Saudi Journal of Health Systems Research

Research Article

Saudi J Health Syst Res 2023;3:136–146
DOI: 10.1159/000529645

Received: December 6, 2022
Accepted: February 6, 2023
Published online: March 29, 2023

COVID-19 Recovered Cases: Analysis of Patients' Compliance with Precautionary Measures and Communication Protocol Application

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Keywords
COVID-19 · Recovered cases · Precautionary measures · Communication protocol · Saudi Arabia

Abstract
Introduction: COVID-19-recovered cases' compliance with precautionary measures employed by the health authorities is critical for prevention of virus spread and to combat the COVID-19 pandemic. This study aimed to assess the following amid COVID-19-recovered cases: (1) precautions' compliance during and after the infection, (2) sources of information regarding precautions, and (3) Saudi MoH communication protocol with the infected cases. ***Methods:*** A descriptive phone-based cross-sectional survey was conducted on a national sample of COVID-19-recovered cases. Study participants were selected randomly from the National Saudi Health Electronic Surveillance Network (HESN) database. The study questionnaire included (1) sociodemographic, (2) questions that assessed compliance and source of knowledge about COVID-19 precautionary measures, (3) questions about the MoH communication protocol. ***Results:*** Of the 484 participants, there were 363 (75%) males and 89.7% were Saudis. Most respondents (85.3%) went for COVID-19 testing because they had symptoms either with or without confirmed case contact. About 70% of respondents adhered to quarantine from being tested positive for COVID-19. Cases commitment to precautionary measures did not change after recovery among 44.8%, while nearly 40% their commitment was increased compared to time before infection. The MoH communication protocol was conducted with satisfactory levels in relation to time of first contact, frequency, asking about list of contacts, and advising to download *Tetamman application* and its regular update. Females had lower levels of commitment to the precautionary measures after recovery and lower use of the MoH 937 call centre services during infection compared to males with *p* values of 0.036–0.014, respectively. ***Conclusion:*** A high level of compliance with COVID-19 precautionary measures was exhibited by COVID-19-recovered cases during and after recovery with moderate use of the MoH 937 call centre services and low-level awareness about MoH online guide.

Introduction

On December 31, 2019, the novel coronavirus (COVID-19) started in Wuhan and spread globally, resulting in a pandemic [1]. The virus symptoms vary from having

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mild flu symptoms to more sever ones like pneumonia or even a complete shut down for some organs [2]. The arrival of COVID-19 in Saudi Arabia was on March 2, 2020. Since then, the number of cases has been on the rise with a total of 827,737 confirmed cases as of January 30, 2023 [3, 4].

After announcing the first infected case, the Saudi authorities imposed very strict preventive measures including travel restrictions, curfews and lockdowns, and PCR testing for suspected cases [5]. In addition, very wide promotional campaigns were conducted to create awareness and limit false information which eventually contributed to control spread of the disease [6].

Moreover, during the first months of the pandemic, the Saudi Center for Disease Prevention and Control (CDC), based on the best available scientific evidence, had published a comprehensive practical guideline (the COVID-19 guidelines) aiming to provide guidance on COVID-19 surveillance, control, and management in healthcare and community settings. These guidelines were continuously updated as more evidence became available. One of the guidelines' important chapters is Public Health Considerations which covers detailed communication protocols for public health teams at the regional health directorate for tracing and follow-up of patients with COVID-19 [7]. However, it is worth mentioning that since working on this study, the protocol was updated many times as the spread of the pandemic was in deceleration.

COVID-19 Saudi MoH Communication Protocol for Active Cases, Household, and Community Contact Management

In this protocol, public health teams are responsible to follow-up COVID-19 active cases and look up for symptoms (fever or respiratory symptoms) of household and other community contacts. During observation period, the health teams are required to contact the infected cases. Moreover, daily monitoring of cases could also be performed through the MoH's Tetamman, a smartphone app, whereby eligible contacts use it to self-report any symptoms to the contact tracing team.

