

Evaluation of Turkish Cypriots' Knowledge, Attitudes and Behaviours About The COVID-19: A Descriptive Study

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Abstract

Objective: COVID-19 was first discovered in Wuhan in December 2019 and spread all over the world. This study was conducted to evaluate the knowledge, attitudes and behaviours of people living in Northern Cyprus regarding COVID-19.

Methods: This descriptive study designed to evaluate the level of knowledge, attitude and behaviour of participants who are Turkish Cypriots between 7-17 April 2020 after the first COVID-19 case diagnosed in our country. A twenty-nine-item questionnaire was prepared, distributed randomly to participants on social media and took 7-10 min to complete. Data were analyzed with a 95% confidence and $p < 0.05$ significance level.

Results: Of the 1192 respondents, 70.8% are between 20-29 years old, 69.8% are women, and 69.1% are university students. The average score in knowledge of all participants about COVID-19 was found to be 47.39, and the general precaution level average score of all participants was found to be 45.97. A statistically significance difference was determined in between the GPL average score and age ($p=0.012$), gender ($p=0.000$), marital status ($p=0.000$), being a university student ($p=0.002$), working status ($p=0.000$), and having a healthcare professional in the family

Conclusion: Both the knowledge and precaution levels of the participants were determined to be at 'good' levels. It was shown that the participants had a high level of knowledge of COVID-19 and a high level of compliance with preventive measures.

Key words: COVID-19; knowledge; attitude; awareness; precaution

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INTRODUCTION

The Novel Coronavirus (SARS-CoV-2) epidemic emerged in the city of Wuhan in China's Hubei province in December 2019 and affected the whole world (1,2). In a short time, more than 800 cases have been confirmed in other provinces of China, Thailand, Japan, South Korea and the United States of America (USA) (3). The Novel Coronavirus outbreak, which the World Health Organization (WHO) named 2019-nCoV on January 12, 2020, was renamed coronavirus disease (COVID-19) on February 11. On March 11, COVID-19 was declared a pandemic by the WHO (4,5).

According to the data of WHO dated 25 August 2021; There have been more than 212.3 million cases worldwide, more than 4.4 million deaths, and more than 4.6 billion doses of vaccination administered (6). Many clinical studies have revealed the signs and symptoms of COVID-19. Among these symptoms, It is possible to count high fever, cough, myalgia, fatigue, expectoration dyspnea, dizziness, diarrhea, nausea and vomiting (7-9).

The first case of COVID-19 in Northern Cyprus occurred on 10 March 2020 in a German tourist. The next day, the spouse of the person who was positive was also announced as COVID-19 positive. The first Turkish Cypriot to infected COVID-19 was announced as the person who returned to the island from England with the same German tourist group (10). As of August 24, 2021, more than 15.3 thousand cases were detected and 50 cases died on the island (11).

Since the beginning of the pandemic, many measures have been taken to prevent the number of cases. At the beginning of these measures were

prohibition and/or restriction of entry and exit to countries, restrictions in public activities, interruption of education, quarantine practices, use of masks and gloves, and maintaining social distance. It is known that with the implementation of the right policies and appropriate control measures, it is possible to improve the course of the pandemic. This is closely related to the correct knowledge, attitudes and behaviours of individuals (12,13).

After the increase in cases in Northern Cyprus, various measures were taken in this process and continue to be taken (14). Generally, Measures such as quarantine and limiting entrances and exits to countries, stopping public activities, suspending education, quarantine practices, putting into practice issues such as masks, gloves, and social distance appear during the pandemic period. In this period, it is possible to improve the course of the pandemic with the implementation of the right policies and the right control. This can only be achieved with the right knowledge, attitude and behaviour (13). Based on the importance of correct knowledge, attitude and behaviour, the aim of this study is to determine Turkish Cypriots' the knowledge, attitudes and behaviours about COVID-19.

METHODS

The sample of this descriptive study consisted of 1192 participants who were living in Northern Cyprus. Data were collected online between 07-17 April 2020 and online consent was obtained from each individual who agreed to participate in the study. For the online data collection method, the form created by the researchers considering the literature was prepared online and shared with the participants. Participants who applied the online form between the

specified dates (07-17 April) and met the research criteria were included in the study. After data collection, all data were checked for inclusion criteria. In particular, all individuals whose observation unit (sampling is type) living in Northern Cyprus and over the age of 18 were included in the study (simple random sampling).

The data collection form, which was created by the researchers by examining the literature, consisted of four parts (12,15,16). In the first part, where demographic data were questioned, there were seven (7) questions such as age, gender, marital status, being a student, the department (they were student), their working status and whether there was a health professional in the family. In the second part of the form, there were twenty-nine COVID-19 information questions (general knowledge level part). Each question consisted of three options as 'true', 'false' and 'I don't know'. Aside from these 29 statements were questioned regarding the information using the 3-point Likert Scale, which were graded as follows: Each correct 2 points, incorrect 0 points, and I don't know is "1" point. According to this; the lowest score (min) that the participants can get is 0 (zero), and the highest score (max) is 58 (2point x 29 question). With this scoring system, 'bad' knowledge level is between 0-19 points, 'moderate' between 20-39 points, and 'good' knowledge level between 40-58 points. The result indicates general knowledge (GK).

