

Original Research Article

Attitudes and approaches towards COVID-19 management among the public and pharmacists in Northern Cyprus

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Abstract

Purpose: To study the attitudes and approaches towards COVID-19 management among the public and pharmacists in Northern Cyprus.

Method: Questionnaire were administered face-to-face and online to volunteer pharmacists and other members of the public, after receiving approval from the Near East University Ethics Boards. Responses to the questionnaire were evaluated statistically.

Results: The pharmacists who quickly learned and adopted the necessary protection measures against COVID-19 at the beginning of the pandemic were young professionals under the age of 30 years who had less than 5 years of professional experience ($p < 0.05$). Most pharmacists who prepared magistral disinfectants/antiseptic solutions and lotions for irritation caused by excessive hand washing were aged above 60 years, with more than 30 years of professional experience ($p < 0.05$). The people who responded in the questionnaires asked for products derived from Echinacea, Sambucus nigra, propolis, ginger and Pelargonium sidoides to boost their immune system. Approximately 22.6 % of the respondents received COVID-19-related information from doctors, while 33.4 % got theirs from pharmacists. However, 6.7 % of the respondents got information from social media groups which they created ($p < 0.05$).

Conclusion: Cooperation between pharmacists and health care organizations is increasingly crucial for public health, since there are still gaps in the successful control of COVID-19 pandemic. Therefore, it would be beneficial and even necessary to add a course on "management and solidarity in pandemics and other disasters" to the undergraduate education programs in pharmacy and all other healthcare disciplines.

Keywords: COVID-19, Northern Cyprus, Pharmacists' attitude, Public approach, Herbal products

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INTRODUCTION

People and countries have adopted various approaches towards the COVID-19 infection which appeared in Wuhan, China, and was declared as a pandemic by the World Health

Organization on March 11, 2020. Some regarded it as a simple infection caused by a virus, while others took severe lockdown measures. It was obviously the healthcare professionals, especially community pharmacists, who adopted the most important approaches and tried to

rapidly adapt to the new conditions in order to maintain their healthcare services with devotion. As primary medical, drug and health counseling centers, pharmacies have been guiding the citizens, providing face masks and disinfectants, and giving advice on immune system-boosting herbal medicines since the beginning of the pandemic. The issues encountered by community pharmacists in this process, and the remedies they used to resolve such issues have recently become subjects of research interest [1,2].

The efforts of pharmacists and pharmacy organizations to inform the public, show good example by taking necessary measures, and protect public health by advising on the correct use of herbal and vitamin supplements, have all contributed significantly to keeping the pandemic under control [3-7]. Numerous arguments against the protection and the treatment of COVID-19-infected patients have rapidly arisen, in addition to recommendations and research on the use of traditional herbal medicines [8,9]. Along with the ongoing investigations on protection and treatment methods, research have also been carried out to evaluate the behavior of the public and healthcare professionals, and to change some undesirable habits [10-12].

This study was carried out to determine the issues encountered by community pharmacists, the solutions produced, and communication with the public. In particular, investigation was done on the attitudes and approaches towards herbal medicines in the first year of the COVID-19 pandemic since the first case was identified in an elderly German tourist on March 9, 2020 in Turkish Republic of Northern Cyprus. From that day to March 9, 2021, there has been a total number of 3,664 COVID-19 cases which resulted in 24 deaths [13,14]. This study investigated the role of community pharmacists in the lower number of COVID-19-related cases and deaths, as well as the connections amongst the educational levels of the public, their information resources, communication with pharmacists, and attitudes towards immune system-boosting vitamin supplements and herbal medicines. The aim of this study was to investigate the attitudes and approaches of public and pharmacists in Northern Cyprus towards their management strategies against COVID-19 pandemic.

METHODS

A 25-points validated questionnaire was designed to obtain demographic information regarding age, gender, educational levels of pharmacists and the public, their approach and

attitudes towards the COVID-19 pandemic, and their behavior towards the use of herbal medicines. The questionnaire was administered face-to-face and online to the volunteer pharmacists and members of the public after receiving approval from the Near East University Ethics Boards. Responses to the questionnaires were statistically evaluated.

