ORIGINAL ARTICLE
DOI: 10.4274/tjps.galenos.2020.01212

Community Pharmacists' Knowledge, Attitudes and Impressions About COVID-19 Pandemic and Factors Effecting This

Serbest Eczacıların COVID-19 Pandemisi Hakkında Bilgi, Tutum ve İzlenimleri ve Bunu Etkileyen Faktörler

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30.10.2020
07.12.2020

ABSTRACT
Introduction: COVID-19 related cases and deaths are ongoing through the world but still there are no effective vaccines and drugs. It is important for the prevention and control of the disease that pharmacists have sufficient knowledge and awareness. COVID-19 has been widely covered in media, and the media has been a commonly used source by healthcare professionals. This study aimed to assess the knowledge, attitudes and impressions of community pharmacists about COVID-19 and factors effecting this.
Methods: The questions in this survey were formed using guideline created by WHO, guide composed by the Turkish COVID-19 Scholarly Commission and data declared in the Ministry of Health website. The questionnaire was designed on Google forms and then applied to the community pharmacists all over the Turkey by sharing the survey link.
Results: Analyzes of 393 questionnaires showed that ministry of health / government statements, internet (scientific sources) and media were the most preffered sources for information (96.7%, 89.6% and 84%, respectively). 'Ways to be protected against COVID-19' was the most searched title (96.9%). Hydroxychloroquine and azithromycin were the name of the two drugs mostly written (57.5% and 50.1%, respectively) for the treatment of COVID-19 in Turkey. It was determined that the participants receiving information from media provided less training to patients / customers on personal protection measures against COVID-19 (83.3%) and COVID-19 symptoms (78.8%); however their behavior in training pharmacy staff is just the opposite of this. Approximately half of the participants (46.6%) trust the Ministry of health the most regarding the COVID-19 pandemic.
Discussion and Conclusion: Media and other sources affect pharmacists' knowledge, behavior and impressions. High level of knowledge positively affects people's behavior. It is important that pharmacists should have accurate information about COVID-19 and transfer

their knowledge to the society and to provide patient education in order to prevent and control the spread of COVID-19.
Keywords: COVID-19, pandemic, community pharmacists, knowledge, attitude

ÖZ

Giriş ve Amaç: COVID-19 kaynaklı vakalar ve ölümler dünya çapında devam etmekte ancak hala etkili bir aşı ve ilaç bulunmamaktadır. Salgın sürecinde önemli rol oynayan eczacıların, yeterli bilgi ve farkındalığa sahip olmaları hastalığın önlenmesi ve kontrolü için önemlidir. COVID-19 medyada geniş yer bulmakla birlikte medya, sağlık uzmanları tarafından yaygın olarak kullanılan bir kaynak olmuştur. Bu çalışma, serbest eczacıların COVID-19 hakkındaki bilgi, tutum ve izlenimlerini ve bunu etkileyen faktörleri değerlendirmeyi amaçlamaktadır.
Yöntem ve Gereçler: Bu anketteki sorular, DSÖ tarafından oluşturulan kılavuz, Türkiye COVID-19 Bilim Kurulu'nun oluşturduğu COVID-19 Kılavuzu ve Sağlık Bakanlığı internet sitesinde açıklanan veriler kullanılarak oluşturulmuştur. Anket Google form üzerinde oluşturuldu ve ardından anketin linki paylaşılarak Türkiye'nin dört bir yanındaki serbest eczacılara uygulandı.
Bulgular: 393 anketin analizi sağlık bakanlığı / hükümet açıklamaları, internet (bilimsel kaynaklar) ve medyanın bilgi almak için en çok tercih edilen kaynak (sırasıyla % 96,7; % 89,6 ve % 84) olduğunu göstermiştir. Katılımcılar tarafından en çok aranan başlığın "COVID-19'a karşı korunma yolları" olduğu bulunmuştur (% 96,9). Türkiye'de COVID-19 tedavisinde kullanım için katılımcılar tarafından en çok yazılan üç ilacın adının hidroksiklorokin ve azitromisin (sırasıyla % 57,5; % 50,1) olduğu tespit edilmiştir. Medyadan bilgi alan katılımcıların hastalara / müşterilere COVID-19'a karşı kişisel korunma önlemleri (% 83,3) ve COVID-19 semptomları (% 78,8) konusunda daha az eğitim verdiği; ancak eczane personelinin yetiştirilmesi konusundaki davranışlarının bunun tam tersi olduğu görülmüştür. COVID-19 salgın süreci ile ilgili olarak katılımcıların yaklaşık yarısının (% 46,6) en çok T.C. Sağlık Bakanlığı'na güvendiği tespit edilmiştir.
Tartışma ve Sonuç: Medya ve diğer kaynaklar eczacıların bilgi, davranış ve izlenimlerini etkilemektedir. Yüksek düzeyde bilgi sahibi olmak, insanların davranışlarını olumlu yönde etkilemektedir. Eczacıların COVID-19 hakkında doğru bilgiye sahip olmaları ve edindikleri bilgileri topluma aktarmaları ve COVID-19'un yayılmasını önlemek ve kontrol altına almak için hasta eğitimi vermeleri önemlidir.
Anahtar kelimeler: COVID-19, pandemi, serbest eczacılar, bilgi, tutum

