RESEARCH ARTICLE

Home Isolated COVID-19 patients adhering to recommended guidelines: A cross sectional survey in Karachi

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Abstract

Objective: To assess compliance level of coronavirus disease-2019 patients with recommended isolation guidelines.

Methods: The cross-sectional phone-based survey was conducted in Karachi, from March to October 2020 after approval from the ethics review board of Dow University of Health Sciences, Karachi, and comprised patients of either gender who had been tested positive and were advised home isolation due to mild/asymptomatic nature of their infection. Data was collected using a predesigned 42-item questionnaire in the light of the guidelines issued by the National Institutes of Health, Islamabad, Pakistan. Data was analysed using SPSS 20.

Results: Of the 450 patients approached, 305(68%) responded; 176(57.7%) females and 129(41.1%) males. The overall mean age was 35.16±14.15 years (range: 13-78 years). Of the total, 9(2.95%) patients did not isolate themselves at all, 51(16.7%) came into contact with other people, 75(24.6%) broke the home isolation and 69(22.6%) were sharing their rooms with other family members. Overall, 260(85.2%) participants were keeping themselves updated with the changes in the guidelines through conventional and social media.

Conclusion: Coronavirus disease-2019 patients who were advised home isolation adhered to some but not all of the recommendations.

Keywords: COVID-19, Home isolation, Protective measures, Home management, SARS-CoV-2. (JPMA 73: 2157; 2023)

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Introduction

In December 2019, the city of Wuhan in China witnessed a rise in patients with mild pneumonia the aetiology of which remained unknown. Upon closer inspection, the symptoms of the afflicted patients were attributed to the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2).[1] The spike in cases at the time signalled an epidemic, which rapidly progressed to a global pandemic spanning affecting all countries across the globe.[2] According to global data, as of February, 2022, SARS-CoV-2 had affected 414,018,063 individuals across the world, out of whom 5,845,051 had died. In Pakistan, 1,488,958 people were affected, and 29,828 had died.[3]

The spread of the virus was due to close contact with an infected person, and could enter the human body and subsequently the lungs through inhalation of respiratory droplets or direct contact.[4] Since its onset, coronavirus disease-2019 (COVID-19) posed a massive challenge.[5] Although vaccines were effective in reducing hospitalisations and fatality in patients with COVID-19, the recommended key strategy for controlling the spread remained diligent isolation and quarantine. According to the guidelines issued by the World Health Organisation (WHO), practising good hand hygiene and respiratory etiquette, maintaining social distancing, avoiding contact with eyes, nose and mouth, and self-isolation were the key measures of controlling the spread.[6]

While most of the above-mentioned recommendations helped reduce the risk of getting infected on a personal level, self-isolation could lead to broad-scale benefits. Isolation is defined as the separation of an infected individual for a minimum of 14 days, after which the infection likely clears[7] although updated guidelines from the Centres for Disease Control and Prevention (CDC) recommended a shortened isolation period of 5 days.[8] This helped avoid close contact with the non-infected population, thereby limiting transmission. This was in concordance with the lessons learned from the previous SARS outbreak, which suggested that self-isolation could lead to a reduced spread of infection.[9] However, Feng et al.[10] reported that home-isolation was associated with a high risk of transmission to household members. Therefore, it was essential for COVID-19-positive individuals to strictly follow guidelines related to home-isolation.

As the number of cases continued to rise, Pakistan faced a shortage of hospital beds, and, therefore, mild/

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asymptomatic COVID-19 patients were advised to home-isolate. The government of Pakistan, through the National Institutes of Health (NIH), published home-isolation guidelines for both the patient and the family members to help avoid transmission.[11] There is a lack of data on home-isolation practices of COVID-19 patients in Pakistan. The current study was planned to fill the gap by investigating the extent to which recommended guidelines were followed.

Subjects and Methods

The cross-sectional phone-based survey was conducted in Karachi, from March to October 2020 after approval from the ethics review board of Dow University of Health Sciences (DUHS), Karachi. The sample size was calculated in line with a study in Japan which showed the prevalence of adoption of personal protective measures by ordinary citizens during the pandemic as 34.7%.[11] OpenEpi 3.01[12] was used to calculate the sample size with 95% confidence level and 5% margin of error. The sample was inflated by 10% for expected non-response rate.

The sample was raised using convenience sampling technique from among those who visited DUHS COVID-19 clinic. Those included were patients of either gender who tested positive for COVID-19 through a nasopharyngeal swab polymerase chain reaction (PCR), and were subsequently advised home isolation due to mild/ asymptomatic nature of their infection. Patients who tested positive for COVID-19 and had moderate to severe symptoms were excluded, and so were those who were admitted to hospital and those who were not willing to participate.

