

Knowledge and Attitudes of Hospital Pharmacist About COVID-19

Hastane Eczacılarının COVID-19 Konusunda Bilgi ve Tutumları

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ABSTRACT

Objectives: The COVID-19 cases and deaths related to virus were reported in all over the world. Pharmacists play important roles in conveying accurate information about COVID-19 to the community. In this study, it was aimed to evaluate the knowledge and attitudes of hospital pharmacists about COVID-19.

Materials and Methods: A questionnaire were applied to the pharmacists participating in the 7th National Hospital and Institution Pharmacists Congress. The questions included in this questionnaire were created using the Turkish COVID-19 Scientific Committee guideline (COVID-19 Guideline).

Results: Analyzes of 237 questionnaires (72.6% women) showed that media (television, newspaper), internet (non-scientific resources), internet (scientific resources) and social media were the most popular sources of information (60.3%, 53.6%, 53.2% and 41.4%, respectively). It was detected that the age and source of information that the participants use had an important influence on the participants' knowledge and attitudes towards COVID-19 infection. Majority of the participants (72.6%) were stated that they were not using any mask at all. Transmission of the disease by airborne was well known by the participants (91.1%), as well as the main symptoms such as fever (92.4%), cough (84.4%) and dyspnea (60.3%). The participants were aware of the risk groups for COVID-19 infection such as advanced age (84.8%) and having comorbidities (80.2%). Washing hands with soap (92.0%), using hand disinfectants (80.6%) and avoiding contact with sick people (81.9%) were popular answers for protection from the disease, however using N95 mask was also preferred by 59.1% of the participants. Prevention of the disease with rinsing the nose with saline was believed in by 43.9% of the participants.

Conclusion: Classical media and social media affect the attitudes of both society and health professionals. Using media tools for accurate information is one of the basic conditions for preventing and controlling the spread of the disease.

Key words: COVID-19, hospital pharmacists, knowledge, attitudes

ÖZ

Amaç: Tüm dünyada COVID-19 olguları ve bu hastalığa bağlı ölümler bildirilmiştir. Bir sağlık uzmanı olarak eczacılar COVID-19 hakkında doğru bilgilerin topluma iletilmesinde önemli rol üstlenmektedir. Bu çalışmada hastane eczacılarının COVID-19 hakkındaki bilgi ve tutumlarının değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntemler: Çalışma kapsamında 7. Ulusal Hastane ve Kurum Eczacıları Kongresine katılan hastane eczacılarına bir anket uygulandı. Bu ankette yer alan sorular, Türkiye COVID-19 Bilim Kurulu Kılavuzu (COVID-19 Kılavuzu) kullanılarak oluşturulmuştur.

Bulgular: Çalışmada %72,6'sı kadın olmak üzere toplam 237 katılımcıya ait anket değerlendirilmiştir. Katılımcıların bilgi kaynağı olarak en çok medyayı (televizyon, gazete), interneti (bilimsel kaynaklar), interneti (bilimsel olmayan kaynaklar) ve sosyal medyayı kullandığı saptanmıştır (sırasıyla %60,3, %53,6, %53,2 ve %41,4). Katılımcıların COVID-19 ile ilgili bilgi ve tutumlarında yaşın ve kullandıkları bilgi kaynaklarının önemli etkisinin olduğu belirlenmiştir. Katılımcıların %72,6'sı korunma amaçlı cerrahi maske kullanmadığını bildirmiştir. Katılımcıların, hastalığın damlacıkla bulaştığı (%91,1) ve hastalığın genel semptomları (ateş; %92,4, öksürük; %84,4, solunum güçlüğü %60,3) konularında bilgi sahibi oldukları görülmüştür. Katılımcıların geneli tarafından, ileri yaşın (%84,8) ve eşlik eden hastalıkların (%80,2) COVID-19 için risk faktörü olduğunun bilindiği saptanmıştır. Hastalıktan korunmak için ellerin sabunla yıkanması (%92,0), el dezenfektanı kullanılması (%80,6), hasta kişilerle temasın önlenmesi (%81,9) sıklıkla belirtilen cevaplar arasında yer alsa da, katılımcıların %59,1'i N95 maske kullanımının da gerekli olduğunu belirtmiştir. Katılımcıların %43,9'unun tuzlu su ile burnu yıkamanın, hastalığı önlemede etkili olduğuna inandığı görülmüştür.