INTRODUCTION

In December 2019, the pathogen named as the novel coronavirus (2019-nCoV) caused an outbreak of coronavirus disease 2019 (COVID-19) in Wuhan, Hubei Province, China.[1] The virus was highly infectious, spreading rapidly via human-to-human transmission.[2] Consequently COVID-19 rapidly spread from the first epicenter, the city of Wuhan, into neighboring countries, and it was declared as a global pandemic by World Health Organization (WHO) and the name of the pathogen was renamed as novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[2,3]

Common signs of SARS-CoV-2 infection include respiratory symptoms, fever, cough, shortness of breath and breathing difculties. In more severe cases, infection can cause pneumonia, severe acute respiratory syndrome, organ failure and even death.[1] As of October 20th 2020, SARS-CoV-2 has caused 40,693,256 infections and 1,123,596 deaths worldwide and still there are no effective vaccine products and drugs to prevent and treat the COVID-19

infection.
(https://www.worldometers.info/coronavirus/?utm_campaign=homeAdvegas1?#countries).

Pharmacists have always been the initial stop of contact for healthcare delivery and played important roles during pandemics and viral epidemics. These comprise vaccination, drug delivery, health training and supplying direct patient care in case of extraordinary circumstances, as along the H1N1 pandemic., In addition, it was determined that cases with suspected COVID-19 applied to nearby health centers such as pharmacies for medical assistance. For this reason, it is vital to create sufficient knowledge and awareness among pharmacists about the pandemic and to identify the factors that direct their perceptions and behaviors, for the prevention and control of the disease.

Since the first day of the outbreak, COVID-19 has been widely covered in media news, press and social media. It has been observed that the media facilitates both healthcare professionals and the general public to achieve actual information that improves knowledge, awareness and implementation. Media also acts an important part in the communication among investigators, scientists, general health experts and funding organs for an efficient and swift global reply.,[1] This research aimed to assess the knowledge and attitudes of community pharmacists about COVID-19 and the role of the media and other factors in shaping pharmacists' knowledge, perception and attitudes during the COVID-19 pandemic.

MATERIALS AND METHODS

This is a cross-sectional study based on self-reported questionnaire. The study was conducted between May 2020 and July 2020 during the quarantine period. As it was not feasible to conduct a population-based survey at that time, a questionnaire was designed on Google forms, and a link was shared using social media applications to invite community pharmacists from all over the Turkey to participate in the study. Pharmacists were given information before their participation about the aim and description of the study and that their attendance is anonymous, voluntary, and that their data will be treated as concealed. The mean finishing period of the questionnaire was 13 minutes. Ethical approval was obtained from Acıbadem Mehmet Ali Aydınlar University and Acıbadem Healthcare Institutions Medical Research Ethics Committee (reference number: 2020-09/18) for conducting the study. All procedures performed in the study involving human participants followed the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration.
The questions in this survey were formed using guideline [Survey tool and guidance: behavioural insights on COVID-19 (2020)] created by World Health Organization, guide (COVID-19 Guide) composed by the Turkish COVID-19 Scholarly Commission and the COVID-19 data declared in the Ministry of Health internet site.[11] (https://hsgm.saglik.gov.tr/tr/bulasici-hastaliklar/2019-n-cov.html). The name and surname of the participants were not included in the survey and the data were taken anonymously. Age, gender, education level, working period in the profession (year) and location and the city of their pharmacy were collected as demographic data. The names of the medicines which are being used in Turkey, for the treatment of COVID-19 were asked for understanding participants' interest to the treatment of COVID-19 (open-ended, no options questions). Other multiple-choices twenty nine questions were about the resources of info, knowledge, opinion, impressions and behaviors about COVID-19. Participants were informed about choosing a single reply for 9 questions in the questionnaire and choosing multiple replies for the other 14 questions. The questionnaire also included 6 true/false questions. For each

