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Original Article

COVID-19 with a Public Health Perspective: Measures Taken in Turkey and Public Compliance with the Measures

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Abstract

Background: This study aimed to evaluate the COVID-19 as seen worldwide from a public health perspective and evaluate the measures taken across Turkey against the virus and to determine the compliance of people with these measures.

Methods: WHO's official COVID-19 cases were evaluated up to 27 Mar 2020. Public measures adopted by Turkey in combating the COVID-19 were examined. The compliance of those applying to Family Health Centers (FHC) with these measures was also evaluated.

Results: Overall, 178 people who applied to the FHC were included in the study. Of the participants, 65.2% were women, and the average age was 56.47±17.27 (Min:18, Max:92). The most frequently used personal protection (96.1%) against the epidemic was liquid soap. According to the participants, avoiding patients (99.7%) and frequent hand washing (97.2%) were stated to as the most effective measures to protect against COVID-19. One of the first and most influential bodies in the fight against COVID-19 in Turkey is the Scientific Committee consisting of academicians. Turkey has taken measures such as closing land borders, stopping all flights, vacationing schools, closing places of worship, and stopping sports events.

Conclusion: The COVID-19 has affected societies in many areas such as health, education, sports, and trade. Countries should take appropriate and timely measures to combat COVID-19. The public must comply with the precautions taken to fight COVID-19. Besides, all countries should take general precautions for public health against increasing epidemics.

Keywords: COVID-19; Public health; Measures; Turkey

Introduction

A disease or health problem should meet specific criteria to be considered a public health problem. These criteria can be listed as follows: the problem affects many individuals in society and will continue to affect in the future, but it does not affect everyone equally and should affect some disadvantaged groups more. Thus, it should be a threat in terms of mortality, morbidity, quality of life, and cost. Most importantly, the problem is preventable. Although preventive strategies can be developed concerning the problem, preventive studies on this issue can be said to be insufficient (1,2). According to these features, coronavirus has become a worldwide public health problem.

Coronaviruses are mainly classified as Alpha-, Beta-, Gamma- and Delta. They are enveloped and single-stranded RNA viruses. Coronaviruses can be found in humans, bats, pigs, cats, dogs, rodents and poultry. In humans, Coronavirus can range from simple colds to severe acute respira-

tory syndrome. Common symptoms of infection are respiratory symptoms, fever, cough, and dyspnea. In more severe cases, pneumonia, severe acute respiratory infection, kidney failure and death may develop (3).

In China, a CoV that has higher pathogenicity called SARS-CoV (Severe Acute Respiratory Syndrome-CoV) and leads to serious respiratory infection, emerged in 2003. SARS-CoV spread quickly around the world. Eight thousand cases of this virus were reported, and 700 deaths occurred (4). In 2012, a 60-year-old man died in Saudi Arabia from acute respiratory infection and kidney failure. This virus has been identified as MERS-CoV (Middle East Respiratory Syndrome-CoV) with cell culture and genome sequencing (5). As of Nov 2014, there were 909 identified MERS-CoV cases, and 331 deaths were reported by WHO (6).

When the dates showed 31 Dec 2019, the first coronavirus case in the world was seen in Wuhan City, Hubei Province of China (7). The total number of cases was 44 with pneumonia complaints until 3 Jan 2020. Chinese officials reported these cases of unknown pneumonia to WHO (8). Pneumonia of unknown cause was detected in several independent laboratories (9-11). This detected virus was a new type of coronaviruses such as SARS and MERS. Initially, the virus was named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus has been named as coronavirus disease 2019 (COVID-19) (12).

The first COVID-19 case outside China was seen in Thailand on Jan 13. Next, on 15 Jan, Japan, and on 20 Jan 2020, South Korea reported the first cases of COVID-19. On Jan 20, 282 cases were reported in 4 countries, 278 of which were in China. Fifty-one severely patients, 12 critical situations and six deaths occurred in 278 cases in China (all in Wuhan city) (8). COVID-19 spread to other countries, and the number of cases exceeded 100.000 on 7 Mar 2020 (13). The number of COVID-19 cases was 200,000 on Mar 19 and 300,000 on Mar 23 (14, 15). The number of cases exceeded half a million on Mar 27, when the study was completed (16). According to WHO, the first case was seen in Turkey on Mar 14 (17). Overall, 3629 cases and 75 deaths have occurred in Turkey by 27 Mar 2020 (16). The number of cases, mortality and fatality rates according to the most recent WHO report are shown in Table 1.

