4.	Did you get any of the mentioned supplements during the time of illness?	**Vitamins C (Cal C)** **Zinc supplements (Surbax Z)** **Both** **No Any**	45 11 30 28	39.5 9.6 26.3 24.6
5.	Did you get any of the mentioned medications?	Paracetamol **(Metacin/Meftal/Crocin)** Tylenol **(Motrin)** Azithromycin **(Azomax)** **Paracetamol and Azithromycin** **Paracetamol and Tylenol** **All** **No any**	30 4 25 28 4 1 22	26.3 3.5 21.9 24.6 3.5 0.9 19.3

6.	Did you get any type of tea including lemon, black seeds, honey, turmeric, ginger, cinnamon or Senna Makki (Cassia angustifolia Vah) to cure your infection?	**Yes** **No**	92 22	80.7 19.3
7.	Did you self-isolate yourself and avoid any type of physical contact with others?	**Yes** **No**	111 3	97.4 2.6
8.	Had you started doing things you like (reading books, painting, watching movies, talking to your friends etc.) to divert your mind and keep it relax at the time of illness?	**Yes** **No**	90 24	78.9 21.1
9.	Did you get steam 3 to 4 times a day to cure yourself from Coronavirus infection?	**Yes** **No**	85 29	74.6 25.4
10.	Had you avoided consuming processed and junk food when you were ill?	**Yes** **No**	97 17	85.1 14.9

Knowledge, Attitudes and Practices Scores

The overall knowledge of the targeted population was good 101(89.3%) out of 114 patients were having good knowledge. Only 13 patients (10.7%) were bad in their knowledge about COVID-19. Patients having positive attitude were 84(73.6%) out of 114 people have positive attitude whereas 30(26.4%) patients have negative attitudes. Positive attitude is common in participants. Recovery practices were very good among the patients in the targeted population 106(92.9 %) only 8(7.1 %) were those who did not have good recovery practices.

This study exclusively targets the recovery practices followed by the patients with mild symptoms of COVID-19 infection which helped them in getting cured at homes.

A KAP based online assessment survey containing 29 Questions was conducted and the data of 114 patients was collected in which larger ratio of respondents was of male participants similar to other studies, (Lindenauer, Pantilat, Katz, & Wachter, 1999) the reason could be due to higher ratio of male using social media groups, which was the main source of data collection. The distribution of participants among education showed that most of the respondents were graduates. It might be due to the reason that the targeted population is reached through electronic media using Google questionnaire form which could be read by literate group only and this observation is in concordant with many other online cross-sectional surveys (Paul et al., 2020). The highest age group of participants was from 20-30 years of age, the use of social media for circulation of form could be the most likely reason of targeting young people (Paudel, Shrestha, Karmacharya, & Pathak, 2020). The monthly income of participants had been divided into four categories below 30,000 pkr, 30,000 – 50,000 pkr, 50,000 to 1 lac pkr and 1 lac above pkr, all four categories have sufficient numbers of participants which means that the sample population belongs to diverse group of monthly income. When the participants were asked about their medical history, the majority of respondents (86.8%) were not having any morbidity whereas only 14.2% were having different health issues. It clearly showed that the high recovery rate is directly affected by the individual's medical history and health condition. COVID-19 Reinfection has been observed in 8.8% participants suggesting the need for more research to assess the low immunity produced after the first contraction of the disease which could not stay longer as reported in a case study (Hanif, Haider, Ali, Naz, & Sundas, 2020).

Knowledge scores were overall very good. 89% participants had very good level of awareness about Coronavirus. Many past studies showed similar results (Al-Hanawi et al., 2020). The main source of information for the respondents was mass media i.e. Television media and social media which suggests that the information circulated on these media should be passed through proper channels and checks as these were considered the most relied and common sources of information so that only proved and true information should be circulated, no any fake or false statement should be provided to the viewers. Mass media has been observed as a major source of information in many other KAP studies (Olaimat, Aolymat, Shahbaz, & Holley, 2020). Majority participants (108 out of 114) were familiar with the Incubation Period of COVID-19 which means that they knew the time after which they should be get tested. The good knowledge of Incubation Period of Coronavirus has been shown in other studies (Ferdous et al., 2020). 101 out of 114 participants knew that they were mild cases of Coronavirus disease which shows that they were aware of different categories of symptoms of COVID-19. (Azlan, Hamzah, Sern, Ayub, & Mohamad, 2020).

Positive attitude has been observed in 74% participants. The overall positive attitude towards COVID-19 has been observed in related studies (Al-Hanawi et al., 2020). Getting tested for Coronavirus has been observed in majority of the participants which showed that they were concerned about the infection and reacted positively to the symptoms. Stressing out after getting infection have been observed in 73.7% participants which shows that majority was having psychological

issue. Higher stress levels due to COVID-19 has also been observed in several studies (Lum & Tambyah, 2020). Optimistic attitude about getting cured have also been observed in majority of the participants. (Al-Hanawi et al., 2020).