question, the option "other" was presented as an option, and if this option was selected, an explanation was expected.
A total of 26,759 community pharmacists are available in Turkey (https://dergi.tebeczane.net/public_html/kitaplar/bilgilendirmekitapcigi/html5/index.html?&locale=TRK&pn=21). The sample size was calculated as 379 participants with 95% confidence level and 5% margin of error.
Analysis was performed using SPSS version 22.0. All data were considered to be statistically significant at p-value<0.05 and 95% confidence interval. Percentage, mean and standard deviation, median and minimum-maximum were used for descriptive data. Chi-square tests were used in the analysis of categorical data.

RESULTS

393 pharmacists participated in this research. The predominance of the participators were female (n=262, 66.7%) and their ages vary among 30-39 (n=139, 35.3%). 68.7% (n=270) of the pharmacists' pharmacy was out of İstanbul. Demographic characteristics of the participants are presented in Table 1.

58.5% (n=230) of the participants declared that the first source of infection is not known clearly and 66.9% (n=263) of the participants stated that the incubation period of the COVID-19 is 14 days (Table 2). 62.8% (n=247) of the participants expressed that the COVID-19 is a vaccine-preventable disease (Table 3) and 38.7% (n=152) of the participants specified that the vaccine will be found within 6-12 months and it will accelerate the end of the pandemic (Table 5).

Approximately all of the participants got information from ministry of health / government statements (n=380, 96.7%). Internet (scientific sources) was the second most preferred source (n=352, 89.6%) and media was the third preffered source (n=330, 84%) (Table 4). 'Ways to be protected against COVID-19' was the most searched title by the participants (n=381, 96.9%). 89.3% (n=351) of the participants declared that they have made the arrangement(s) in their pharmacies to be at least 1-2 meters distance between the patients. 77.9% (n=306) of the participants have given training to pharmacy staff and 68.4% (n=269) of the participants have given training to patients / customers about the COVID-19 (Table 4).

Participators' knowledge and behaviors towards COVID-19 infection were evaluated in accordance with the first three most preferred sources that they learned information about COVID-19 infection and statistically significant datas were found only in the issues specified below.

When behaviours of the pharmacists "who received info from Ministry of Health/Government Declarations" and "those who did not" were compared, statistically significant differences were determined in;

- their faith in protection from the COVID-19 by using surgery mask (88.4% and 69.2%, respectively p=0.038);
- their knowledge on contamination of the infection through airborne (84.5% and 61.5%, respectively; p=0.028); their knowledge on contamination of the infection through surface contact (95.8% and 76.9%, respectively; p=0.002);

- their knowledge about people whose health will be most adversely affected if infected with COVID-19 is as follows; people over 60 years (93.4% and 76.9%, respectively; p=0.023);
- their belief in conservation from the infection by covering the mouth and nose with a disposable tissue (27.6% and 61.5%, respectively; p=0.008);
- their behaviors protecting against COVID-19 by pouring disinfectant and / or cologne on their hands frequently (94.2% and 76.9%, respectively; p=0.012); washing / wiping everything bought from the outside before putting it to home (68.2% and 38.5%, respectively; p=0.025); not going places such as market except for compulsory situations (95% and 76.9%, respectively; p=0.005)
- their behaviors in conservation from the infection and preventing its spread by putting a plastic shield in front of the existing distribution area in the pharmacy (65.8% and 38.5%, respectively; p=0.042);

When behaviours of the pharmacists "who used the internet (scientific sources) as info resource" and "those who did not" were compared, statistically significant differences were determined in;