Recovering from COVID-19: The Aftermath

According to the World Health Organization (WHO), it is important that individuals should continue adhering to the public health precaution measures even after recovering from COVID-19, as the infection re-occurrences were reported in many cases [8]. In the Kingdom of Saudi Arabia, several studies have been conducted to assess the level of awareness and practice of COVID-19 precautions among the public [9–15]. Overall, those studies reported satisfied scores on knowledge and moderate levels of practices. Yet, none of which were among COVID-19-recovered cases. Therefore, it was important to the Saudi MoH to measure and understand the different variables of COVID-19-recovered cases' journey (sources of information and practices of precautions during and after the infection) in addition to assessing the implementation level of communication protocol with the infected cases during their quarantine, in order to identify gaps and present recommendations for public health surveillance and monitoring.

Materials and Methods

Study Design, Setting, and Participants

A descriptive cross-sectional phone-based survey was carried out to provide a national assessment of the sources of information, practices of precautions, and MoH communication protocol among a random sample of COVID-19-recovered cases (aged 18 years old and above) in Saudi Arabia. At 95% confidence level, 5% margin error, and 50% estimated response rate, the appropriate sample size was 384, the lowest number which results can be generalized to the community. To increase accuracy, the sample was rounded to 500 and finally distributed to the 20 Saudi health districts according to their participation in the total number of cases.

Potential participants were selected from the Health Electronic Surveillance Network (HESN), a web-based electronic health solution developed by Saudi MoH, which acts as a platform encompassing all public health aspects which enable public health professionals to better detect, respond, prevent, and control diseases, disease outbreaks, and injuries [16] in addition to empowering decision makers – at that time – to lead and manage more effectively by providing timely, useful, high-quality data.

Inclusion criteria were recovered cases (passed at least 14 days after being tested positive) from COVID-19 through the duration from August 1, 2020, and onward, Saudis and non-Saudi, males and females, Arabic speakers, and aged ≥18 years to give a free informed consent without precautions. In addition, any data that do not contain a contact number or a wrong one were excluded.

The inclusion criteria were applied to the total number of cases who recovered from August 1, 2020, until the date of starting the data collection. This was followed by using a randomized stratified sampling technique to ensure proportional allocation from each health region. Each individual from the representative sample of each region was randomly chosen using RANDBETWEEN function in Microsoft Excel software.

Data collection was accomplished through November 1, 2020, to December 31, 2020. Data collection was conducted through The Saudi Centre for Public Opinion Poll. Data frames were distributed to the trained assigned data collectors who achieved the phone-based survey. Data collectors delivered the collected data anonymously to the research team with no names or phone numbers registered on the answer sheet but only a unique reference number for each participant. A verbal consent was sought from participants before commencing the questionnaire.

Table 1. Demographic characteristics and medical history of the study participants (*N* = 484)

Characteristics	Count	Percent
Gender		
Female	121	25.0
Male	363	75.0
Nationality		
Saudi	434	89.7
Non-Saudi	50	10.3
Age group		
21–30 years	185	38.2
31–40 years	179	37.0
41–50 years	76	15.7
51–60 years	28	5.8
≥61 years	16	3.3
Region of testing		
Same region of living	437	90.3
Different than region of living	47	9.7
Centre of testing		
Tetamman clinics	163	33.7
Taa'kad centres	135	27.9
MoH hospital	110	22.7
Non-MoH hospital or private centre	76	15.7
COVID-19-related symptoms		
Symptoms appeared prior to testing	413	85.3
Symptoms appeared after testing	42	8.7
Asymptomatic	29	6.0
Cause to go for testing		
Symptoms without confirmed case contact	255	52.7
Symptoms and confirmed case contact	158	32.6
No symptoms but confirmed case contact	58	12.0
Checkup without symptoms or confirmed case contact	13	2.7

Data Collection Tool

A comprehensive phone interview questionnaire was designed to collect data from COVID-19-recovered cases. No previous validated questionnaire items were found; thus, the items of this questionnaire were designed according to the needs of different internal departments of MoH (i.e., awareness, CCC). The study questionnaire was developed in Arabic language by the research team and reviewed by external experts from related departments for both face and content validity (averages for both individual and scale content validity indices were >90%). The questionnaire was then checked for internal consistency (pilot study) on a small random group of participants (Cronbach's alpha was 0.83). The questionnaire took 5–10 min to complete (average of 7.5 min). Data collectors were trained by the study team to collect the required data. The study questionnaire covered the following variables: demographics (region, gender, age, nationality), medical history, questions about PCR test (the reason to do the test and at which location), symptoms, informing and reaction of household and community contacts about COVID-19 positivity, questions about source of precaution information during and after the infection, questions about practices of precaution during quarantine and after the infection (including filling out Tetamman application), and finally questions about MoH communication protocol with the infected cases during their recovery.