The present study aimed to emphasize the importance of epidemics, which are common in recent years, especially COVID-19, and affect the world in terms of public health. Moreover, with the increase in the number of cases all over the world, studies to prevent the spread of this epidemic have gained in importance. In the present study, the general measures were taken against COVID-19 in Turkey and the public compliance with these measures are evaluated.

Methods

A descriptive and cross-sectional study was conducted during 23-27 Mar 2020 at a Family Health Center (FHC) in Turkey. The sample size was not selected in this study (examination, drug printing, etc.). It was conducted in adults (over 18 yr old) who agreed to participate in the study between these dates. The data were collected by the questionnaire method. A questionnaire consisting of socio-demographic characteristics and precautions for COVID-19 was applied.

The participants were informed by the researcher about the purpose, the quality of the research, and the confidentiality of the data obtained. Verbal consent was obtained from the participants. Then the implementation of the questionnaires was conducted.

The statistical data of the COVID-19 outbreak assembled by WHO until Mar 27, 2020, were Turkey was used evaluated for COVID-19 official applications. Research data were evaluated with the SPSS 15.0 (Chicago, IL, USA) program; percentage and frequency distributions, arithmetic mean and standard deviation were calculated in the statistical analysis.

Results

Of the participants, 65.2% were women and, 34.8% men, 51.1% being in the 36-65 age group,

and 35.4% in the age group 65 and above. The average age was 56.47 ± 17.27, the minimum age 18 and the maximum age 92. 76.4% of the participants were married, and 56.2% housemakers. While 12.4% of the participants were illiterate, 20.2% were high school and above graduates.

The countries with the most cases were China (81116), Italy (27980), and Spain (56188). The countries with the most deaths were Italy (8165), Spain (4089), and China (3298). The countries with the highest fatality rates were Italy (8%,94), Spain (7%,27) and Iran (7%,59). The numbers of cases, mortality and fatality rates according to the most recent WHO report are shown in Table 1.

Table 1: Countries with reported laboratory-confirmed COVID-19 with more than a thousand cases, deaths, and fatality rate. (Data as of 27 Mar 2020/Situation report-67)

Reporting WHO Region	*Reporting Country*	*Total confirmed cases*	*Total deaths*	*Fatality rate (%)*
Western Pacific Region	China	82078	3298	4,01
	Republic of Korea	9332	139	1,48
	Australia	2985	13	0,43
	Malaysia	2031	23	1,13
	Japan	1387	46	3,31
European Region	Italy	80539	8165	9,94
	Spain	56188	4089	7,27
	Germany	42288	253	0,59
	France	28786	1695	5,88
	The United Kingdom	11662	578	4,95
	Switzerland	10714	161	1,50
	Netherlands	7431	434	5,84
	Austria	7029	52	0,73
	Belgium	6235	220	3,52
	Turkey	3629	75	2,06
	Portugal	3544	60	1,69
	Norway	3156	14	0,44
	Israel	3035	10	0,32
	Sweden	2806	66	2,35
	Czechia	2062	9	0,43
	Denmark	1877	75	3,99
	Ireland	1819	19	1,04
	Luxembourg	1453	9	0,61
	Poland	1221	16	1,31
	Russian Federation	1036	3	0,28
	Romania	1029	17	1,65
South-East Asia Region	Thailand	1136	5	0,44
Eastern Mediterranean Region	Iran (the Islamic Republic of)	29406	2234	7,59
	Pakistan	1057	8	0,75
	Saudi Arabia	1012	3	0,29
Region of the Americas	United States of America	68334	991	1,45
	Canada	3555	35	0,98
	Brazil	2433	57	2,34
	Chile	1306	4	0,30
	Ecuador	1211	29	2,39
African Region*	South Africa	927	0	0
	Algeria	305	21	6,88
TOTAL		509164	23335	4,58

* Regions with less than a thousand cases compared to WHO regions.