- their behavior in researching information regarding patient education concerning COVID-19 (79% and 53.7%, respectively p=0.000);
- their behavior in using a mask while traveling (87.5% and 73.2%, respectively; p=0.012); in crowded enviroments (100% and 85.4%, respectively p=0.000); while working (95.5% and 68.3%, respectively p=0.000); while wandering the street (90.6% and 56.1%, respectively p=0.000); in public transport (99.1% and 85.4%, respectively p=0.000); whenever leaving home (75% and 41.5%, respectively p=0.000); all the time (49.7% and 41.5%, respectively p=0.000);
- their knowledge on contamination of the infection through shaking hands (94.6% and 85.4%, respectively; p=0.002); through sexual intercourse (52% and 34.1%, respectively; p=0.031); through mother to baby during childbirth (58.2% and 36.6%, respectively; p=0.008);
- their knowledge on symptoms of the infection is as follows; pneumonia (87.3% and 70%, respectively; p=0.00);
- their knowledge about people whose health will be most adversely affected if infected with COVID-19 is as follows; young adults (9.4% and 0%, respectively; p=0.041);
- their belief in protecting against COVID-19 by using hand sanitizer (96.6% and 85.4%, respectively; p=0.001);
- their behaviors protecting against COVID-19 by pouring disinfectant and / or cologne on their hands frequently (95.5% and 78%, respectively; p=0.000); trying out to touch less often where others touch (99.4% and 95.1%, respectively; p=0.009); having a bath everyday (70.2% and 48.8%, respectively; p=0.005);
- their knowledge on interception of the infection with using vinegar (22.7% and 43.9%, respectively; p=0.003); consuming ginger (25.9% and 48.8%, respectively; p=0.000); consuming echinacea (33.5% and 65.9%, respectively; p=0.000);
- their behaviors in conservation from the infection and preventing its spread with disinfecting their hands with an alcohol-based solution after serving each patient / customer (87.2% and 73.2%, respectively; p=0.015);
- their behavior in training pharmacy staff regarding personal protection precautions against COVID-19 (91.5% and 70.7%, respectively; p=0.000); regarding correct use of masks

(84.1% and 58.5%, respectively; p=0.000); regarding COVID-19 transmission routes (86.6% and 65.9%, respectively; p=0.001);

- their behavior in training patients / customers regarding correct use of masks (84.9% and 65.9%, respectively; p=0.002); regarding symptoms of COVID-19 infection (82.4% and 68.3%, respectively; p=0.030);

When behaviours of the pharmacists "who received info through media" and "those who did not" were compared, statistically significant differences were detected in;

- their attitudes in researching information regarding patient education concerning COVID-19 (73% and 93.7%, respectively p=0.000);
- their behavior in using a mask while working (93.9% and 85.7%, respectively p=0.022);
- their faith in protection from the COVID-19 with fabric mask use (12.7% and 1.6%, respectively p=0.009); with surgery mask use (89.4% and 79.4%, respectively p=0.026);
- their knowledge on contamination of the infection via surface contact (96.4% and 88.9%, respectively; p=0.011); through sexual intercourse (46.4% and 69.8%, respectively; p=0.001);
- their knowledge on symptoms of the COVID-19 is as follows; bleeding (8.8% and 25.4%, respectively; p=0.014); headache (81.5% and 93.7%, respectively; p=0.018);
- their knowledge about people whose health will be most adversely affected if infected with COVID-19 is as follows; people over 60 years (94.2% and 85.7%, respectively; p=0.016); young adults (6.4% and 19%, respectively; p=0.001);
- their belief in protecting against the infection by using N95 mask (27% and 11.1%, respectively; p=0.007);
- their behaviors in protecting against COVID-19 with washing hands more than ever (97% and 88.9%, respectively; p=0.004); by pouring disinfectant and / or cologne on their hands frequently (94.8% and 87.3%, respectively; p=0.025); trying out to touch less often where others touch (99.4% and 95.1%, respectively; p=0.009); washing / wiping everything bought from the outside before putting it to home (69.4% and 55.6%, respectively; p=0.032); reducing use of public transport (97.9% and 87.3%, respectively; p=0.000);
- their knowledge on interception of the infection with rinsing the nose with saline (35.2% and 14.3%, respectively; p=0.001); using vinegar (28.8% and 4.8%, respectively; p=0.000); consuming turmeric (31.8% and 19%, respectively; p=0.042);
- their behaviors in conservation from the infection and preventing its spread by changing the apron they wear in the pharmacy every day (48.2% and 27%, respectively; p=0.002);
- their behavior in training pharmacy staff regarding COVID-19 transmission routes (87% and 71.4%, respectively; p=0.002); regarding symptoms of COVID-19 infection (85.8% and 73%, respectively; p=0.012);
- their behavior in training patients / customers regarding personal protection precautions against COVID-19 (83.3% and 93.7%, respectively; p=0.036); regarding correct use of masks (80.9% and 93.7%, respectively; p=0.014); regarding symptoms of COVID-19 infection (78.8% and 92.1%, respectively; p=0.014);

Participants were asked to write the name of three drugs which are being used for the treatment of COVID-19 in Turkey. Hydroxychloroquine (n=226, 57.5%) was the most widely written drug. In the second place, azithromycin (n=197, 50.1%) was the most written drug,

followed by oseltamivir (n=166, 42.2%). 9.8% (n=38) of the participants declared that they don't know the name of the drug (Table 6).

