



Investigation of training, prevention and management results of Abadan people towards COVID-19 by health centres

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Abstract

Since the first cases of the novel coronavirus disease SARS-CoV-2 were reported in December 2019 in China, the virus has spread in most countries. The aim of the present study was to assess initial data and their impact on the health burden of the Abadan-Iran public centres during the COVID-19 pandemic.

A cross-sectional study was conducted in Abadan and complete datasets from 547 in Abadan were collected accordingly.

In this study, the cyberspace has been used to educate as many people as possible after screening patients and explaining cases of coronavirus prevention. In this study, 547 people (241 women and 306 men) were screened, of which 251 were suspected of having coronavirus. After sending the samples to the laboratory for further examination, it was found that the PCR test result was positive in only 132 of them.

Education and follow-ups of patients conducted by experts working at urban and rural health centres in Abadan city indicated that increased level of awareness of people in the community level to deal with the disease and maintain their health is useful.

Keywords: Coronavirus, CoVID-19, Abadan, management strategies, public education

1. Introduction

Coronaviruses are considered as the largest family of single-stranded RNA viruses. CoVs are divided into four groups: Alpha, Beta, Gamma, and Delta coronaviruses [1]. The emergence of Covid-19 is the biggest health problem in the late 2019 and early 2020 throughout the world [2].

Coronavirus 2019 has a pathogen called SARS-CoV-2, which was previously named 2019-nCoV. The virus first appeared in the city of Wuhan in China and has infected almost the entire world and it was then considered as the pandemic disease. Coronaviruses infect birds, bats, snakes, mice and other wild animals as well as vertebrates including humans. Cases of the Covid-19 have been reported from six continents [3]. The number of patients is being continuously reported in most countries, including China, South Korea, Italy, Iran, Japan and many more countries. This the reason why epidemic of this disease has caused the greatest concern of the WHO in the current century [4]. Coronaviruses are a large group of viruses that can infect animals as well as humans and cause respiratory disorders [5]. These disorders may vary as mild as a cold or as severe as pneumonia. In rare cases, animal coronaviruses infect humans and will spread across communities [6]. Severe Acute Respiratory Syndrome (SARS) was an instance of a coronavirus from 2002 to 2003 which was transmitted from animals to humans. Another important and more recent case of the Coronavirus virus is called

Middle East Respiratory Syndrome (MERS), which was discovered in the Middle East in 2012 and, the virus was first transmitted from camels to humans from the viewpoint of scientists [7,8]. Covid-19 Patients may experience symptoms such as severe shortness of breath. The World Health Organization believes that viral diseases are a serious public health issue in the world [9]. At present, there are seemingly no vaccines or antiviral therapies for coronavirus disease in humans and animals. The WHO has stated that researchers should make every effort for safe reaction to COVID-19, although a number of criteria are needed to do so [10]. Supportive treatments for the disease include resting, antiviral therapy, support for the function of the body's organs with proper nutrition, maintaining relaxation, avoiding anxiety, taking antibiotics, respiratory support, and strengthening the immune system [9]. Due to the outbreak of the coronavirus disease, governments are under immense pressure and they are required to meet certain obligations including quarantine in order to comply with the safe social distancing to stop the spread of the virus inside their countries. Middle East Respiratory Syndrome Coronavirus (MERS-CoV) was discovered in September 2012 in the Kingdom of Saudi Arabia (KSA). The first MERS-CoV case in the United States was confirmed on May 2, 2014 [11]. Regarding Covid-19, Iranian medical staffs are required to comply with the instructions for personal protection to prevent

spread of this new virus using all the new instructions of the Ministry of Health and medical education centres, when interacting with patients. Hospital staff, visitors and people in the community were asked to be screened for symptoms. This study reflects the results of screening the Abadan rural and urban health service bases, in Iran. A total number of 547 people, including pregnant mothers, children, middle-aged, elderly, young people and adolescents, were screened by telephone, according to an expert checklist. In this paper, the authors generally collected some data consisting of epidemiological content, clinical reports, diagnosis, treatment and prevention of coronavirus disease. The results of the research can accordingly be observed in the tables.