Although the first cases were seen in Turkey on Mar 12, COVID-19 measures had already been taken on 5 Feb. The measures taken will be explained below in the form of items.

As of Feb 5, all flights from China were stopped. Later, flights were banned to South Korea, Iran, Iraq and Italy. Then flights to Germany, France, Spain, Norway, Denmark, Belgium, Austria, Sweden and the Netherlands were also mutually stopped. With the bans imposed on Britain, Switzerland, Saudi Arabia, Egypt, Ireland, and the United Arab Emirates, this number increased to 20. Thermal camera control was initiated on Feb 6 for all passengers coming from abroad in 19 active international airports. As of Mar 27, all flights were banned.

The plan of action, if deemed necessary in cases in Turkey, was completed. The entire health agency was informed about the coronavirus and made ready. Necessary measures were taken in hospitals and reference hospitals were determined. As part of the measures taken against the COVID-19, the New Coronavirus Scientific Board was established within the Ministry of Health.

Primary, secondary, and high schools in Turkey had been meeting a week since the Mar 16 holiday. After Mar 23, education on the internet and television channels would continue with distance education. Education was interrupted until 30 Apr by extending once again. Likewise, universities were initially vacationed for three weeks from Mar 16 and were put on holiday for three weeks from 16 Mar. Face-to-face education was stopped at universities.

All sports competitions were to be play without spectators, and later, to be postponed. Pregnant women, disabled employees, those over 60 yr of age and those with chronic disease (Diabetes, Hypertension, etc.) were considered to be on 12 d of administrative leave. Prayers with congregation were interrupted in mosques and masjids. It was forbidden to perform prayers together including Friday prayers in mosques and masjids. The Ministry of Health Communication Center also set up the "Corona Hotline" on "184". The Ministry of Health announced that all staff leave had been canceled until further order.

Besides the above-mentioned public measures against COVID-19, there were also measures to adopt individually. In this regard, 14 rules were prepared by Turkey's Ministry of Health to protect against the risk of COVID-19. Most participants in the survey stated that they knew 14 rules. All participants knew that they should wash their hands with soap for at least 20 sec. The rule that the participants knew the least was to wash clothes with regular detergent at 60-90 ℃. The 14 rules against COVID-19 and the participants' knowledge of these rules are shown in Table 2 (18).

The most frequently used personal protective material was liquid soap with 96.1%, and the most common symptom of COVID-19 was cough. Closure of schools by 96.6% compared to the participants was the most well-known measure taken against COVID-19 across Turkey. Among the measures taken individually, avoiding COVID-19 patients came first with 99.7%. The distribution of participants' responses to questions about COVID-19 is shown in Table 3.

While the rate of those who wash their hands at every opportunity before the COVID-19 outbreak was 38.2%, this rate was 98.9% after the COVID-19 outbreak. Similarly, the rate of those who washed their hands when coming from outside before the COVID-19 outbreak was 67.4%. This rate was 100% after the COVID-19 outbreak. Changing the hand washing habits of the participants with COVID-19 are shown in Table 4.

Table 2: 14 Rules Against COVID-19 and Participants' Knowledge of These Rules (N=178)

Rules	*n*	*%*
Wash your hands frequently with soap and water for at least 20 sec.	178	100.0
Keep at least 3-4 steps away from people who show signs of a cold.	172	96.6
Cover the mouth and nose with disposable wipes during coughing or sneezing. If there is no wipe, use the inside of the elbow.	165	92.7
Avoid close contacts such as handshaking or hugging.	172	99.6
Do not touch your eyes, mouth, and nose with your hands.	172	96.6
Cancel or postpone your travels abroad.	171	96.1
Spend the first 14 days at home on your return from abroad.	176	98.9
Ventilate your environment frequently.	165	92.7
Wash your clothes with regular detergent at 60-90 ℃	152	85.4
Clean your frequently used surfaces, such as door handles, fixtures, sinks, water and detergent daily.	160	89.9
If you have cold symptoms, do not contact the elderly and those with chronic diseases, do not go out without wearing a mask.	162	91.0
Do not share your personal belongings such as towels.	173	97.2
Eat plenty of fluids, eat a balanced diet, pay attention to your sleep patterns.	167	93.8
If you have a non-falling fever, cough, and shortness of breath, wear a mask and seek medical advice.	174	97.8