Questionnaire and participants

An expert panel was constituted based on the scope of publications on questionnaire-based studies conducted in other countries. The panel comprised 3 pharmacists, 3 academicians (1 phytotherapist, 1 public health professional, and 1 communication professional); and 3 individuals from the public. All panel members were from Northern Cyprus. A validated 25-question index was prepared. The contents of the questionnaire were centered on sociodemographic information, problems encountered during the COVID-19 pandemic and measures taken, general information, opinions and approaches about COVID-19, and use of herbal products. Approval for the study was received from Near East University Ethics Board (approval no. YDU/2020/84-1173), and was conducted in conformity with international guidelines for human studies.

The questionnaire was sent online and in hard copies to all pharmacists in Nicosia between October 2020 and February 2021, in cooperation with the Turkish Cypriot Pharmacists Association. A total of 76 community pharmacists out of 118 responded to the questionnaire. Hard copies were filled out randomly by people who came to the pharmacies. The questionnaire was also sent online to public employees. A total of 773 copies of the questionnaire were distributed. All participants participated voluntarily in this study and provided their consent after receiving information that their personal data would be kept confidential.

Statistical analysis

Questionnaires were collected both in hard and soft copy formats. Google Docs was used for online application. All forms were combined and entered into Microsoft Excel software. Descriptive statistics were determined and used for each question. Frequencies and percentages were obtained. Cross tabulations were used to investigate sub-group distributions of answers. Jamovi software (Version 1.8.0 for Mac) was used for all calculations.

RESULTS

Based on the demographic information on participants, 70.7 % of the pharmacists who participated were under the age of 30 years, 14.7 % were between 31 – 40 years of age, 2.7 % were within the age range of 41 – 50 years, 5.3 % were between 51 and 60 years of age, while 6.7 % of them were above the age of 60 years.

While 61.3 % of the pharmacists had 5-year experience in their practice, 18.7 % of them had 6 - 10 years of experience, while 6.7 % had 11 - 20 years of experience. Moreover, 2.7 % of the pharmacists had practised for 21 - 30 years, while 10.7 % of the pharmacists had more than 31 years of professional practice (Table 1).

In addition, 68 % of the pharmacists monitored their patients regularly, while 32 % of the pharmacists did not monitor their patients regularly. Majority of the monitored patients had hypertension (64 %), while others had rheumatic diseases (37.3 %), insulin-dependent diabetes (36.0 %), non-insulin dependent diabetes (26.7 %), heart failure (20 %), and chronic obstructive pulmonary disease (18.7 %). The questions most frequently received by pharmacists and the questions most frequently asked by community during the pandemic are presented in Table 1.

The most requested/sold over-the-counter (OTC) products in pharmacies during the pandemic are given in Table 2.

It was found that 95.1 % of pharmacists took various isolation measures in their pharmacies to minimize contact with patients, and to reduce contamination. The most common precaution was the use of a small table chair filled with antiseptic products at the entrance of the pharmacy (56 %). Some pharmacists (42.7 %) used Plexi separators at the door and counters; 2.7 % of the pharmacist had glass separators, while 6.7 % of the pharmacists used PVC separators.

Answers to the question about the use of protective equipment showed that majority of the pharmacists (85 %) had been wearing surgical masks since the beginning of the pandemic. Moreover, 50.7 % of the pharmacists regularly wore gloves, while 46.7 % wore face shields. In contrast, 42.7 % of the pharmacists preferred to wear scrubs, whereas 21.3 % of them wore N95 masks, and 18.7 % used special overalls. Only 5.3 % wore protective glasses, while 4 % wore caps and cover shoes.

Table 1: Questions most frequently received by pharmacists and the questions most frequently asked by individuals in the community during the pandemic

Questions most frequently received by pharmacists	Pharmacists who received these questions (%)
Do you sell face masks?	97.3
Do you sell disinfectants?	96.0
Which one is the best disinfectant?	38.7
How can I disinfect the products I buy?	34.7
Would using cologne only be enough?	46.7
What do you recommend to boost the immune system?	82.4
When would the pandemic end?	57.3
Is the vaccine developed (first months)?	49.3
Would the vaccine be good, which one is better?	37.3
What can I use as a beta-glucan?	38.7
What are the symptoms of the virus?	38.7
How much social distancing do you think is enough?	21.3
Do you have masks?	68.9
Do you have disinfectants?	63.4
How can I sterilize the products I buy?	5.2
What do you recommend to boost my immune system?	36.6
When would the pandemic end?	9.5
Is the vaccine developed (first months)?	11.5
What can I use as a beta-glucan?	5.3
What are the symptoms of the viral infection?	13.5
How much social distancing do you think is enough?	5.3
My neighbor has got the flu.	3.9
How can I know whether she is infected with COVID-19?	
Do you know where I can get the most accurate test?	3.2
They said we should consume ginger, turmeric pastil on TV. Do you have these?	3.0