DISCUSSION

This study aimed to evaluate the knowledge and attitudes of community pharmacists about COVID-19 and the role of the media and other factors in shaping pharmacists' knowledge, perception and attitudes during the COVID-19 pandemic.

Community pharmacists have been the most reachable health care providers all the time. The fact that they continue to ensure direct patient care despite restraints implemented by the government because of the pandemic is also an indication of this.[12] Community pharmacists have performed a variety of responsibilities in sustaining the health system during COVID-19: administering medication to patients, training patients, evaluating patients for renovation of chronical medication, conducting counselling on minor illnesses, explaining misunderstandings about COVID-19 treatments, creating community cognizance regarding COVID-19, prevention methods, risk elements, signs and symptoms.[12, 13] Although these services vary among pharmacists, there is a relationship between the resources used and the knowledge, attitudes and perceptions of the pharmacists about COVID-19 disease and treatment.[1]

In this study, it was determined that the participants generally preffered getting information from ministry of health / government statements, internet (scientific sources) and media. It was identified that the resource of info from which the participants ascertained about COVID-19 and related information has a significant impact on their knowledge and behaviours towards COVID-19 disease.

The pharmacists who used the internet (scientific sources) as info resource had the correct approaches particularly in behaviours of protection from the disease (such as trying to touch less often where others touch, pouring disinfectant and / or cologne on their hands frequently, using a mask in public transport, using a mask while traveling, working, wandering the street, using a mask in populous places). The pharmacists that learned info from ministry of health / government statements had also the correct approaches in protection from the infection (such as pouring disinfectant and / or cologne on their hands frequently, not going places such as market except for compulsory situations, using a surgery mask). The participants that learned information from media had also the correct approaches in protection from the illness (such as washing hands more than usual, pouring disinfectant and / or cologne on their hands frequently, trying to touch less often where others touch, reducing use of public transport, using a mask while working, using a surgery mask). However, the participants that learned info from household/fellows had incorrect approaches chiefly in the prevention of the infection (such as using vinegar, consuming turmeric).

Similar results with our findings were found in a study conducted to assess knowledge and attitudes of hospital pharmacists about COVID-19. It was determined that the resource of info from which the participants learned about COVID-19 and related information has a significant impact on their knowledge and behaviors towards COVID-19 disease. In addition pharmacists that learned information from the internet (scientific sources) had the right approaches whereas participants that learned info from household/fellows had incorrect approaches chiefly in the interception of the illness.[1]

The participants that learned information through internet (non-scientific sources) had wrong approaches particularly in the contamination of the infection (such as via blood), in interception of the illness (such as consuming turmeric) and in the protecting against the disease (such as eyeglasses and glove use). However WHO declared that there is no scientific evidence that consuming turmeric prevents COVID-19 (https://www.who.int/southeastasia/outbreaks-and-emergencies/novel-coronavirus-2019/fact-or-fiction). In addition WHO does not recommend using gloves. The wearing of gloves may increase risk of infection, since it can lead to self-contamination or transmission to others when touching contaminated surfaces and then the face (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/q-a-on-covid-19-and-masks).

The pharmacists that learned info via social media had wrong approaches in prevention of the infection (such as consuming Vitamin D). According to WHO, Vitamin D does not cure COVID-19 and it is not known whether Vitamin D protects people from COVID-19 infection (https://www.who.int/southeastasia/outbreaks-and-emergencies/novel-coronavirus-2019/fact-or-fiction). The participants that learned information through media also had wrong approaches in interception of the illness too (such as swilling the nose with saline, using vinegar, consuming turmeric).

Some misleading info like washing the nose with saline or consuming nit has been recommended by some doctors or certain leading people on television programmes in Turkey.[1] Although these explanations were objected and corrected by other doctors and professionals, the fact that some pharmacists preferred these applications (especially washing the nose with saline) discloses the powerful effect of the press.

In this study it was also found that the participants' attitudes differ according to the sources that they learned about COVID-19.

It was determined that the participants who received information from social media gave less training to pharmacy staff and patients / customers about personal protection measures against COVID-19, correct use of masks, ways of COVID-19 transmission and COVID-19 symptoms. It was determined that the participants receiving information from the media provided less training to patients / customers on personal protection measures against COVID-19, correct use of masks and COVID-19 symptoms; however it has been observed that their behavior in training pharmacy staff is just the opposite of this. On the other hand, it has been determined that the participants using internet (scientific sources) and getting information from educational / scientific meetings provided more education both to pharmacy staff and patients / customers about personal protection measures against COVID-19, correct use of masks, ways of COVID-19 transmission and COVID-19 symptoms.