Statistical Analysis

The collected data were reviewed, coded, verified, and statistically analysed using SPSS v23 (IBM Statistics, Armonk, NY). Numbers (*N*) and percentages were used to describe categorical data. Mean, standard deviation, median, and interquartile range were used to describe continuous data. The χ^2 test was used for comparisons of proportions and *t* test or one-way ANOVA for comparisons of means between subgroups as appropriate. Statistical significance was set at $p < 0.05$.

Results

A total of 484 individuals from all the 20 Saudi health districts responded to the phone-based survey with a response rate of 96.8%. Three hundred sixty-three (75%) respondents were males, more than 75% were aged 21–40 years, and (89.7%) were Saudi citizens. The vast majority of the respondents (90.3%) did their COVID-19 test where they lived. About two-thirds of the responders did the COVID-19 test either at *Tetamman* clinics (33.7%), "*devoted to receiving and testing individuals who showed COVID-19 symptoms such as: fever, shortness of breath, chest pain, coughing, sore throat, diarrhea, loss of taste and/or smell, at any time without appointments,*" or at *Taa'kad* centres (27.9%), "*a drive-through mass testing centers, devoted to receiving and testing individuals who do not show COVID-19 symptoms, by taking appointment through Sehaty app.*" Most of the respondents (85.3%) went for testing because they were symptomatic either with or without COVID-19-confirmed case contact (Table 1).

Compliance with Precautionary Measures among COVID-19-Recovered Cases before, during, and after Recovery

Majority of cases (94.6%) informed their contacts about their positive results and family members went for testing and adhered to home isolation among 41.7% of cases; however, in 37%, they just adhered to home isolation without testing and only 2.1% of families did not commit to any procedure or precautions. 69.8% of patients completed the period of isolation without going outside (Table 2).

Compliance with precautionary measures (wearing face mask, social distancing, and hand washing) was the same for 44.8% of respondents as before being infected. About 39.3% of respondents increased their commitment

Table 2. Compliance with precautionary measures among COVID-19-recovered cases before, during, and after recovery (*N* = 484)

Precautionary measures	Count	Percent
Informing contacts about COVID-19 positivity		
Informed all contacts	458	94.6
Informed some contacts	6	1.2
Did not inform any contact	20	4.1
Family members' reaction to the positive case		
Checkup and adherence to home isolation	202	41.7
Adherence to home isolation without checkup	179	37.0
Checkup without adherence to home isolation	57	11.8
No checkup or adherence to home isolation	10	2.1
Patient is living alone	36	7.4
Going outside during home isolation		
Never	338	69.8
Once	60	12.4
Twice	42	8.7
Three times or more	44	9.1
Commitment to precautionary measures after recovery compared to before infection		
No difference	217	44.8
More than before	190	39.3
Less than before	63	13.0
Stopped precautionary measures	14	2.9
Use of 937 calling centre services during infection		
Yes	251	51.9
No	233	48.1
Review MoH guidance for infected and recovered COVID-19 cases		
Yes	183	37.8
No	301	62.2
Updating daily health status in Tetamman application during infection		
Regular "daily"	68	14.0
Not regular	416	86.0
Sometimes	74	15.3
Rare	43	8.9
Never	299	61.8
Reason for not regularly update Tetamman status*		
Do not know the application	129	26.7
Do not know that daily update is required	112	23.1
Do not think that the application is important	42	8.7
Technical problems	24	5.0
Fatigue and exhaustion	24	5.0
Did not find a value of daily update	14	2.9
No reported reason	106	21.9

* More than one reason may be selected.

to the precautionary measures and 13% of participants decreased them before being infected. Only 2.9% stopped precautionary measure actions. About one half (51.9%) of study subjects utilized the MoH 937 calling centre services during infection and 37.8% reviewed the MoH comprehensive awareness guidance for infected and recovered COVID-19 cases on homestay and post-recovery procedures (Table 2).

In regard to *Tetamman app*, more than half of respondents (61.8%) showed that they never updated their health status on *Tetamman app*, while only 14% of respondents updated their health status on a daily basis. Lack of knowledge about the application, daily update requirement, and necessity of application were the most common reasons for not updating status 26.7%, 23.1%, 8.7% accordingly (Table 2).