Only 7 out of 76 community pharmacists (9.2 %) had patients who visited their pharmacies personally right after they tested positive for COVID-19; 3 patients provided information on their COVID-19 status through their relatives, while in 4 cases, pharmacists discovered the COVID-19 status of the patients by chance through tests.

Table 2: The most requested and sold OTC products during the pandemic (March 2020 - March 2021)

OTC product	Pharmacies who received these requests (%)
<i>Disinfectants</i> (Cologne, alcohol and hand-cleaning gels)	85
Vitamins & fish oils	
• Vitamin C	98.7
• Vitamin D	82.7
• Fish oil	18.7
Herbal medicines	
<i>Drops</i>	
• Cistus antiviral pastil®	50.7
• Ginger etc. pastils	41.3
Inhalation products (Eucalypti aetheroleum, etc.)	4
Solid & liquid herbal products of:	2.7
<i>Curcuma longa</i> rhizome (Curcumin)	13.3
<i>Echinacea purpurea</i>	56.0
<i>Pelargonium sidoides</i> root extract prep.	2.7
Rosehip products	81.3
<i>Sambucus nigra</i> flowers & fruits prep.	
Other natural products	
Imuneks® - beta glucan products	68.0
Propolis products	69.3
Sterimar®	16.0

The pharmacists stated that they tried to provide enlightenment right from the early days of the COVID-19 pandemic through vocational training from the local pharmacy professional organization (Turkish Cypriot Pharmacists Association), and to smaller extents, through social media online training (34.7 %); FIP publications (22.7 %), online expert training (8 %), and brochures and posters (10.7 %).

Table 3: Approaches and attitudes of pharmacists on COVID-19

Approach/attitude	Definitely agree (%)	Agree (%)	Partially agree (%)	Disagree (%)	Strongly disagree (%)
I knew the necessary protection measures against COVID-19 at the time of the pandemic, and I applied them as soon as possible	58.1	29.7	12.2	-	-
It took time to determine and implement prevention methods	5.7	8	33.3	34.7	18.7
I quickly provided the necessary protective materials to pharmacy staff and to the patients.	25.3	25.3	29.3	13.3	6.7

In their responses, 50 % of the participating pharmacists agreed with the idea that the professional pharmacy organization cooperated well with other Healthcare Professional Associations. However, 50 % of pharmacists support that professional pharmacy organizations have no cooperation with other Healthcare Professional Associations. Moreover, 20 % of the participants who believed that there was sufficient cooperation, stated that joint information meetings were held regularly. On the other hand, 19.4 % of the pharmacists stated that joint reports were prepared for the Ministry of Health, while 26.4 % stated that the public was informed through joint TV programs. The opinions, approaches and attitudes of pharmacists on the COVID-19 pandemic are shown in Table 3.

Correct/incorrect response evaluations by the pharmacists and the public regarding opinions on COVID-19 are shown in Table 4.

Demographic information on the 762 participants revealed that 41.3 % of the population was under the age of 30 years (317 people), followed by 180 people aged 31 - 40 years (23.4 %). Furthermore, 126 participants (16.4 %) were aged 41 - 50 years (126 people), 85 participants (11.1 %) were in the age range of 51 - 60 years, while 60 people (7.8 %) were over 61 years of age.

In terms of gender, 465 participants (61.0 %) were females, while 297 participants (39.0 %) were males. Moreover, 212 people (27.8 %) indicated that they had chronic diseases, the most prominent of which were hypertension (6.9 %), allergic asthma (6.9 %), insulin-dependent diabetes (3.8 %), non-insulin-dependent diabetes (2.6 %), solar allergy (2.5 %), and irritable bowel syndrome (2.1 %).