Table 3: Distribution of participants responses to questions about COVID-19 (N=178)

Questions	*n*	*%*
The most frequent personal protective material *		
Liquid Soap	171	96.1
The most common symptom of COVID-19*		
Cough	168	94.4
The most hazardous group against COVID-19*		
Older people	153	86.0
The most common cause of COVID-19*		
İmmigrants /Travel	168	94.4
Do you know the measures taken against COVID-19 across Turkey*/**		
Closure of schools	172	96.6
The isolation of elderly people	168	93.8
Closure of common closed areas	160	89.8
Adequate measures taken against COVID-19 in Turkey		
Yes	137	77.0
Measures taken by participant against COVID-19 */**		
Avoiding COVID-19 patients	177	99.7
Frequent hand washing	173	97.2
Avoiding contact with people	163	91.6
Dou you find the stocking of any product correct due to the COVID-19 outbreak?		
Yes	98	55.0
The most frequently stocked products */**		
Food	130	73.0
Cleaning products	64	36.0
Medical drugs	52	29.2
Do you think COVID-19 understood in the community enough?		
Yes	70	39.3
Do you think COVID-19 caused panic in the community?		
Yes	142	79.8
Do you think the COVID-19 process in Turkey is well managed?		
Yes	164	92.1

* Multiple options are marked. ** Three most frequent causes

Table 4: Changed hand washing habits of the participants because of COVID-19 (N=178)

Hand washing habits	*Before COVID-19*		*After COVID-19*	
	n	*%*	*n*	*%*
Washes at every opportunity	68	38.2	176	98.9
Washes when it comes from outside	120	67.4	178	100.0
Washes when dirty	178	100.0	178	100.0
Before and after eating	152	85,.4	177	99.4
After the toilet	170	95.5	178	100.0

Discussion

COVID-19, which is a highly contagious infection, is spread mainly through droplets and direct contact. Although the average incubation period is 5.5 d, it is known to extend up to 14 d (19). Disease symptoms usually appear within the first 11–12 d. The most common symptom in symptomatic cases is fever, fatigue, muscle pain, sore throat and dry cough, less often nausea-vomiting and diarrhea (20). The main reason for hospitalizations is pneumonia (91.0%), acute respiratory distress syndrome (ARDS) in 3.4% cases and shock in 1.1% cases (21).

The total number of cases in SARS is 8000 and the number of cases in MERS is 909 (3). The number of COVID-19 cases that we examined until 27 Mar 2020 has already exceeded 500 thousand (16). The speed of COVID-19 propagation is quite remarkable. While the first 100.000 cases were reached in 67 d, every subsequent 100.000 cases were reached in 9, 7 and 2 d, respectively. Overall, 500.000 cases were reached in less than 48 h. Of course, by the time you read this, the situation will have changed dramatically, such is the speed of the rapidly changing picture of this outbreak. The rapid increase in the number of cases can cause anxiety in the public. We asked the participants in our study, "Do you think COVID-19 caused panic in the community?" 79.8% of the participants said that COVID-19 caused panic in the community. Although it has reached high numbers in terms of case numbers, COVID-19 fatality rate is lower than SARS and MERS. The fatality rate of 11% in the SARS and MERS outbreak was between 35%-50% (3). The fatality rate of COVID-19 was found to be 4.58%, depending on the country (Table 1). Although the fatality rate is lower than SARS and MERS, the number of deaths is high due to the high number of cases. The fatality rates are low can create a panic atmosphere in the communities and adversely affect the process. Psychosocial support could be provided for the whole society. If psychosocial support is not available to the whole community, psychosocial support can be provided to groups at risk, such as individuals over the age of 65 and those with chronic disease, to reduce their anxiety.