Although there is no vaccine application yet, many vaccine works are still in progress and COVID-19 is hoped to be prevented by vaccination.[1],[1] Even though no vaccine is present nowadays, more than half of the pharmacists in this research expressed that vaccination can prevent COVID-19, which might be owing to extrapolation of the knowledge of other flu-like viral diseases. Most of the participants also stated that the vaccine will be found within 6-12 months and it will accelerate the end of the pandemic. On the other hand 84.2% of the participants stated that the drug that is being developed for the treatment of COVID-19 will reduce the death rates due to COVID-19 whereas 73.5% of the participants believe that the drug can be put up for sale without sufficient clinical studies. Many medicines are being

tested for the treatment of COVID-19, and the effects of these medicines has been proven by some observational studies.[1],[1] Some of these medicines are antiretroviral medicines. In this study, it is understood that more than half of the pharmacists are aware of this info.

Even though no medicine has been discovered for the treatment of COVID-19 yet, approximately all of the participants stated the names of the drugs which are being used in Turkey, for the treatment of COVID-19. Thus it is understood that approximately all of the participants are aware of the medicines currently being used for the treatment of COVID-19, whereas it is seen that 9.8% of the participants have no interest to this issue.

In this study it was also determined that approximately half of the participants trust the T.C. Ministry of health the most regarding the COVID-19 pandemic process. It is followed by the WHO in second place. Most of the participants stated that they trust the source(s) between 50% and 75% which they get information about COVID-19.

Study limitations

This study has several limitations. Study participants were just only recruited from Turkey; therefore, this study just reflects the attitudes and behaviors of community pharmacists in Turkey. The participants in this study were only a part of community pharmacists and for this reason the generability of the study sample may be limited. However, the study participants were from different cities of Turkey and this constitutes one of the strengths of the study. Although the study results are reflecting pharmacists's answers from all over the Turkey, not only a part of Turkey; for better understanding the community pharmacists' knowledge, attitudes and impressions about COVID-19 a wider scale study should be done.

CONCLUSION

In conclusion, media and other sources used for getting information affect pharmacists' knowledge, behavior and impressions. Having a high level of knowledge positively affects people's behavior. It is also important both for the society and themselves that pharmacists have accurate information about COVID-19 and increase their level of knowledge. It should be the responsibility of pharmacists, who are the closest health profession to the public, to transfer the knowledge they have acquired to the society by reflecting them on their behaviors and to provide patient education in order to prevent and control the spread of the COVID-19.

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Table 1. Demographic characteristics of the participants

Parameters	**n (%)**

Gender	Female	262 (66.7)
	Male	131 (33.3)
Age	20-29 years	82 (20.9)
	30-39 years	139 (35.3)
	40-49 years	90 (22.9)
	50-59 years	71 (18.1)
	≥ 60 years	11 (2.8)
Education level	Licence	291 (74)
	Master degree	86 (21.9)
	PhD	16 (4.1)
Professional experience duration	< 5 years	98 (25)
	5-10 years	41 (10.4)
	11-20 years	120 (30.5)
	> 20 years	134 (34.1)
Location of the pharmacy	District pharmacy	141 (35.9)
	Opposite the health center	157 (39.9)
	Opposite the hospital	78 (19.8)
	Bazaar pharmacy	17 (4.4)
City where the pharmacy is located	İstanbul	123 (31.3)
	Out of İstanbul	270 (68.7)

Table 2. Knowledge questions about COVID-19 disease

Questions	**Answers***	**n (%)**
What is the first source of the infection?	It is not known clearly	230 (58.5)
	Bats	86 (21.9)
	Humans	34 (8.7)
	Other (Artificial – produced in the laboratory)	43 (10.9)
How long is the incubation period of COVID-19?	2-4 days	104 (26.5)
	14 days	263 (66.9)
	15-28 days	26 (6.6)
What is the mortality rate from COVID-19?	%0-%1	25 (6.4)
	%1,1-%5	278 (70.7)
	%5,1-%10	78 (19.8)
	%10,1-%25	5 (1.3)
	>%25	7 (1.8)
In your opinion, which of the following is the most correct approach about using masks?	Only those who are sick should wear a mask	17 (4.3)
	Everyone in society should wear a mask	372 (94.7)
	Only healthcare professionals should wear a mask	1 (0.3)
	Only people in the risk group (over 60 years,	3 (0.8)

	pregnant, etc.) should wear a mask	
At least how many seconds should hands be washed with soap and water?	20 seconds	244 (62.1)
	30 seconds	90 (22.9)
	45 seconds	30 (7.6)
	1 minute	29 (7.4)