Sonuç: Klasik medya ve sosyal medya toplumun ve sağlık profesyonellerinin tutumlarını etkilemektedir. Doğru bilginin sağlanması için medya araçlarını kullanmak, hastalığın yayılmasını önlemek ve kontrol etmek için önemlidir.

Anahtar kelimeler: COVID-19, hastane eczacıları, bilgi, tutum

INTRODUCTION

In December 2019, a new, severe pneumonia outbreak occurred in Wuhan, China, and a new coronavirus was identified as a causing pathogen. Firstly, this virus was named as 2019-nCoV (2019 Novel Coronavirus) and later as SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), and the disease caused by this virus has been named as COVID-19 (Coronavirus Diseases 2019).¹

The COVID-19 positive cases and deaths related due to this virus were reported in almost all countries over the world.² Coronaviruses are a family of viruses that can cause mild diseases, such as the common cold, and more serious diseases such as the Middle East Respiratory syndrome (MERS-CoV) or Severe Acute Respiratory syndrome (Severe Acute Respiratory syndrome, SARS-CoV). SARS-CoV-2, which is currently the cause of a pandemic and is the subject of this survey, is a virus from this family. Coronaviruses are mainly zoonotic and can cause disease in humans as a result of transmission from animals.³

The most common symptoms of infection are fever, cough, and dyspnea. In more serious cases pneumonia, severe acute respiratory syndrome, kidney failure and death may develop.⁴ The available data show that the rate of fatal cases and the rate of fatality are not very high in the young population.⁵ However, older people (over 60 years) and people with comorbidities (such as diabetes and heart disease) may be more vulnerable and mortality can be high in this population.³

So far, there is no specific, effective, proven, pharmacological treatment and prophylaxis. Although there is no vaccine or drug developed for this infection, it has been suggested that some existing drugs can be used for treatment.⁶

As a healthcare professional, pharmacists play important roles in conveying accurate information about COVID-19 to the community. In this study, it was aimed to evaluate the knowledge and attitudes of hospital pharmacists about COVID-19.

MATERIALS AND METHODS

The two pages self-structured questionnaire consisted of 22 multiple choice and/or open-ended questions was applied to pharmacists participating in the 7th National Hospital and Institution Pharmacists Congress held between 4-7 March 2020 in Turkey. The first positive COVID-19 case in Turkey was identified on March 10, 2020, therefore no COVID-19 case was existed in Turkey during the date of the study. Also, none of the presentations in the congress were related to COVID-19 infection. A total of 2747 hospital pharmacists are available in Turkey.⁷ The sample size for this study was calculated as 155 people with an 80% confidence level and a 5% margin of error. The questionnaire was distributed to the participants who attended the first session of the 2nd day of the congress. At the end of the session, the questionnaires were recollected from the participants.

The questions included in this questionnaire was created using guideline (COVID-19 Guideline) created by the Turkish COVID-19

Scientific Committee and the COVID-19 information shared in the Ministry of Health website (<https://hsigm.saglik.gov.tr/tr/bulasici-hastaliklar/2019-n-cov.html>)

The questionnaire did not include the name and surname of the participants, and the data were obtained anonymously. Age, gender, duration (year) of work in the profession and job title were collected as demographic data. Participants' flu vaccination status was questioned to evaluate their attitudes on protection from infection. The names of the two coronaviruses that had previously made significant outbreaks were asked to understand their interest in the issue (open-ended, no options questions). Other multiple-choices fifteen questions were asked about the sources of information, knowledge, thoughts and attitudes about COVID-19. The participants were informed to choose only one answer for some of the questions (n=4) and more than one answer for the others (n=8). Also, there were 5 true/false questions. "Other" option was provided as a choice for each question and explanation was expected if this option was marked. Answers to the other option are given in brackets in the results.

The results obtained were analyzed using IBM SPSS Statistics for MacOS, version 23.0 (IBM Corp., Armonk, N.Y., USA). Percentage, average and standard deviation, median and minimum-maximum were used for descriptive data. A Chi-square test was used to compare categorical variables. A 95% confidence interval was applied to examine the change in data and $p < 0.05$ was considered statistically significant for all tests.