There were three categories in questions related to practice. Nutritional practice involved the increased intake of liquid in the form of warm water, fresh juices and soup it has been observed in 96.5% participants. Intake of fresh vegetables, fruits and nuts have also been observed in large number of respondents i.e. 93%. Nutritional important in building immunity and fighting against COVID-19 have been observed in literature (Aman & Masood, 2020). Medical category involve medicine, nutrients supplements and herbs intake. Taking medicine like Paracetamol, Tylenol and Azithromycin have been observed in 80.7% of the participants. These medicines have been observed in helping with symptoms of pain and fever of Coronavirus in studies (Wannes & Tounsi, 2020). Vitamin C and zinc intake have been observed in 76.3% of the participants. Many studies have shown role of Vitamin C and zinc in decreasing symptoms of cough, flu etc. antiviral properties of these nutritional supplements have also been observed in studies (Khayyatzadeh, 2020) (Abobaker, Alzwi, & Alraied, 2020). Intake of herbs like lemon, black seed, honey, turmeric, ginger, cinnamon and Cassia angustifolia (Senna Makki) have been noticed in 80.7% of patients. There were several studies which have mentioned role of herbs in curing different diseases and as a home remedy in helping with Coronavirus symptoms (Silveira et al., 2020). Other practices involved self-isolation which have been observed in 97.4 participants, isolation is the first step suggested by WHO and other health professionals after contracting of Coronavirus infection. Taking steam 3 to 4 times a day in noted in 74.6% respondents. There is research which proclaimed the positive role of steam in curing Coronavirus disease (Pawar et al., 2020). Other practices were doing activities for releasing stress and quitting junk food consumption which have been a practice of majority of participants. Overall practice score was very good i.e. 93% participants showed good practices score.

Knowledge and practice were statistically correlated having significant value of ($p=0.023$) which suggests on that the people who were more aware of the symptoms, severity and Incubation Period of Coronavirus would follow recovery practices more responsibly. Socio demographic characters such as gender is not significant statistically with knowledge or attitudes but significant values have been observed in female participants with their practices this could be possible as female are more indulged in household work and it is easier for them to follow remedies related results have been noted in a KAP study (Muhmmad Saqlain et al., 2020a). All three variables are statistically insignificant with education level of participants this is because main tool used for circulation of questionnaire was social media and the majority targeted due to limited sources of form circulation was graduates so not any significant difference have been observed. Another study presented alike results (Paul et al., 2020) Income is the demographic character which is statistically significant with all three KAP variables possibly the income is one of the factors which would lead to the affordability of Internet and Televisions which were the main source of knowledge in this study. A good household income is one of the most important factors of a healthy lifestyle. Many studies have focused and represented results of income significant relation with knowledge, attitude and practices variables. (Yen, 2019). The overall KAP score of the respondents is good. Knowledge, Attitude and practices based survey showed good KAP scores of participants in past study (Al-Hanawi et al., 2020).

CONCLUSION

The findings of our study showed that Coronavirus recovered patients have high level of awareness, positive attitudes and good recovery practices at the time of infection. However, a large number of people travelled within one week before contracting infection even in lockdown. Good recovery practices include adopting of healthy eating habits, nutritional supplements, and steam inhalation 3 to 4 times of the day. Major source of knowledge is mass media so the steps for providing authentic scientific information are recommended. Awareness programs and research on the nutritional component's importance in recovery from COVID-19 used by the patients in this study are suggested in order to help mildly Symptomatic patients to be recovered at home in second and their wave of Coronavirus.

LIMITATIONS AND STRENGTHS

This study is among the very few studies done to evaluate the knowledge, attitudes and practices of patients recovered from COVID-19 in the first wave of the infection. The targeted population was Mildly Symptomatic COVID-19 Recovered Patients and the aim of the current study was to assess their awareness about the disease when they contracted infection, attitude after getting infected and recovery practices which is a strengthening point of the study. Another strength is that respondents of the survey were from different regions of Pakistan so the study is covering almost all the provinces of Pakistan. The study is highlighting most of the recovery practices of COVID-19 recovered people and the results show that the participants have followed good recovery practices which could be helpful for more patients to get cured.

However, there are few limitations of the study, as the survey was conducted electronically during lockdown hence only those participants took part in the study who had access to the Internet. The data collection tool was Google Questionnaire which made the targeted population limited to the literate community mostly graduates who could read and understood English language so the results cannot be generalized to the

illiterate or under privileged areas as the participants representation is limited regarding socio-demographic variables especially education and gender. Although the form was circulated through different WhatsApp and Facebook groups but the ratio of participants filled the form was very low then the expected. People were reluctant to provide their information about contracting disease. Fear of sharing the information that they got Coronavirus infection could be the possible reason. As the number of participants was limited more studies like this are suggested to get data using different approaches and get results on larger populations.

ETHICAL DECLARATION

The study has been conducted after having the approval from the Ethical Review Board of University of Central Punjab, Lahore. (Ref no. FLS/113/UCP2240) and it is in order to the ethics/guidelines of the Declaration of Helsinki. Electronic informed consent was taken from the respondent which appeared in the beginning of the survey and the participants showed their willingness by choosing a question based on a Yes/No option before completely filling the online questionnaire while keeping their identity confidential/anonymous.

CONSENT FOR PUBLICATION

Not applicable

AVAILABILITY OF DATA AND MATERIALS

All data generated or analyzed during this study are included in this published article [and its supplementary information files]

AUTHOR CONTRIBUTIONS

Study concept and design: Huda Rehman Mir; Data collection, Article write up and data analysis: Marryam Waris; Critical revision of the article and Improvement in the text: Manam Walait; Final approval of the article by all the authors.

CONFLICT OF INTEREST

There are no conflicts of interest among the authors with respect to the publication or authorship of this article.

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