2. Methods

Iran's health centres and services have managed to equip themselves to serve the people by the Coronavirus operational prevention and management plans at the community level due to the spread of the disease in Iran and the report of positive COVID-19 cases in various locations. The launch of Corona self-reporting website (<https://salamat.gov.ir>) by the Ministry of Health in Iran was the first step to manage the disease for people in the community [12]. Whereby, people informed the health experts of each city about the level of their infection through registering

their symptoms within the website. After the website form was filled by the people, health centre experts were supposed to contact all those who had reported symptoms such as fever, cough, and flu-like symptoms on the website and recorded information about the family as well as the suspected individuals to screen the patients. This study was conducted by a team of health care workers of Abadan Health Centre. The team consisted of a general practitioner, midwifery experts, a clinical psychologist, and family and public health technicians. After screening patients and explaining the cases of disease prevention to them, experts of urban service centres in Abadan city have consulted and raised public awareness in three stages on a round-the-clock and online basis through a comprehensive collaboration among all employees. The experts divided the number of people in the study into three groups to make the training easier. The first group in the morning from 7:00-11:00, the second group from 12:00-15:00, and the third group from 16:00-22:00, thus, the population of the city were accordingly trained and advised how to tackle the problem. Moreover, the telephone number of the Infectious Diseases Prevention Unit of the health centre was offered to the people so that it could answer their questions if necessary. The checklist for screening questions from the population of the study area is presented in Table 1.

Table 1: Checklist related to phone calls from health centres' experts for screening

BMI above 40	Confrontation with foreign nationals		History of international trip		Symptoms	Chronic disease				Occupation	Age	Gender		Row
	No	Yes	No	Yes		Weight changes (decrease and increase)	Respiratory problems	Heart failure	Hypertension			Diabetes	Female		Male
														1
														2

Pre-determined forms conducted by telephone included items such as age, occupation, chronic disease, symptoms, weight changes, history of international trip, and confrontation with foreign nationals, were used to investigate the situation in this city. The current status of all subjects covered by this study is determined by the symptoms of Coronavirus (dry cough, travel to endemic areas) and whether their relatives have had a positive test for Coronavirus. During telephone screenings, people who were anxious and stressed about the COVID-19 viral disease were referred to a psychologist or psychiatrist for telephone advice so that their comfort could be stabilized. Moreover, cases of complete control and quarantine in suspected cases such as fever and cough have also been described. Child and middle-aged care was highly recommended in the telephone counseling.

3. Results

547 patients with Covid-19 participated in this descriptive study at Abadan Health Centre. The demographic information of these

patients is given in Table 2. 44.1% of the samples were male patients and 9.55% were female. 9.5% of the samples had a body mass index (BMI) higher than 40 and 90.5% of them had a BMI less than 40. 25.6% of the patients had diabetes, 39.5% had high blood pressure, 15.7% had lung disease, 11.2% suffered from kidney disease and 8% showed heart disease. In this study, the follow-up surveillance of patients with Covid-19 in Abadan Health Centre was performed by K- test; also, the relationship between different levels of people's status with other variables was examined and the following results seen in Table 3 were obtained.

There was a significant relationship between the status of individuals and the male-female gender ($p < 0.001$). There was also a significant relationship between disease status and disease history ($p < 0.001$).

Table 2: Demographic information of the study participants

Percentage	Number	Demographic information	
9/5	52	>40	BMI
90/5	495	40<	
55/9	241	Female	Gender
44/1	306	Male	

58/5	320	Yes	History of international trip
41/5	227	No	
58/5	320	Yes	History of confrontation with foreign nationals
41/5	74	No	
25/6	140	Diabetes	History of the disease
39/5	216	Hypertension	
15/7	86	Pulmonary problems	
11/2	61	Kidney failure	
8/0	44	Heart failure	
30/0	164	Healthy	The status of individuals
45/9	251	Suspected	
24/1	132	Positive	
100	547	Total	