The data-collection tool was a 42-item questionnaire that was compiled from different studies and verified recommended guidelines[11,12] to assess if the patients were compliant with NIH recommendations . To assess the validity of the instrument, it was revised by a panel of 4 medical doctors. The expert opinions were rated on a scale of 4-1; where 4="strongly relevant", 3="relevant", 2=" little relevant", and 1=" not relevant". The questionnaire had 2 sections. Cronbach's alpha value for section A was 0.762, and it was 0.876 for the section B.

Section A comprised socio-demographic variables, such as age, gender, education, occupation, number of family members living under the same roof etc.

Section B explored the adherence to recommendations for home-isolation. The items were scored on a 4-point Likert scale, ranging from “always” to “never”. In addition, the participants were questioned about the symptoms and the availability of necessary supplies required during isolation.

The participants were also asked if they were the first to acquire the infection in their household, and if new cases were identified in their home after they started home-isolation.

Due to social distancing measure in force at the time, data was collected using Google Forms and direct phone calls. Training was provided to the data collectors, and the questionnaire was piloted on 30 subjects to evaluate the survey’s clarity, organisation, applicability, and filling time. This also addressed any mistakes or carelessness. The questionnaire was modified in the light of the issues raised during the pilot study. Data was collected after taking informed consent from the participants.

Data was analysed using SPSS 20. Descriptive statistics were used for quantitative variables, and frequencies and percentages for qualitative data. A knowledge score of 70% was taken as adequate. Chi- square test was used to compare variables. The level of significance was set at $p<0.05$.

Results

Of the 450 patients approached, 305(68%) responded; 176(57.7%) females and 129(41.1%) males. The overall mean age was 35.16±14.15 years (range: 13-78 years). Most of the participants were educated, with 11(3.6%) having primary, 21(7%) matriculate, 29(9.5%) intermediate, 175(57.4%) graduate and 69(22.6%) having postgraduate qualification. Of the total, 40(13.1%) were the only bread-winners of their households, 2(0.7%) had a one-room living space, 96(31.5%) having three-room, 63(20.7%) having four-room spaces, and 139(47.1%) were living in houses that more than four rooms. Among the sole bread-winners, 11(3.6%) had to leave home-isolation due to financial constraints ($p<0.01$).

The most common presenting symptom was fever 201(65.6%) and the least common was diarrhoea 55(18%) (Table 1). Reasons for home-isolation, supplies available

Table-1: Symptoms of patients who tested +ve for COVID-19 (n-305).

Symptom	Yes n (%)	No n (%)
Fever	201 (65.6)	104 (34)
Cough	148 (48.5)	157 (51.4)
Shortness of breath	83 (27.2)	222 (72.7)
Fatigue	184 (60.3)	121 (40.6)
Body ache	177 (58.0)	128 (42.6)
Headache	148 (48.5)	157 (52.3)
Loss of taste	162 (53.1)	143 (47.6)
Sore throat	108 (35.4)	197 (65.6)
Congestion / Runny Nose	80 (26.2)	225 (75.0)
Nausea / Vomiting	53 (17.4)	253 (84.3)
Diarrhoea	55 (18.0)	250 (83.3)

during the phase and overall experience and practices of home-isolation were also noted (Table 2).

Of the total, 9(2.95%) patients did not isolate themselves at all, 51(16.7%) came into contact with other people, 75(24.6%) broke the home-isolation and 69(22.6%) were sharing their rooms with other family members. Besides, 160(52.4%) subjects were the first ones in their families to be infected, and 116(38%) of them had other family members getting infected after them (p<0.01).

When asked about their contact with their respective doctors, 87(29%) subjects said in person, 43(14.1%) online, and 23(7.5%) on a phone call. Also, in 152(49.8%) cases, olfactory sense came back within 1-4 weeks, while 138(45.2%) participants continued to suffer in this regard after 4 weeks of follow-up.

Table-2: Self-isolation experience.