RESULTS

A total of 550 pharmacists participated to the congress and 440 (80%) of them were hospital pharmacists. Approximately 300 questionnaires were distributed to participants during the session. The questionnaire was filled by 268 participants. A total of 31 questionnaires was excluded because either the participants were not pharmacists (n=2) or not hospital pharmacists (n=24) or incomplete data (n=5). Analyzes were performed with a total of 237 questionnaires.

The majority of the participants were women (n=172, 72.6%) and between the ages of 20-39 (n=159, 67.8%) (Table 1). Only 6.8% (n=16) of the participants stated that they were vaccinated for influenza every year and 5.1% (n=12) stated that they were vaccinated for influenza this year.

SARS-CoV was written by 157 (66.2%) and MERS-CoV was written by 99 (41.8%) participants to the "What are the two coronaviruses that had previously made important epidemics?" question. Other answers were H1N1 (Swine Flu) (n=33, 13.9%), H5N1 (Bird Flu) (n=13, 5.5%), Ebola (n=11, 4.6%), influenza (n=3, 1.3%), HCoV-229E (n=2, 0.8%), HCoV-OC43 (n=1, 0.4%), H2N2 (n=1, 0.4%). The majority of the participants (139 out of 232, 59.9%) stated that they had a fear of being infected with SARS-CoV-2. Only 43 out of 216 (18.1%) participants reported that there is an effective antiviral drug against the COVID-19 disease.

Answers of participants about the COVID-19 questionnaire were given in Table 2, 3 and 4.

Table 1. Demographic characteristics of the participants

Parameters		n (%)
Gender	Female	172 (72.6)
	Male	65 (27.4)
Age	20-29 years	80 (33.8)
	30-39 years	79 (33.3)
	40-49 years	54 (22.8)
	50-59 years	18 (7.6)
	≥ 60 years	6 (2.5)
How many years have you been working?	<5 years	4 (31.2)
	5-10 years	48 (20.3)
	11-20 years	62 (26.2)
	20 years and older	53 (22.4)

Table 2. Knowledge questions about COVID-19 disease

Questions	Answers*	n (%)
When will the outbreak end? (n=222)	When the air temperature rises	87 (39.2)
	Within 1-2 months	34 (15.3)
	6 months to 1 year	66 (29.7)
	Within 1-2 years	18 (8.1)
	Within 2-5 years	10 (4.5)
	Within 5-10 years	1 (0.5)
	After 10 years	3 (1.4)
	Other (it will not end)	3 (1.4)
What is the first source of the infection? (n=212)	It is not known clearly.	112 (52.8)
	Bats	78 (36.8)
	Pangolins	19 (9.0)
	Humans	3 (1.4)
	Camels	0 (0.0)
How long is the incubation period of the disease? (n=220)	<2 days	2 (0.9)
	2-4 days	176 (80.0)
	15-28 days	41 (18.6)
	>28 days	1 (0.5)
What is the mortality rate from COVID-19? (n=209)	0-1%	21 (10.0)
	1.1-5%	127 (60.8)
	5.1-10%	45 (21.5)
	10.1-25	13 (6.1)
	>25%	3 (1.4)

*only one option was chosen

Participants' knowledge and attitudes towards COVID-19 infection were compared according to the source of information that they learned COVID-19 infection and statistically significant

findings were detected only in the issues given below.

When attitudes of 'the participants that learned information through social media' and 'those not' were compared, statistically significant differences were determined in;

- their behavior in using a mask in crowded environments (14.5% and 5.3%, respectively; $p=0.016$);
- their knowledge on transmission of the disease through kissing (61.2% and 43.9%, respectively; $p=0.012$) and through blood (19.4% and 8.6%, respectively; $p=0.019$);
- their knowledge on prevention of the disease with rinsing the nose with saline (54.1% and 36.7%, respectively; $p=0.011$) and eating mulberry molasses (7.1% and 1.4%, respectively; $p=0.035$);
- their belief in protection from the disease with N95 mask use (69.4% and 51.8%, respectively; $p=0.007$), with protective eyeglass use (32.7% and 18.0%, respectively; $p=0.015$) and with medical glove use (48.0% and 31.7%, respectively; $p=0.014$).