Table 3: The relationship between the status of the individuals and contextual variables in Abadan Health Centre

p-value	The status of the individuals			Variable	
	Positive Number (%)	Suspected Number (%)	Healthy Number (%)		
0/001<	59)19/3(162)52/9(85)27/8(Female	Gender
	73)30/3(	89)36/9(	79)32/8(	Male
0/812	12)23/1(26)50(14)26/9(40>	BMI
	120	225)45/5(	150)30/3(	40<
0/046	86)26/9(150)46/9(84)26/2(Yes	History of international trip
	46)20/3(	101)44/5(	80)35/2(	No
0/046	86)26/9(150)46/9(84)26/2(Yes	History of confrontation with foreign nationals
	46)20/3(	101)44/5(	80)35/2(	No
0/001<	31)22/1(81)57/9(28)20(Diabetes	History of the disease
	56)25/9(	65)30/1(	95)44(	Hypertension
	14)16/3(	50)58/1(	22)22/6(	Pulmonary problems
	15)24/6(	36)59(	10)16/4(	Kidney failure
	16)36/4(	19)43/2(	9)20/5(	Heart failure

In this study, the total number of people screened included: 32 pregnant mothers, 105 elderly people, 93 middle-aged people, 118 children, 78 adolescents and 121 young people. In diagram 1, the population of the study can be observed.

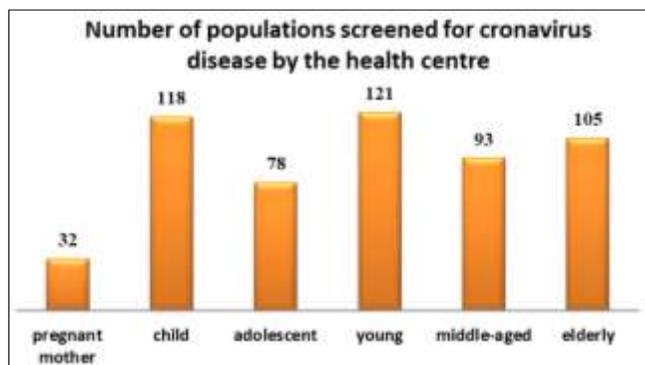


Diagram 1: The number of people screened in this study by classification

4. Discussion

In the current century, due to the progressive trend of coronavirus disease and the existence of various information in the online media, patients are required to receive professional advice from physicians in defined hotlines if they have symptoms, conversely, they should not pay massive attention to cyberspace [13]. Due to the pandemic and pneumonia nature of coronavirus (COVID-19), it should be noted that it will have a significant individual and social psychological effect on people. The Chinese government

has announced that it is creating a new psychological crisis intervention model by using Internet technology due to absence of face-to-face services to its citizens. Due to the emergency situation, a group of physicians, psychiatrists, psychologists and social workers has been divided into subgroups, and online shifts were scheduled for psychological interventions on patients and their families [14].

In France, for example, according to the COVID-19 monitoring protocol, patients suspected of having COVID-19 have to call an emergency telephone line (SAMU-Centre 15) before visiting a general practitioner in order to talk to infectious disease specialists at the hospital level. Thus, physicians will review the patient's case by assessing as well as matching the patient's possible criteria. For the patient's case, the health agency of the region should be notified immediately by phone number 24/7, so that all the organizations can realize the spread of the disease and the number of infected individuals in the area and make sure that the desired location is under the control of all health and hospital infection control teams [12]. According to the study conducted by Livingston *et al.* from Lombardy, a densely populated area of northern Italy, the first patient was reported on February 20, 2020, who was hospitalized with unusual symptoms of pneumonia. It turned out later that the person had COVID-19. More interestingly, another 36 cases of the disease were accepted in less than 24 hours. The study found that none of the individuals were in contact with the patient zero, and this is the very bitter beginning of the outbreak of a very deadly disease. Despite the great efforts of the medical staff and health experts to control the illness, the disease is still prevalent particularly among the elderly

and people with special diseases and the number of patients is increasing every day. The mortality rate is very high. The only way to fight the disease is by proper education through the mass media and cyberspace and it seems necessary to make people comply with quarantine conditions to control and prevent COVID-19 [15].