Source of Information about COVID-19 Precautionary Measures and Health Services among COVID-19-Recovered Cases

The MoH 937 calling centre and website were the most popular and the primary source of information about

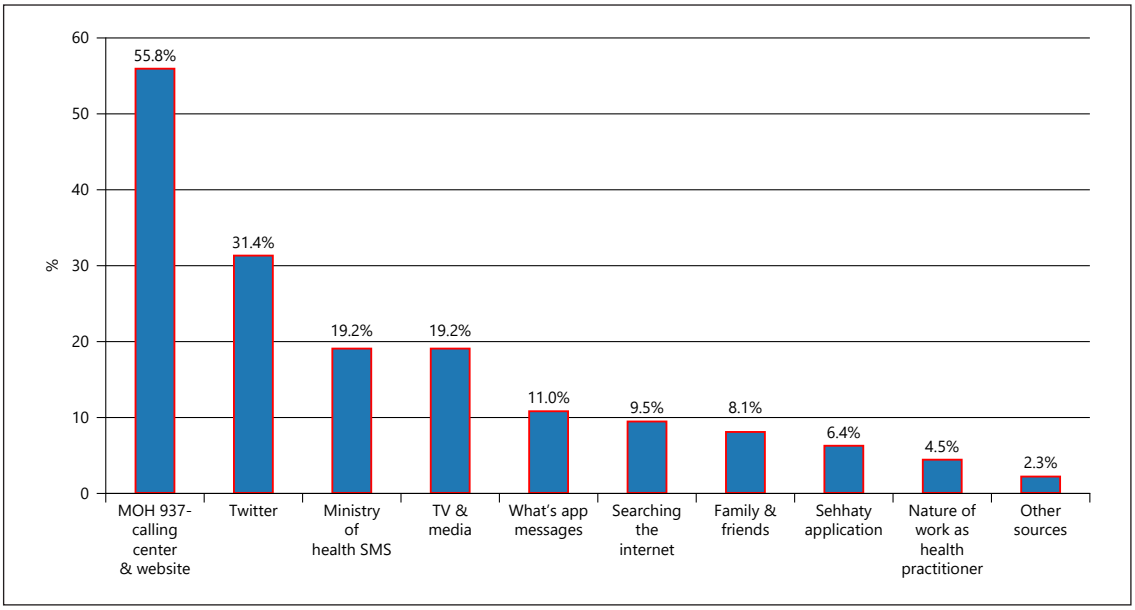

Fig. 1. Sources of information about COVID-19 precautionary measures, and health services among COVID-19-recovered cases (N = 484). More than one source may have been selected.

COVID-19 precautionary measures (55.8%, N = 270) compared with the other available options of Twitter (31.4%, N = 152). MoH SMS and TV and media shared the same number of respondents (19.2%, N = 93), while others are relying on WhatsApp messages, searching the internet, family and friends, *Sehhaty application*, their work field as health practitioners, and social media (shown in Fig. 1).

Assessment of the MoH Communication Protocol and Surveillance System among COVID-19-Recovered Cases

Almost all respondents (93.6%, n = 453) were contacted after assuring the positivity of the test, 89.7% (n = 434) were contacted by the MoH, while only (6.4%, n = 31) have not been contacted by any facility. More than one half (51%) were contacted within the first 24 h of confirmed infection, while around 84.0% of the cases received the first call within the first 72 h of infection. About one-third of cases were contacted once, another third of cases were contacted 2–3 times, and another third of cases were contacted more than 3 times during their 14-day infection period. During the call, the majority of respondents were asked if they experienced any symptoms, informed about home isolation and its duration, and informed about the procedure and contact number in case of symptoms requiring hospitalization (83.7%, 85.3%, and 71.9%, respectively). Lower percentages of respondents were asked about list of contacts, source of their infection, and suitability of home isolation (42.4%, 44.2%, and 54.3%, respectively). Lastly, only 45% of cases were informed by the health surveillance team to download *Tetamman application* and update their health status on it regularly. The average score for the MoH communication protocol and surveillance system was 67.8% ± 26.7% and the interquartile range was 55.6%–88.9% (Table 3). Bivariate analysis showed a significant association between being a female and both lower levels of commitment to the precautionary measures after recovery and use of 937 calling centre services during infection with p values of 0.036–0.014, respectively (Table 4).