When attitudes of 'the participants that used the internet (scientific resources) as information source' and 'those not' were compared, statistically significant differences were detected in;

- their belief in transmission of COVID-19 by shipments from China (42.7% and 58.9%, respectively; $p=0.021$);
- their behaviors in protection from the disease with washing hands more than ever (91.3% and 77.5%, respectively; $p=0.004$), with using a mask in public transport (11.9% and 2.7%, respectively; $p=0.012$), with using a mask while traveling (14.3% and 5.4%, respectively; $p=0.030$), with using a mask in crowded environments (15.9% and 1.8%, respectively; $p<0.001$). However, respectively 62.7% and 83.8% of the participants stated that they were not using a mask at all ($p<0.001$).

Statistically significant differences were also detected in the comparison of the attitudes and knowledge of 'the participants that learned information from family/friends' and 'those not' in some points such as;

- their knowledge on prevention of the disease with eating mulberry molasses (13.3% and 2.4%, respectively; $p=0.017$);
- their knowledge in protective role of using surgical mask (66.7% and 33.3%, respectively; $p=0.001$), using protective eyeglasses (40.0% and 22.2%, respectively; $p=0.042$) and wearing protective clothing (50.0% and 20.8%, respectively; $p=0.001$).

When attitudes of 'the participants that learned information from educational/scientific meetings' and 'those not' were compared, statistically significant differences were detected in their knowledge in the protective role of washing hands (98.5% and 89.5%, respectively; $p=0.029$) and using a surgical mask (51.5% and 32.2%, respectively; $p=0.007$).

When attitudes of 'the participants that used the internet (non-scientific resources) to learn information for COVID-19' and 'those not' were compared, statistically significant differences

Table 3. The approach of the participants to true-false knowledge questions about the COVID-19

Proposal	True, n (%)	False, n (%)
Coronaviruses are zoonotic viruses, mainly causing infection in animals (n=228)	161 (70.6)	67 (29.4)
COVID-19 is a vaccine-preventable disease (n=226)	102 (45.1)	124 (54.9)
COVID-19 can be treated with antiretroviral drugs (n=223)	109 (48.9)	114 (51.1)
In our country, the necessary facilities are available to diagnose COVID-19 (n=229)	160 (69.9)	69 (30.1)
There is a possibility of SARS-CoV-2 infection from packages or products from China (n=230)	89 (38.7)	141 (61.3)

were determined in their knowledge on transmission of the disease through kissing (57.5% and 43.6%, respectively; $p=0.038$).

When attitudes of 'the participants under the age of 40 years' and 'over the age of 40 years' were compared, statistically significant differences were detected in some points such as their belief in the protective role of echinacea (13.2% and 1.3%, respectively; $p=0.002$), sexually transmission of the infection (13.8% and 1.3%, respectively; $p=0.002$) and transmission of the infection from mother to baby at birth (13.2% and 0%, respectively; $p<0.001$).

When attitudes of 'the participants that believe in COVID-19 is transmitted by airborne' and 'those not' were compared, statistically significant differences were determined only in;

- their belief in protection from the disease by washing hands with soap (96.8% and 42.9%, respectively; $p<0.001$), by using hand disinfectants (84.3% and 42.9%, respectively; $p<0.001$), by avoiding contact with sick people (86.1% and 38.2%, respectively; $p<0.001$), by using N95 mask (64.8% and 0%, respectively; $p<0.001$), by using medical gloves (41.7% and 4.8%, respectively; $p=0.001$) and by wearing protective clothing (26.4% and 4.8%, respectively; $p=0.031$);
- their knowledge on prevention of the disease with rinsing the nose with saline (46.8% and 14.3%, respectively; $p=0.005$);
- their behaviors that they implemented to protect against COVID-19 infection such as;
- canceling meetings and activities with friends (18.5% and 0%, respectively; $p=0.029$),
- reducing public transportation use (47.7% and 14.3%, respectively; $p=0.005$),
- minimizing shopping malls visits (51.4% and 9.5%, respectively; $p<0.001$),
- minimizing indoor activities such as theater and cinema (38.4% and 4.8%, respectively; $p=0.001$),
- trying to stay away from coughing people (68.5% and 23.8%, respectively; $p<0.001$),
- trying to touch less frequently where people touch (76.9% and 28.6%, respectively; $p<0.001$),
- washing hands more than ever (89.8% and 33.3%, respectively; $p<0.001$).