A report by Mowbray *et al.* shows that the government is under pressure to control the disease in Beijing. All the people were informed with the help of the army. The training, along with classic ads, announcements, loudspeakers and group text messages, was used to prevent public gatherings and to enforce quarantine at home. Finally, the control method was taught to people to reduce the course of the disease development [16].

The results of a study by Wang *et al.* from the neonatal intensive care unit (NICU) reported interesting findings on infants. Due to the rapid spread of COVID-19 in all countries of the world, especially in China, more than 20,000 people were announced to be positive after a laboratory test in China. There were about 100 children with the virus, the youngest of whom was an infant who was born for just 30 hours. With the necessary training of the medical staff to the families of the infants, they were in full quarantine for 14 days in the NICU unit, after which the symptoms of the disease were completely removed. Families were given the necessary training to discharge the infants from the hospital, and eventually the follow-up phone calls continued [17]. Guan *et al.* regularly monitored patients who came to the hospital with acute respiratory problems and analyzed their clinical features individually. The results showed that only 1.18% of people with the virus were in direct contact with wild animals. Other common symptoms in these patients included fever (9.87%) and severe cough (67.7%). Furthermore, no symptoms of diarrhea were observed in this study [18].

Complete explanations were given regarding the observance of disease prevention tips at a school in the UK to increase family awareness through an email from Hill to all parents of students. Finally, the families made sure that the education of the students would continue through Internet. If they had symptoms of the disease and a history of traveling to different areas during this time, they were asked to report these cases so that they could be treated better with the help of the medical staff in a timely manner in order to prevent COVID-19 disease by gaining wide and sufficient information [19].

In a study by Livingston and colleagues from Lombardia, a densely populated area of northern Italy, the first patient was reported on February 20, 2020, with symptoms of an abnormal pneumonia. The person is then diagnosed with COVID-19. More interestingly, another 36 cases of the disease were admitted in less than 24 hours.

Kuwait has a predominantly Arab population, and most of the people under study are Arabs and have similar lifestyles. Due to the similarities between the two countries, we decided to study the two regions in terms of health follow-up during the Covid-19 pandemic. The results of studies from Kuwait indicate that all the principles of quarantine have been fully notified to the public through trainings via WhatsApp groups and people have stopped all their daily traffics and fully complied with the principles of quarantine. The results of a study from Kuwait also showed that due to the full principles of quarantine to prevent the spread of Covid-19 outbreak, a very high weight gain was observed in 522 people of the study population. In the future, this high weight gain

will lead to diseases such as diabetes and hypertension [20]. The results of this study did not show significant weight changes in the study due to the similar lifestyle of the two countries, and only a limited number of people gained a BMI above 40 during quarantine. The statistics of this study show a huge difference in the number of people with a BMI above 40 compared to the results reported from Kuwait.

A large number of patients in this study have had a history of foreign trip, although traffic of foreign nationals was not banned due to the proximity of the common border with Iraq and because Abadan is a free-trade zone. Land traffic was through the Shalamcheh Border Terminal before the national quarantine. On the other hand, close cultural ties between the two countries have strengthened relationships such as buying, selling and providing households. For this reason, the history of foreign trip will not be unexpected for the majority of people in this city. The statistical results of this study also show that a history of foreign trip and close contact with foreign nationals can have beneficial effects.