There was another significant association reported between mean age and the use of 937 calling service during the infection period. Mean age was significantly younger among users of 937 service than nonusers (34.5 vs. 36.9 years), respectively, p value = 0.013; however, no statistical difference could be observed between age of cases and review of the MoH comprehensive awareness guidance for COVID-19 nor commitment to precautionary measures after recovery compared to before (p values = 0.306 and 0.302, respectively) (Table 5).

Table 3. Assessment of the Saudi MoH communication protocol and surveillance system among COVID-19-recovered cases (*N* = 484)

After confirmation of infection, which facility contacted you by telephone?	Count	Percent
Nobody contacted me	31	6.4
Yes, they contacted me	453	93.6
When did they contact you for the first time		
Within less than 24 h	253	52.3
Within less 24–72 h	153	31.6
After 72 h	47	9.7
How many times did they contact you		
Once	164	33.9
2–3 times	153	31.6
More than 3 times	136	28.1
During the call, did they ask about symptoms?		
Yes	405	83.7
No	35	7.2
Do not remember	13	2.7
During the call, did they inform you about home isolation and its duration?		
Yes	413	85.3
No	26	5.4
Do not remember	14	2.9
During the call, did they inform you about the procedure and contact number in case of symptoms requiring hospitalization?		
Yes	348	71.9
No	83	17.1
Do not remember	22	4.5
During the call, did they asked about list of contacts' names and data?		
Yes	205	42.4
No	226	46.7
Do not remember	22	4.5
During the call, did they asked about source of infection?		
Yes	214	44.2
No	208	43.0
Do not remember	31	6.4
During the call, did they asked about the suitability of home for isolation?		
Yes	263	54.3
No	170	35.1
Do not remember	20	4.1
During the call, did they inform you about the importance to download *Tetamman* application and regularly updating your status on it?		
Yes	218	45.0
No	182	37.6
Do not remember	53	11.0
Total	**484**	**100**

IQR, interquartile range; SD, standard deviation. Percentage score: mean = 67.8%, SD = 26.7%, median = 72.2%, IQR = 55.6%–88.9%.

Discussion

Management of COVID-19-confirmed cases and their close contacts including home quarantine and isolation is a key determinant of COVID-19 infection rates in a population and counter virus spread [17, 18]. However, a recent review has showed that complying to precautionary measures during self-quarantine is not an easy issue due to drawbacks on mental and psychological health [19].

Hence, the benefits of self-quarantine can be achieved only if the public cooperates [20]; therefore, it was of vital importance for Saudi MoH public health deputy and health awareness departments to explore the level of compliance with precautionary measures during and after self-quarantine. Consequently, the current phone-based

Table 4. Gender differences in relation to different study variables among the study participants

Study variables	Male		Female		*p* value*
	count	%	count	%	
After recovery, how far was your commitment to precautionary measures compared to before?					
No difference	**165**	**45.5**	52	43.0	**0.036**
More than before	**150**	**41.3**	40	33.1	
Less than before	40	11.0	**23**	**19.0**	
Stopped precautionary measures	8	2.2	**6**	**5.0**	
Use of 937 calling centre services during infection					
Yes	**200**	**55.1**	51	42.1	**0.014**
No	163	44.9	**70**	**57.9**	
Review the guidance for infected and recovered COVID-19 cases					
Yes	145	39.9	38	31.4	0.093
No	218	60.1	83	68.6	
Total	**363**	**100**	**121**	**100**	

* Pearson χ^2 test of significance.

Table 5. Age differences in relation to different study variables among the study participants

Study variables	Mean	SD	*p* value
After recovery, how far was your commitment to precautionary measures compared to before?*			
No difference	36.4	11.2	0.302
More than before	35.6	10.8	
Less than before	34.1	8.8	
Stopped precautionary measures	32.5	12.6	
Use of 937 calling centre services during infection**			
Yes	34.5	10.0	0.013
No	36.9	11.5	
Review the MoH online guidance for infected and recovered COVID-19 cases**			
Yes	36.3	11.6	0.306
No	35.3	10.4	

SD, standard deviation. * One-way ANOVA test of significance. ** Student's *t* test of significance.

study was carried out to provide a comprehensive preview of COVID-19 case practices during and after infection in Saudi Arabia, besides the assessment of MoH communication protocol implementation level.