There are two critical concepts in preventing the spread of epidemic diseases. These are isolation and quarantine. Isolation is the separation of cases known to have an infectious disease from healthy individuals during the transmission of this disease. Quarantine is the separation of individuals suspected of receiving an infectious disease from both patients and intact during the longest incubation period. The purpose of quarantine is to determine whether the disease will occur in the person. At the end of the quarantine period, the process is terminated if the person is determined not to be infected. Persons identified as infected are isolated (22). One of the ways to prevent the spread of COVID-19 is quarantine.

Turkey has taken measures restricting travel practices in the fight against COVID-19. It has closed all domestic and international flights. It has introduced domestic travel permits. Besides, Turkey repatriated its citizens, especially citizens returning from Umrah were quarantined for 14 d in hotels and dormitories. Cancel or postpone your travels abroad and spend the first 14 d at home on your return from abroad (Table 2). All schools (including universities) have been closed across Turkey. All sports competitions are postponed

indefinitely. Mosques and mosques are closed to worship. It has forbidden it to go out onto the streets in people over 65 yr old and with chronic diseases such as diabetes and hypertension. Video shows have been prepared to prevent people from going out on the street with the slogan of "#stay at home" with mass media such as social media, TV, and radio. Dissemination needs to fulfill the practices that people should do individually. In our study, 91.6% of the participants stated that they kept away from contact with people, 90.4% of them kept their distance from the other, 99.7% of them kept away from those who showed symptoms of the disease (Table 3).

Quarantine applications are critical in combating the COVID-19 outbreak. Countries need to get the necessary practices quickly, and the public must comply with these practices. Besides, it is also vital that the citizens meet the essential needs of the citizens of the countries when they are asked not to go out to prevent the spread of the epidemic.

In short, all health protection practices can be called hygiene (23). In cases where there is not enough hygiene, it poses a risk for water-borne diseases such as diarrhea, dysentery, typhoid and hepatitis A. The development of hygiene education and hand washing by WHO enables diarrhea cases to be reduced by up to 45.0% (24). Hand washing is among the essential protection methods not only for oral-fecal transmitted diseases but also for respiratory diseases (25). According to the meta-analysis results of eight intervention studies evaluating the relationship between hand washing and respiratory tract infections, hand washing reduced the frequency of respiratory tract infections between 6% and 44% in all studies (26). In the global action plan for the prevention and control of WHO's pneumonia, goals have been identified under the main topics of protection, prevention and treatment. One of the listed items under the title of protection aimed at helping children live in a healthy environment is hand washing (27).

One of the 14 rules Turkey's Ministry of Health has stated in the fight against COVID-19 is hand washing. In the rule, "It is necessary to wash your hands frequently with soap for at least 20 sec". In our study, all of the participants stated that the Ministry of Health knew the subject of hand washing (Table 2). 97.2% of the participants stated that they frequently fight with COVID-19 by washing hands frequently. Liquid soap is used as a personal protective material in 96.1% of the participants (Table 3). Moreover, there was a significant change in the hand washing habit of the participants. While the rate of those who stated that they washed their hands at every opportunity before the COVID-19 outbreak was 38.2%, this rate was 98.9% after the outbreak. While the rate of those who say they wash their hands when they come from outside was 67.4% before the COVID-19 outbreak, this rate increased to 100% after the COVID-19 outbreak (Table 4).

Hand washing will be useful in preventing COVID-19 spreading due to the relatively low cost of soap and its easy availability. The relatively cheaper and easy availability of water and soap will also facilitate hand washing. Hand washing habit change, which occurs positively in individuals, is effective in preventing COVID-19 spread. Many municipal water bill debts during the outbreak in Turkey have been postponed.

Conclusion

It is not known how much more COVID-19, which caused hundreds of thousands of cases and thousands of deaths, will affect the public and cause death. This overload affects the health systems of the countries negatively. It not only causes harmful effects on health. It has become a significant public health problem with its effects on many areas such as education, trade, sports and tourism. Besides, it has made it difficult for people to access basic needs such as water, food and cleaning products.

In order to combat COVID-19, we should focus on research into vaccines and drugs, for instance, as well as studies to prevent further spread. The public also needs to comply with these measures and pursue individual measures. Since there may

be many economic effects such as unemployment after the COVID-19, new public health problems should be considered and measures should be taken.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Conflict of interest

The authors declare that there is no conflict of interest.

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