DISCUSSION

Providing drug information to patients, caregivers and healthcare professionals is one of the main responsibilities of all pharmacists.⁸ In these days when the number of COVID-19 positive cases continues to increase in our country, healthcare professionals must have accurate and reliable information to inform society properly. Health professionals have important roles in reducing the sense of panic in the community, leading individuals to take measures without panic and convincing them to continue their lives by taking precautions.⁹

At the end of January, a survey was conducted to evaluate the knowledge, attitudes and practices of the community in China. More than half of the participants included in this study were living in the Hubei region, where the disease first appeared. In this study, correct answers were given to 70.2% to 98.6% of the questions about COVID-19. It was found that people between the ages of 30-49, people with higher educational status (master degree and above) and students had more right approach to the questions. It was found that the rate of wearing a mask and level of knowledge was significantly higher in participants living in Hubei.¹⁰ By the time the survey was conducted, so many people in China were diagnosed with COVID-19 infection and many people died due to it. However, during the time of the questionnaire applied in our study, there was no positive COVID-19 case in Turkey. The first positive case was detected 5 days later and then more educational/informational programs organized by the Ministry of Health showed on media for the awareness of the community.

According to available data, close contacts, droplets and aerosol were defined as transmission routes of COVID-19.¹¹ In our study, almost all of the participants stated that it was transmitted by airborne. Some common traditional behaviors in Turkish society such as hugging and kissing (from cheeks or hands of elderly) are risky sources of close contact and can cause disease transmission.¹² The participants were also mentioned handshaking and kissing as transmission routes.

In this study, it was determined that the participants generally used media, internet and social media as resources. It was detected that the source of information that the participants learned COVID-19 infection had an important influence on the participants' knowledge and attitudes towards COVID-19 infection. The participants that used the internet (scientific resources) as information sources had the right approaches especially in behaviors of protection from the disease (such as washing hands more than ever, using a mask in public

Table 4. Knowledge and attitude questions about COVID-19 disease

Questions	Answers*	n (%)
From which source (s) did you learn about COVID-19?	Media (TV, newspaper)	143 (60.3)
	Internet (non-scientific resources)	127 (53.6)
	Internet (scientific resources)	126 (53.2)
	Social media	98 (41.4)
	Educational/scientific Meeting	66 (27.8)
	Friends/family	30 (12.7)
	Courses	2 (0.8)
	I did not get information	1 (0.4)
Do you use a mask for COVID-19?	I do not use	172 (72.6)
	While traveling	24 (10.1)
	In crowded environments	22 (9.3)
	At the workplace	21 (8.9)
	In public transport	18 (7.6)
	While walking on the streets	1 (0.4)
	I always use	1 (0.4)
	Every time I leave home	0 (0.0)
In which way(s) is COVID-19 transmitted?	It is transmitted by airborne	216 (91.1)
	Kissing	121 (51.1)
	Shaking hands	89 (37.6)
	It is transmitted by blood	31 (13.1)
	With sexual intercourse	23 (9.7)
	From mother to baby during childbirth	21 (8.9)
What is the symptom(s) of the infection?	Fever	219 (92.4)
	Cough	200 (84.4)
	Dyspnea	143 (60.3)
	Pneumonia	91 (38.4)
	Runny nose	64 (27.0)
	Sudden loss of consciousness	24 (10.1)
	Diarrhea	15 (6.3)
	Kidney failure	10 (4.2)
	Bleeding	4 (1.7)
Other (Nausea)	1 (0.4)	

transport, using a mask while traveling, using a mask in crowded environments). The participants that learned information from educational/scientific meetings had also the right approaches in protection from the disease (such as washing hands and using a surgical mask). However, the participants that learned information from family/friends also had wrong approaches mainly in the prevention of the disease (such as eating mulberry