*Only one option was chosen

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

Proposal	**True, n (%)**	**False, n (%)**
Alcohol-based hand sanitizer compensates washing hands with soap and water	154 (39.2)	239 (60.8)
Soap used to protect against COVID-19 must contain antiseptic	35 (8.9)	358 (91.1)
There is a possibility of transmission of SARS-CoV-2 infection from products from China	204 (51.9)	189 (48.1)
COVID-19 is a vaccine-preventable disease	247 (62.8)	146 (37.2)
Once the person with the COVID-19 infection recovers, they are immune and will not be able to infect with COVID-19 again	82 (20.9)	311 (79.1)
Even if COVID-19 is treated successfully, it leaves sequelae in patients	270 (68.7)	123 (31.3)

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

Questions	**Answers***	**n (%)**
From which sources do you get information about COVID-19?	Media (TV, newspaper, magazine)	330 (84)
	Internet (non-scientific sources)	165 (42)
	Internet (scientific sources)	352 (89.6)
	Social media	283 (72)
	Trainings / Scientific Meetings	255 (64.9)
	Friends / Family	230 (58.5)
	Ministry of Health / Government Statements	380 (96.7)
Which topics are you researching regarding COVID-19?	Symptoms of COVID-19	368 (93.6)
	Scientific progresses regarding COVID-19 vaccine	266 (67.7)
	Scientific progresses regarding COVID-19 treatment	353 (89.8)
	Patient education	300 (76.3)
	Ways to be protected against COVID-19	381 (96.9)
In which (s) of the following situations do you use a mask for COVID-19?	I use a mask while traveling	338 (86)
	I use a mask when in crowded environments	387 (98.5)
	I use a mask while at work	364 (92.6)
	I use a mask while wandering the street	342 (87)
	I use a mask in public transport	384 (97.7)
	I use a mask every time I leave home	281 (71.5)
	I use a mask all the time	192 (48.9)
Which (s) of the following do you use to protect yourself from COVID-19 during working hours in the pharmacy?	Fabric mask	43 (10.9)
	Surgical mask	345 (87.8)
	N95 mask	125 (31.8)
	Face shield	168 (42.7)
	Glasses	143 (36.4)
	Glove	154 (39.2)
In which way(s) is COVID-19 transmitted?	It is transmitted by airborne	329 (83.7)
	Kissing	393 (100)
	Shaking hands	368 (93.6)
	Surface contact	374 (95.2)
	It is transmitted by blood	195 (49.6)
	With sexual intercourse	197 (50.1)
	From mother to baby during childbirth	220 (56)
What is the symptom(s) of COVID-19?	Fever	393 (100)
	Cough	392 (99.7)
	Dyspnea	390 (99.2)
	Pneumonia	324 (82.4)
	Runny nose	122 (31)
	Kidney failure	68 (17.3)
	Diarrhea	326 (83)
	Bleeding	45 (11.5)
	Sudden loss of consciousness	108 (27.5)

	Asymptomatic	296 (75.3)
	Headache	328 (83.5)
In case of infected with COVID-19, which person(s)' health will be affected most negatively?	People over 60 years	365 (92.9)
	People with serious chronic diseases such as hypertension, diabetes	380 (96.7)
	Children	67 (17)
	Pregnant women	219 (55.7)
	Young adults	33 (8.4)
	Health workers	198 (50.4)
	Other	4 (1)
Which should be applied to protect from COVID-19?	Washing hands with soap and water	393 (100)
	Avoiding contact with sick people	390 (99.2)
	Using hand sanitizer	375 (95.4)
	Using a N95 mask	96 (24.4)
	Using a surgical mask	380 (96.7)
	Wearing protective clothing	104 (26.5)
	Wearing protective glasses	177 (45)
	Covering the mouth and nose with a disposable tissue	113 (28.8)
	Using medical gloves	114 (29)
What behaviors do you implement to protect against COVID-19?	I wash my hands more often than ever	376 (95.7)
	I frequently pour disinfectant and / or cologne on my hands	368 (93.6)
	I try to touch less frequently where people touch	389 (99)
	I take a bath everyday	267 (67.9)
	I wash / wipe everything I bought from the outside before putting it to home	264 (67.2)
	I try to stay away from people who are coughing / sneezing	390 (99.2)
	Except for compulsory situations, I don’t go places such as market	371 (94.4)
	I reduce my use of public transport	378 (96.2)
	I use vitamin supplements	320 (81.4)
Which can prevent COVID-19?	Rinsing the nose with saline	125 (31.8)
	Using vinegar	98 (24.9)
	Consuming ginger	111 (28.2)
	Consuming turmeric	117 (298)
	Consuming echinacea	145 (36.9)
	Consuming vitamin C	345 (87.8)
	Consuming vitamin D	330 (84)
To protect against COVID-19 and prevent its spread, which(s) of the precautions do you apply in your pharmacy?	I change the apron I wear in the pharmacy every day	176 (44.8)
	I placed a plastic shield in front of the existing distribution area in the pharmacy	255 (64.9)
	I made the arrangement(s) to be at least 1-2 meters distance between the patients	351 (89.3)