Many studies conducted in Saudi Arabia illustrated the importance of awareness, attitude, and practice in society to reduce the virus spreading rate during pandemic. Our study results matching a recent study showed that the majority of the respondents were in favour of attitudes limiting the spread of COVID-19 like informing contacts, keeping precautionary measures, and choosing to stay at home and quarantine [21]. Another study reported that about 90% of the participants were aware of home quarantine and its duration [22].

The majority of respondents in our study displayed a good level of knowledge, attitude, practice, and adherence to suggested precautionary measures. Almost all cases informed all of their contacts about their positive results, and around half of the informed contacts went for testing and adhered to home isolation, while about one-third just adhered to home isolation without testing. Regarding the period of home isolation, more than 60% of patients completed the period of isolation without going outside. The infected populations need to have an ade-

quate level of COVID-19-related awareness, in order to show high level of attitude and practice.

These findings are similar to those of a study conducted in Egypt, which reported that home quarantined COVID-19 cases and people in close contact with them had a good awareness of home quarantine instructions. Almost all respondents (96%) were committed to complete the self-isolation period [23]. The Lancet recently published an article identifying five key factors most relevant in making people adhere to self-isolation: sufficient financial support, provision of alternative accommodation temporarily if required, accessible and clear communication by the public health department, effective contact tracing, and monitored adherence to self-isolation [24].

Compliance with Precautionary Measures among COVID-19-Recovered Cases before, during, and after Recovery (Wearing Face Mask, Social Distancing, and Hand Washing)

WHO and MoH have suggested several practices that can help contain COVID-19 at an individual level, for example, hand washing, wearing masks, and social distancing. Adherence of the public to hand washing is probably one of the most cost-effective ways to control the spread of COVID-19 in communities [25]; a recent study highlighted that over 99% of respondents agreed on the importance of hand wash, around 98% favour wearing masks in public during sickness [10].

The pandemic has been linked with behavioural changes in the Saudi population in relation to adoption of preventive measures as a routine. A recently published study found that female gender, age older than 43 years, married, and highly educated subjects are significant associated factors with better compliance with precautionary measures against COVID-19 employed by authorities in Saudi Arabia [26]. Another recently published study found that almost all participants exhibited high practice scores in relation to adherence to protective measures when leaving the home (90%), More than half of the participants reported improved hand hygiene, whereas the daily frequency of hand washing increased by 25% [27].

Another study showed that the participants' high knowledge of COVID-19 translates into good and safe practices, almost 95% of respondents refrained from attending social events and avoided crowded places, and 88% avoided shaking hands. Most respondents identified social distancing as the ideal COVID-19 prevention [9]. This highlighted that the practices of Saudi population against COVID-19 are very cautious. Nevertheless, our current study revealed that about half of the respondents' commitment to precautionary measures was the same as before being infected, more than one-third increased their commitment, and 13% participants' commitment decreased from before being infected. Only 2.9% stopped precautionary measure actions. However, these high rates of commitment are possibly influenced by the strict governmental orders.

Source of Information about COVID-19 Precautionary Measures and Health Services among COVID-19-Recovered Cases

In the context of preparedness and response to COVID-19, after it was declared as a global pandemic, Saudi Arabia adopted the WHO guidelines, which are based on nine pillars including raising public awareness and understanding of the disease [28]. The Saudi MoH has launched several educational campaigns to increase the public awareness and encourage adherence to the precautionary measures as well as delivered COVID-19-related information and answers through multiple channels. This was with the activation of health applications and a 24/7 operating call centre (937) to provide the public with medical consultations and COVID-19-related queries [29].

The current study showed that more than half of people use the MoH call centre (937) and website as primary source of information, while almost one-third use Twitter as an information source. MoH SMS and TV and media shared the same number of respondents of nearly one-fifth for each, while few respondents rely on WhatsApp messages, family and friends, *Sehhaty application*, their work field as health practitioners.

These results are consistent with many studies conducted in Saudi Arabia. A recent study showed that WHO and MoH were the two main sources of information [10]. In another study supporting our findings, the respondents indicated that the Saudi MoH was their main source of information (78%), whereas seeking related information from friends and relatives was their least favoured method [30]. On the other hand, many other studies showed that both medical staff and social media platforms were the main sources of information from which participants sought COVID-19-related knowledge [31]. In another study, social and mass media had the most dominant role in the general population's awareness [22].