Who is more affected by COVID-19?	Advanced age	201 (84.8)
	People with comorbidities such as asthma, diabetes and heart disease.	190 (80.2)
	Children	70 (29.5)
	Pregnant people	48 (20.3)
	Young adults	7 (3.0)
	Other (immunocompromised individuals)	2 (0.8)
Which should be applied to protect from COVID-19?	Washing hands with soap	218 (92.0)
	Avoiding contact with sick people	194 (81.9)
	Using hand disinfectant	191 (80.6)
	Using an N95 mask	140 (59.1)
	Using medical gloves	91 (38.4)
	Using a surgical mask	89 (37.6)
	Covering the nose and mouth with tissue paper	82 (34.6)
Which can prevent COVID-19?	Using protective eyeglasses	58 (24.5)
	Wearing protective clothing	58 (24.5)
	Rinsing the nose with saline	104 (43.9)
	Using vinegar	51 (21.5)
	Using ginger	24 (10.1)
	Using turmeric	23 (9.7)
	Using echinacea	22 (9.3)
	Eating mulberry molasses	9 (3.8)
	Using pomegranate peel	7 (3.0)
Other (alkaline disinfectants, vaccination, vitamin c, drinking plenty of liquid, ethanol, drinking warm water, black elderberry, sheep's head and foot soup, cologne, propolis)	12 (5.1)	
What behaviors do you implement to protect against COVID-19?	I wash my hands more than ever	201 (84.8)
	I try to touch less frequently where people touch	172 (72.6)
	I try to stay away from coughing people	153 (64.6)
	I go to shopping malls less	113 (47.7)
	I reduce my use of public transportation	106 (44.7)
	I participate less in indoor activities such as theater and cinema	84 (35.4)
I cancel my meetings and activities with my friends	40 (16.9)	

*More than one option was chosen

molasses) and in protection from the disease (such as using protective eyeglasses and wearing protective clothing). The participants that learned information through social media had

wrong approaches especially in the transmission of the disease (such as through blood), prevention of the disease (such as rinsing the nose with saline and eating mulberry molasses) and in protection from the disease (such as the N95 mask, protective eyeglass and medical glove use). It is recommended that N95 mask should be used by healthcare workers and surgical-medical masks should be used by patients with respiratory symptoms in public.¹¹

Some misleading information such as rinsing the nose with saline or consumption of some foods or products (e.g. using vinegar, echinacea, mulberry molasses) has been proposed by either some physicians or some leading people on TV programs in Turkey. Even though these statements were objected and corrected by other physicians and experts, some of the participants' preference for these methods (especially rinsing nose with saline) reveals the strong influence of the media.

In this study, it was detected that age is another factor that influences the participants' knowledge and attitudes towards COVID-19 infection. The participants under the age of 40 had wrong approaches especially in the protective role of echinacea and transmission routes of the disease (such as sexually and from mother to baby at birth).

SARS-CoV and MERS-CoV diseases were known by approximately half of the participants mean that half of the participants were not interested in this issue. The majority of the participants were mostly believed that the pandemic would end when the air temperature rises or in a period of 6 months-1 years. In the study of Zhong et al.¹⁰, 91% of the participants indicated that COVID-19 would be successfully controlled. In the studies conducted in the SARS-CoV epidemic, most of the participants (70.1-88.9%) stated that the epidemic would be successfully controlled. The fact that rapid restrictive measures were taken in the SARS-CoV epidemic and COVID-19 pandemic in China may be the source of this trust. While it is often thought that the first source of infection is unknown, bats are the most expressed answer by the participants. In our study, the incubation period is correctly known to almost all of the participants as in stated by Chinese guidelines (average 7 days, ranging from 2 to 14 days).¹³

Although mortality rates vary between countries, almost all the respondents stated the mortality rate of 1-10% in this study and these rates are generally correct. The case-fatality rate was found to be 2.3% in a wide-ranging assessment in China.¹⁴ The average mortality rate is thought to be between 2-5%. Coronaviruses are zoonotic viruses, in this study, 70% of the participants answered this question correctly.¹⁵ Although there is no vaccine discovered yet, many vaccine studies are ongoing and COVID-19 is expected to become a vaccine-preventable disease.^{16,17} Even though no vaccine currently available, nearly half of the participants in this study stated that COVID-19 is a vaccine-preventable disease, which might be due to extrapolation of the knowledge of other flu-like viral infections. Many drugs are being tried for the treatment of COVID-19, and the effectiveness of these drugs has been demonstrated by some observational studies.^{16,18} Some of these drugs are

antiretroviral drugs. In this study, it is understood that almost half of the participants are aware of this information.

In the study of Zhong et al.¹⁰, it was found that almost all of the participants were away from the crowded place (96.4%) and they always used masks (98.0%) when they went out. Because no positive COVID-19 case was existed in Turkey at the time of our study, 72.6% of the participants were stated that they were not using a mask.