Reasons to self-Isolate at home				
				n (%)
Did not Isolate				9 (2.95)
Advised by Doctor				102 (33.44)
No beds Available in Hospital				07 (2.29)
Personal Decision to stay home				184 (60.32)
Social Taboo to get admitted with this diagnosis				03 (0.9)
Supplies present at home of patients for Isolation				
Symptom			**Yes**	**No**
			n (%)	n (%)
Thermometer			281 (92.0)	23 (8.0)
Pulse Oximeter			183 (61.0)	122 (40.6)
Masks			289 (94.8)	16 (5.2)
Gloves			274 (89.8)	31 (10.1)
Weeks of Medications Supply			259 (84.9)	46 (15.3)
How did you discontinue your home isolation				
Tested –ve COVID-19	**Symptoms disappeared**	**14 days after +ve test**	**Had to be hospitalized**	
97 (31.8)	37(12.1)	158(51.8)	12(4.2)	

-ve : negative; +ve : positive; COVID-19: Coronavirus disease-2019.

Most participants 260(85.2%) were keeping themselves updated with the changes in the guideline with the help of television 180(59.1%), social media 242(79.3%), newspapers 94(30.7%) and websites 210(68.8%).

Of the 10 questions related to knowledge and understanding of the recommendations, the participants scored >70% in 5(50%) areas (Table 3).

Discussion

The study revealed that 3% of the participants refused to self-isolate entirely, whereas the rest of the participants isolated at home, with a significant number of individuals not adhering properly to the guidelines. Substantiating this statement, 24.6% of the participants left their homes despite being under home-isolation.

A study in Wuhan demonstrated that 100% of the participants refrained from leaving their homes.[13] However, this may be attributed to their financial stability and stringent government policies. A study conducted in Israel revealed a compliance rate of 94% when compensation was given, in contrast to a drop of 40% in compliance rate without monetary compensation.[14] In the current study, 14% participants were the sole bread-winners of the family, and yet, only 3.6% left their homes due to financial constraints. This gives weight to the notion that adherence to home-isolation guidelines could be improved if financial support is offered by the government.

A secondary finding was the spread of COVID-19 within household members, with a significant fraction of 38% family members contracting the virus from self-isolated participants in the current study. More than half the subjects were the first in their families to contract the virus. Surprisingly, in one study in New York, an exact 38% of household contacts tested positive for COVID-19 after the first reported case.[15] Similar secondary infection rates have

Table-3: Knowledge of the patients about recommended guidelines.

	Yes	**Sometimes / Not sure**	**Rarely/ Don't know**	**Never / No**
	n (%)	n (%)	n (%)	n (%)
1. Do you think you are following the guideline	269(88.2)	21(6.9)	7(2.3)	8(2.6)
2. After testing positive, did you inform all those coming in contact with you in last 14 days	244(80)	-	-	61(20)
3. Did you at any point leave your house after starting home Isolation	75(24.6)	-	-	230(74.4)
4. Where you sharing a bathroom with anyone during home Isolation	74(23.2)	-	-	231(75.7)
5. Were you sharing room during home Isolation	74(23.2)			231(75.7)
6. Do you wash your hands frequently after sneezing coughing with sanitizer or soap for 30-49 Second	141(46.2)	137(44.9)	21(6.9)	6(1.9)
7. Do you cover your cough or sneeze in the bend of the elbow or a tissue and discard in dustbin	203(66.6)	78(25.6)	-	24(7.8)
8. Do you wear a mask when coming in contact with people at home | your care giver	222(72.8)	55(18.0)	15(4.9)	13(4.2)
9. Do you keep your personal items separate from other family members e.g Towel , Cloths	250(82.0)	48(13.1)	4(2.6)	7(2.3)
10. Does your care giver take safety precaution e.g gloves, masks, wear PPE	236(77.4)	58(17.4)	4(1.3)	12(3.9)

Underlined parameters were according to the guidelines recommended by the National Institutes of Health (NIH), Islamabad, Pakistan[11].

been reported in China.[16] It could be argued that the subjects of these research were not home-isolating at the time of the secondary infection within their household, but it does not undermine the fact that at least 60-70% of transmission was within households; 10 times more than any other single route.[17] Since home-isolation is solely hinged on the personal compliance of an individual, therefore it inevitably could lead to increased transmission. This perspective can be corroborated by a study conducted in Wuhan whose results showed the success of institution-based isolation over home-isolation with respect to disease transmission.[18]

The current study has a few notable limitations as it opted for subjective collection of data from individuals over the phone. Participants may have altered their responses to avoid repercussions they thought might arise from improper adherence to guidelines. Additionally, they may not recall accurate information of when they had isolated, leading to some doubt on the credibility of their responses.

Conclusion

Majority of people who were advised home-isolation in mild COVID-19 did not practise isolation completely and had interaction with other family members which was the main reason for the spread of the virus. The economic conditions were another hinderance in the way of home-isolation.

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