The majority of the participants in this study were middle aged and had the ability to easily access social media, websites, and other online sources to get their COVID-19-related answers. However, elderly people were more susceptible to COVID-19 than younger individuals

and were not very familiar with social media and other online resources. Hence, national public health needs to ensure that the information about COVID-19 is well distributed among different platforms, so it is easier to be reached by everyone.

Assessment of the MoH Communication Protocol and Surveillance System among COVID-19-Recovered Cases

The Saudi MoH communication protocol for management of nonhospitalized COVID-19 cases was developed early after the pandemic including case follow-up and symptom development monitoring, adherence to isolation and prevention measure in addition to tracing and monitoring household and community contacts. In each region, communication units were initiated for case follow-up, in addition to self-monitoring application (*Tetamman*) centrally controlled [7].

In this study, the majority of COVID-19-recovered cases reported that they were contacted by the communication teams after their COVID-19 test was confirmed as positive; more than half of them were contacted within the first 24 h and 84% within the first 3 days after infection. Contact with cases was mainly performed by phone calls, which could be more valuable than social media groups performed in other countries [32].

Strengths and Limitations

To the best of our knowledge, this is the first study conducted to provide a comprehensive preview of precaution compliance and implementation practices amid COVID-19-recovered cases in Saudi Arabia, besides assessment of the implementation level of MoH communication protocol for management of nonhospitalized COVID-19 cases. In addition, the sample size was generally representative of the population in all regions; a larger sample size with participants from every part of the country could confirm our findings and support their generalizability.

Some limitations should be considered when interpreting the result of this phone-based study. The data used in the analysis of this study were obtained by phone interview, where respondents may over-report practices and hence lead to inflated results that might suffer from reporting bias. Additionally, the cross-sectional design allowed the data to be captured at one point in time, whereas practices may change. The close-ended nature of the study's questionnaire might have missed significant, unavailable responses or failed to accommodate for the wide ranges of perspectives and attitudes associated with pandemics. Lastly, this study did not include some important associated factors with level of compliance (e.g., education level and risk factors) which may be captured in further studies.

Conclusion

This study concluded that the majority of COVID-19-recovered cases had a remarkable compliance toward precautionary measures against COVID-19 during and after infection. COVID-19-recovered cases depended mainly on the MoH 24-h working call centre (937) to answer their enquiries or to get information about the disease during home quarantine. Nevertheless, the communication units developed by MoH in each health region applied the MoH communication protocol and surveillance system among nonhospitalized COVID-19-recovered cases by contacting most cases for monitoring, symptom surveillance, guide about precautions during home isolation, and tracing list of home and community contacts. Further, the study presents an opportunity for the reader to understand the value of trust and to estimate the importance of patients' compliance with precautionary measures and communication protocol applications, even during times other than the pandemics.

Acknowledgments

The authors express sincere thanks to the Saudi COVID-19 recovered patients who agreed to participate in this research. We also thank employees at The Saudi Centre for Public Opinion Poll whom accomplished the data collection.

Statement of Ethics

This study protocol was reviewed and approved by the Central Institutional Review Board of the MoH, Riyadh, Saudi Arabia (decision reference number: 21-21M; category of approval: expedited) with approval on a verbal informed consent to be taken from respondents prior to the phone-interview. Cases' identities were anonymous all through the study stages and confidentiality of the data was maintained as well. This study was conducted in accordance with the Declaration of Helsinki and all applicable local regulations. Data were stored securely and were only accessible by the research team.

Conflict of Interest Statement

The authors have declared no conflict of interest or any competing interests.

Funding Sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Author Contributions

All authors contributed to the conception and design of the study, drafting and revising of the manuscript, and approved the submitted version. Walid A. Al-Shroby prepared and submitted the IRB required dossier; validated the study questionnaire; analysed the data; and drafted and revised the manuscript. Maram E. Bin Dayel and Shahad H. Bin Osayl searched the literature and wrote the study proposal. Anwar M. Eldaw, Najla J. Alhraiwil designed the questionnaire; reviewed the manuscript; and supervised the whole work.

Data Availability Statement

The datasets analysed during the current study are available from the corresponding author on reasonable request. All data generated or analysed during this study are included in this article. Further enquiries can be directed to the corresponding author.

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