Table 4: Correct/incorrect response evaluations of pharmacists and people regarding opinions on COVID-19

Opinion	Pharmacists' opinion on COVID-19		People's opinion on COVID-19	
	Correct (%)	Incorrect (%)	Correct (%)	Incorrect (%)
Negative PCR test result in suspected cases reveals that the person is not infected	23.0	77.0	27.6	71.2
People coughing or sneezing in the pharmacy should get tested for COVID-19.	72	28	85.2	14.4
Compulsory mask use leads to anxiety and unease in people.	70.3	29.7	56.9	42.8
Cyprus is an island. Thus, it can easily be isolated if its borders are closed.	92	8	90.1	9.6
It is wrong to start transportation for tourism and economic concerns	75.7	24.3	76.3	22.7
Children do not show COVID-19 infection symptoms.	22.7	77.3	33.9	66.1
The virus causes more deaths in people over 60 years old and those with chronic diseases	97.3	2.7	92.2	7.7
Patients taking blood pressure medication should be warned to be very careful.	88.0	12.0	88.2	11.7
Alcohol, serum, physiological, antiseptic mouthwashes and nasal sprays are absolutely not protective.	31.5	68.5	48.4	50.3
Antimalarials and drinks containing tonic water have protective features.	14.7	85.3	31.9	67.5
It is useful to drink lots of water.	92.0	8.0	83.1	16.8
Taking additional supplements protects people.	74.7	25.3	71.8	27.3
Pets and stray animals do not play a role in transmitting the virus.	87.3	10.7	74.9	23.7

It was found that 172 people (22.69 %) received most information on COVID-19 from doctors, whereas 254 people (33.4 %) gathered information from pharmacists. On the other hand, 184 participants (24.2 %) obtained information from TV news/programs, and 88 people (11.6 %) got information about COVID-19 from the announcements and posters of official institutions such as the Ministry and the Municipality. In addition, 51 people (6.7 %) stated that they received information from social media networks (TRNC COVID-19 and TRNC Corona). The preventive measures that people took in their homes included washing of their hands and faces with soap, changing their clothes each time they returned home (27.5 %), keeping purchased materials outdoors for some time and disinfecting them with diluted bleach (9.5 %); and wiping door handles and frequently-touched places with bleach (5.6 %). All of these preventive measures were adopted by 55.9 % of the participants. However, 1.4 % of people stated that they did not use any of these preventive measures.

In response to the question 'do you take care to use a mask when entering public places?', 72.4 % of participants (551 people) said that they always wore masks in public places, 22.3 % (170 people) stated they usually wore the masks, 4.5 % (34 people) wore them occasionally, while

0.78 % (6 people) said that they never wore them, and indeed did not believe that the masks were beneficial.

In response to the question as to which COVID-19 measures were taken in the markets they attended most frequently, 663 people (86.2 %) stated that they had their temperatures taken at the entrance, 694 people (90 %) stated that the use of mask was compulsory, 238 people (30.9 %) said that they were allowed regulated entry in such a way as to control the number of customers inside, 184 people (23.9 %) stated that the employees frequently made announcements on the need to maintain social distance, while 409 people (53.0 %) said that all staff wore face masks and gloves. However, in spite of such good examples, 74 participants (9.69 %) stated that some of the staff wore masks and some did not, and 17 participants (2.2 %) stated that they did not pay any attention to COVID-19.

In response to another question, 138 participants (18.2 %) stated that there were COVID-19 positive cases in their environments and families. It was found that 29.0 % of those infected with COVID-19 had complaints of flu and fatigue; 19.3 % of the positive cases were diagnosed through screening test after a positive COVID-19 case

was seen at their workplace, while 17.6 % of the cases were infected abroad.

Participants in the questionnaire stated that pharmacists (42.8 % of participants), doctors (42 % of respondents), and nurses (2.4 % of participants) provided them information and relief during the pandemic period. The other participants (12.8 %) were provided information and relief by other professional groups.

DISCUSSION

The information, approach, and behavior of the public are clearly of great importance in the fight against the COVID 19 pandemic which has yet to be considered. According to WHO records on March 10, 2021, there were 118 million positive cases of COVID-19, along with new variants all over the world, leading millions of deaths.