Study limitations

This study has some limitations. Due to this study was conducted during the congress, it was limited with the congress participants most of the participants were women. However, one of the strengths of the study is that the people attending congress came from many different cities of Turkey and the age distribution of the participants was homogeneous. Another limitation of the study is that attitudes and beliefs have not been evaluated standardized and adequately, in-depth interviews and multidimensional measurements may be required for this assessment.

CONCLUSION

In conclusion, it is important for pharmacists to have correct information about COVID-19 and to convey this knowledge and beliefs to society. Classical media and social media affect the attitudes of both society and health professionals. In addition, the high level of knowledge of individuals also positively affects their attitudes. Using media tools for accurate information is one of the basic conditions for preventing and controlling the spread of the disease. In this regard, studies evaluating the knowledge, beliefs and attitudes of other healthcare professionals and other segments of the society are required.

REFERENCES

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med.* 2020;382(8):727-33.
2. World Health Organisation. Weekly Surveillance Report. Available at: <http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/weekly-surveillance-report>. Accessed: April 2, 2020.
3. Lu R, Zhao X, Li J, Niu P, Yang B, Wu H, et al. Genomic characterisation and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *Lancet.* 2020;395(10224):565-74.
4. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020;395(10223):497-506.
5. Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72314 Cases From the Chinese Center for Disease Control and Prevention. *JAMA.* 2020.
6. Lim J, Jeon S, Shin HY, Kim MJ, Seong YM, Lee WJ, et al. Case of the Index Patient Who Caused Tertiary Transmission of COVID-19 Infection in Korea: the Application of Lopinavir/Ritonavir for the Treatment of COVID-19 Infected Pneumonia Monitored by Quantitative RT-PCR. *J Korean Med Sci.* 2020;35(6):e79.

7. T.C. Sağlık Bakanlığı Sağlık Bilgi Sistemleri Genel Müdürlüğü. Sağlık İstatistikleri Yıllığı 2018. Ankara 2019.
8. Ghaibi S, Ipema H, Gabay M, American Society of Health System P. ASHP guidelines on the pharmacist's role in providing drug information. *Am J Health Syst Pharm.* 2015;72(7):573-7.
9. Woods C, West C, Buettner P, Usher K. "Out of our control": living through Cyclone Yasi. *Int J Qual Stud Health Well-being.* 2014;9:19821.
10. Zhong BL, Luo W, Li HM, Zhang QQ, Liu XG, Li WT, et al. Knowledge, attitudes, and practices towards COVID-19 among Chinese residents during the rapid rise period of the COVID-19 outbreak: a quick online cross-sectional survey. *Int J Biol Sci.* 2020;16(10):1745-52.
11. Adhikari SP, Meng S, Wu YJ, Mao YP, Ye RX, Wang QZ, et al. Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: a scoping review. *Infect Dis Poverty.* 2020;9(1):29.
12. Marchiori BE, Carraher CE, Stiles K. Understanding and overcoming business etiquette differences in Japan, Turkey, and the United States of America. *Journal of Technology Management in China.* 2014.
13. National Health Commission of People's Republic of China. Prevent guideline of 2019-nCoV. 2020. Available at: <http://www.nhc.gov.cn/xcs/yqfkdt/202001/bc661e49b5bc487dba182f5c49ac445b.shtml>. Accessed April 1, 2020. [
14. [The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China]. *Zhonghua Liu Xing Bing Xue Za Zhi.* 2020;41(2):145-51.
15. Wu YC, Chen CS, Chan YJ. The outbreak of COVID-19: An overview. *J Chin Med Assoc.* 2020;83(3):217-20.
16. Li H, Zhou Y, Zhang M, Wang H, Zhao Q, Liu J. Updated approaches against SARS-CoV-2. *Antimicrob Agents Chemother.* 2020.
17. Ahmed SF, Quadeer AA, McKay MR. Preliminary Identification of Potential Vaccine Targets for the COVID-19 Coronavirus (SARS-CoV-2) Based on SARS-CoV Immunological Studies. *Viruses.* 2020;12(3).
18. Sarma P, Prajapat M, Avti P, Kaur H, Kumar S, Medhi B. Therapeutic options for the treatment of 2019-novel coronavirus: An evidence-based approach. *Indian J Pharmacol.* 2020;52(1):1-5.