A screening of the study population found that the majority of patients with coronavirus had special diseases such as diabetes, hypertension, lung and heart problems and also renal failure has been observed in a number of cases. According to the protocols of the Ministry of Health in Iran, we can conclude that special diseases in individuals can increase the risk of coronavirus. The statistical results of this study also confirm the significance of this topic. Experts and staff at health centres have repeatedly been involved with training and surveillance of people among the 132 patients whose PCR test results were positive for Covid-19 due to the fact that in these areas, most people have a group life, with a lot of crowd. The quarantine and coronavirus prevention tips have been fully re-taught to the entire population as a result of a positive test to prevent other family members from being infected. After two months of regular follow-up by experts, it became clear that the relevant statistics had not changed significantly. The results of the present study are for 547 people in Abadan City who were screened. Meanwhile, out of 132 definitely positive patients in Abadan city, due to the follow-up and provision of training in the quarantine period, people lived in their own homes and refused to go out. After two months of quarantine in the countryside and the reduction of statistics from all over the country, with the removal announcement of quarantine, provided that the appropriate social distance is observed, many public places have been opened. During this period, the number of coronavirus infection in Abadan has increased by 35%. Alongside blood type family inheritance, environmental factors can also potentially have a significant effect on the type of blood in the next generation. The results of a study by Zhao *et al.* (2020) on the relationship between ABO blood type and COVID-19 susceptibility in 2173 patients with Covid-19 show that the risk of viral infection in the study population was higher in the blood type A with a higher risk of COVID-19 infection and then in the blood type B, and AB blood type in the next rank. However, among those studied, blood type O was less likely to be infected [21]. During correspondence with the Abadan Blood Transfusion Organization, it was identified that the dominant blood type in Abadan is type B. According to the results of the article by Zhao *et al.*, who examined the blood type and the rate of infection in a fixed population, it can be concluded that the rate of infection among people in this study will be high in case of exposure. The results of the present study

showed that from February 20, 2019 to May 17, 2020, due to repeated follow-ups by experts and providing the necessary training to the study population, there was not an increasing trend of coronavirus during the full implementation of quarantine in Abadan City.

General quarantine in Iran has been established for all schools, universities, shops and markets, mosques, parks, cinemas and all public places from early March 2020 to May 2020 and people were only allowed to leave their homes when necessary. While Iran was in quarantine, the health workers of this study continue to work in quarantine conditions and guide all patients in person or by phone to control stress and also provide the necessary training for the purchase of disinfectants and compliance with hygiene. In these telephone conversations, they were told to pass on all the training from the relevant expert to the rest of the family. The results of this training process showed that the transmission of the disease from a positive person to other family members was significantly reduced. After the reduction in statistics, as soon as quarantine was announced, due to the lifestyle of the people in this city who have tribal and collective lives and have a lower level of literacy in the minority of the society, people thought that by eliminating quarantine in case of the appropriate social-distancing, the coronavirus becomes weaker and the rate of infection decreases, and after the quarantine is ended, people can continue to live their daily lives as usual as before the virus. If the majority of the region's population had adhered to education, there would be no statistical increase. The highest increase in the number of reported cases from Abadan city was related to people who had a group life and after following up by experts from their families, they announced that their idea of quarantine elimination is a disease eradication and they should no longer be required to observe the hygienic principles of using a mask, gloves and the appropriate social distancing. Therefore, due to the provision of services such as education, once again due to the lack of attention of the illiterate strata of society and misunderstanding of quarantine elimination, Abadan city has witnessed a 35% increase in coronavirus disease in the region. Due to the fact that Abadan was one of the first cities in the Islamic Republic of Iran to fully comply with the quarantine plan, but now, shortly after the national quarantine was ended, the city witnessed a 35% increase of the disease in the region between May 21, 2020 and June 17, 2020. The only reason for the increase in the number of statistics in the region was the low level of literacy and the collective life of the people, since after the quarantine period, they neglected the necessary trainings and increased the number of cases. Therefore, the results of this study show that the provision of education to the study population from the city level during quarantine time has been reported positively. On the other hand, due to the lack of awareness of some citizens of the city, after the quarantine was eliminated, a significant increase in the disease in the region was witnessed. This is despite the fact that during the quarantine period, due to the presence of sick people in the houses, we did not see a 35% increase. Over a two-month period, the importance of providing education and prevention of coronavirus disease by telephone is quite evident among the study population.

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hotline, your medical practitioner, or emergency services.
DO NOT SHOW UP SICK ANYWHERE BEFORE YOU
CALL UNLESS DIRECTED TO BY YOUR LOCAL
OFFICIALS^m 2020.

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