	We disinfect the drugs coming from the drug storage before placing them on the shelves	98 (24.9)
	After each patient / customer, we wipe and disinfect the pharmacy counter	223 (56.7)
	After serving each patient / customer, we disinfect our hands with an alcohol-based solution	337 (85.8)
Have you given training to your pharmacy staff about the COVID-19?	I didn't give training	87 (22.1)
	I gave training on personal protection precautions against COVID-19	351 (89.3)
	I gave training on the correct use of masks	320 (81.4)
	I gave training on COVID-19 transmission routes	332 (84.5)
	I gave training about the symptoms of COVID-19 infection	329 (83.7)
Have you given training to your patients / customers about the COVID-19?	I didn't give training	124 (31.6)
	I gave training on personal protection precautions against COVID-19	334 (85)
	I gave training on the correct use of masks	326 (83)
	I gave training on COVID-19 transmission routes	315 (80.2)
	I gave training about the symptoms of COVID-19 infection	318 (80.9)

*More than one option was chosen

Table 5. The participants' impression on COVID-19 pandemic process

Questions	**Answers***	**n (%)**

When do you think the pandemic will end?	When the air temperature rises	4 (1.0)
	Within 1-2 months	4 (1.0)
	Within 6-12 months	90 (22.9)
	Within 1-2 years	178 (45.3)
	Within 2-5 years	82 (20.9)
	Within 5-10 years	4 (1.0)
	After 10 years	1 (0.3)
	It will not end	30 (7.6)
Which of the following best describes your thoughts about the COVID-19 vaccine?	I think the vaccine will be found within 6 months and it will accelerate the end of the pandemic	38 (9.7)
	I think the vaccine will be found within 6 months, but it will not affect the course of the pandemic	18 (4.6)
	I think the vaccine will be found within 6-12 months and it will accelerate the end of the pandemic	152 (38.7)
	I think the vaccine will be found within 6-12 months, but it will not affect the course of the pandemic	40 (10.2)
	I think the vaccine will not be found within 12 months	140 (35.6)
	Vaccine found but not given	5 (1.3)
Which of the following institutions do you trust the most regarding the COVID-19 pandemic process?	T.C. Ministry of Health	183 (46.6)
	WHO (World Health Organization)	112 (28.5)
	FDA (U.S. Food & Drug Administration)	27 (6.9)
	TEB (Turkish Pharmacists' Association)	8 (2)
	FIP (International Pharmaceutical Federation)	63 (16)
How much do you trust to the source(s) from which you learn about COVID-19?	<%10	27 (6.9)
	%10-%50	92 (23.4)
	%50	106 (27)
	%50-%75	115 (29.3)
	%75-%99	53 (13.5)

*Only one option was chosen

Table 6. Participants' responses regarding the names of drugs used in the treatment of COVID-19

Name of the drug	**n (%)**
I don't know	38 (%9.8)
Hydroxychloroquine	226 (%57.5)
Azithyromycin	197 (%50.1)
Oseltamivir	166 (%42.2)
Favipiravir	87 (%22.1)
Enoxaparin	76 (%19.3)
Paracetamol	72 (%18.3)
Clarithromycin	43 (%10.9)
Tosilizumab	42 (%10.7)
Vitamin C	35 (%8.9)
Ritonavir+Lopinavir	33 (%8.4)
Ritonavir	21 (%5.3)
Remdesivir	15 (%3.8)
Vitamin D	15 (%3.8)
Doxycycline	12 (%3.1)
Acetylcysteine	9 (%2.3)
Ivermectin	3 (%.8)
Heparin	3 (%.8)
Gemifloxacin	3(%.8)
Diosmin+Hesperidin	2 (%.5)