The information, approach, and practices of pharmacies and pharmacists which are the important pillars of communication and health in improving the awareness, approach and attitude of the public, are also known to be very effective. The results obtained in this study showed that 85 % of the 76 pharmacists in Nicosia, Northern Cyprus, wore surgical masks, 43 % of the pharmacists wore scrubs, 42 % got Plexi separators in their pharmacies to minimize contact with patients, 56 % added a table barrier full of sanitizers at their entrances, 80 % provided disinfectants in their pharmacies, while 83 % of the patients asked for products to boost their immune systems. The responses showed that 95 % of the participants stated that working hours were shortened while the number of shifts was increased. Moreover, 58.1 % of pharmacists stated that they knew the necessary protection measures against COVID-19 at the time of the pandemic, and that they applied them as soon as possible. Majority of pharmacists (57.7%) who knew the measures and took them were aged between 20 - 30 years, while 72.7 % of the pharmacists were aged 41 – 50 years. In addition, disinfectant/antiseptic solutions and gels were prepared by 80 % of the pharmacists.

It was shown that 46 young pharmacists (61 %) under the age of 30, with 5 years of professional experience or less, quickly accessed the announcements and notifications of WHO, FIP and local professional organizations, carried out the necessary preventive measures, and informed their patients as soon as possible. On the other hand, 40 % of those who prepared magistral disinfectants/antiseptic solutions, lotions and creams for irritation caused by excessive hand washing, were pharmacists aged

over 60, with more than 30 years of professional experience. Moreover, 50 % of the pharmacists believed that there was sufficient cooperation amongst healthcare professional groups. Based on this data, a proposal was developed to add "Cooperation in Pandemic and Other Disasters" as a course to the undergraduate education programme of healthcare professional groups to enable them cooperate more in similar pandemics and other natural disasters that may occur in the future.

It was shown that 33.4 % of the public received information about COVID-19 from pharmacists, 22.6 % of the public obtained information from doctors, 24.2 % of them got information from TV announcements, 11.6 % received information through official institution posters, while 6.7 % received theirs from social media groups. A large number of participants (319; 42.8 %) stated that they received comforting information and advice from pharmacists, which shows the important role of pharmacists. However, 313 (42.0 %) of them got information from doctors, and 18 participants (2.4 %) were informed by nurses. In addition, 83 % of the patients inquired from the pharmacists about products that would increase their immune response against COVID-19, and the most frequently-requested products were Vit C (59.1 %), Vit D (27.6 %), Echinacea (21.1 %), *Sambucus nigra* (17.9 %), Propolis (16.7 %), ginger pastil (15.7 %) and *Pelargonium sidoides* (11.7 %). The products requested by patients were medications known to have been used in viral infections such as rhinovirus, and influenza due to seasonal changes of previous years. Investigations on the effects and benefits of these products against COVID-19 were initiated rapidly at the onset of the pandemic [15,16].

A total of 773 who participated in the study were randomly selected, and on a voluntary basis. Majority of the people (321; 42.0 %) were university graduates, whereas 160 participants (20.9 %) were high school graduates, 115 people (15.1 %) had Masters degrees, while 48 people (6.3 %) had doctorate degrees. Thus, 64 % of the participants were university graduates. It can be said that the overall high level of education correlated with the total number of COVID-related cases (3664) and deaths (24). However, the prolongation of the pandemic and the attendant economic problems, together with restrictions on travel and tourism activities raise understandable concerns in a tourism-based economy. Therefore, as a result of controlled tourism, pharmacists may need to consider application of Tele-pharmacy in the discharge of their very important services to the public [17,18].

Limitations of this study

There are some limitations in this study. The major drawback of this study is that the participation was limited to pharmacists in Nicosia and people who live in Northern Cyprus. Moreover, it is possible that some people may give dishonest answers to the questions asked in the survey.

CONCLUSION

The findings of the study demonstrate positive attitudes and approaches of pharmacists and public in Northern Cyprus towards COVID-19 management during the pandemic. Since there are still gaps in the control measures of COVID-19, it is important to improve the awareness and level of education of pharmacists in public health. The COVID-19 pandemic has made cooperation among pharmacist and other health care providers more important in order to improve public health and safety. This can be accomplished through vocational training from the local pharmacy professional organization (Turkish Cypriot Pharmacists Association). Thus, it would be necessary to modify existing educational programs in order to provide guidelines on how to prepare and act during similar pandemics and other natural disasters that may occur in the future.

DECLARATIONS

Conflict of Interest

No conflict of interest associated with this work.

Contribution of Authors

The authors declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by them.

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