For the precautions such as wearing a mask, gloves and taking food supplements were questioned in the form (three statements). Precaution questions were answered by the participants in two options: Those who agreed answered 'yes', and those who disagreed answered 'no'. Aside from these 3

precautions, 12 additional statements were questioned regarding the precautions using the 5-point Likert Scale, which were graded as follows: 'very rarely' (1-point), 'rarely' (2-points), 'moderately' (3-points), 'frequently' (4-points), 'very frequently' (5-points). The lowest score is 1 (one), and the highest is 60 (sixty). According to this grading system, scores between 1-20 describes 'bad', scores between 21-40 describes 'moderate', and scores between 41-60 describes 'good' precaution levels. The section was named general precaution level (GPL).

The investigation was conducted in accordance with the principles outlined in the Declaration of Helsinki. To commence the research, necessary permissions were acquired from the Ethics Committee at the Near East University (2020/79). The study participants filled in the data collection form online during the application of the study. Prior to filling in the form, a consent form, containing general information and the purpose behind the research, has been placed, informed of the voluntary nature of their participation in the study, and consent collected from the participants. Moreover, before data collection began, the participants were informed that they could decline to participate in the study at any stage. The data collection form took approximately 7-10 minutes to be filled out by a participant. By scanning the literature, the Cronbach Alpha coefficient of the data collection form developed by the researchers was determined as 0.65.

Statistical analysis

The collected data in this research was analyzed using the Statistical Package for Social Sciences (IBM Corp.; Armonk, NY, USA) (ver. 18.0).

Kolmogorov Smirnov and Shapiro Wilk tests were applied to verify if the data conforms to a normal distribution. Frequency analysis was applied to the socio-demographic features and to some comparisons. In the data comparison, Mann-Whitney U and Kruskal-Wallis H tests were applied, while also taking the number of variables into consideration. The average score of the GK questions and the average score of the GPL were detected using the One-way ANOVA test. Data were analysed with a 95% confidence and $p < 0.05$ significance level.

RESULTS

The socio-demographic features of the participants are shown in Table 1. According to this, 70.8% (n=844) of the participants were between the ages of 20-29, 69.8% (n=832) of the participants were women, 82.4% (n=982) of the participants were single, 10.7% (n=128) of the participants were employed in a job that requires a bachelor’s degree (officer etc.), 68.9% (n=821) of the participants were university students. 56.7% (n=676) of the university students were studying in a health department; of those, 28.5% (n=340) were studying in a medical faculty. It was found that 57.4% (n=684) of the participants had no healthcare professional in the family (Table 1).

The average score in GK of all participants about COVID-19 was found to be 47.39, and the GPL average score of all participants was found to be 45.97. Based on that, both the GK and GPL of the participants were determined to be at ‘good’ levels (Table 2).

Table 1. Socio-demographic characteristics of the participants (n=1192)

Characteristic Feature	Number (n)	Percentage (%)
Age		
10-19	72	6.0
20-29	844	70.8
30-39	114	9.6
40-49	76	6.4
50-59	80	6.7
60-69	6	0.5
Gender		
Female	832	69.8
Male	360	30.2
Marital status		
Married	210	17.6
Single	982	82.4
Currently a university student		
Yes	821	68.9
No	371	31.1
Departments (they were students, n=821)		
Medicine	340	28.5
Dentistry	138	11.6
Nursing	98	8.2
Vocational School of Health Services	100	8.4
Other	145	12.1
Working status (n=371)		
Doctor	52	4.4
Health Professional	66	5.5
Officer etc.	128	10.7
Technician etc.	54	4.5
Not working, retired, housewife etc.	71	6.0
Healthcare professional present in family		
Yes	508	42.6
No	684	57.4

Table 2. General knowledge and general precaution level average scores of the participants about COVID-19 (n=1192)

	Number (n)	Av	SD	Min	Max
GK Score	1.192	47.39	3.58	36	58
GPL Score	1.192	45.97	6.87	12	60

GK: general knowledge level, GPL: general precaution level, Av: Average, SD: Standard deviation, Min: Minimum, Max: Maximum

Distribution in the precautions, such as wearing a mask, gloves and taking food supplements, of the participants is shown in Table 3 (attitudes). It was determined that 79.7% (n=950) of the participants wore masks, 58.9% (n=702) wore gloves, and 69.1% (n=824) did not take any food supplement. Participants who wear masks but did not wear gloves or did not took any food supplements were determined to have a higher the GK score (47.58±3.64, 47.72±3.63, 47.50±3.54; respectively). It was significance difference between the GK score and participants who were wearing masks as a precaution (p=0.007). The average score in GPL scores of the participants who wore a mask, gloves and take food supplements were higher than those who did not wear a mask, gloves and did not take any food supplements (46.74±6.71, 47.05±6.61, 47.47±7.05; respectively). It was determined that there was a statistically significant difference

between the GPL mean score and the measures to wear masks, gloves, and take food supplements (p<0.00, in all groups; Table 3).

A comparison between the socio-demographic features and the GK average score of the participants is demonstrated in Table 4. The GK average score was noticed to be higher when compared to other variables in participants who were aged between 50-59 (48.97±3.61), female (47.46±3.78), married (48.17±3.45), not a university student (47.91±3.47), medical faculty student (47.91±3.47), working as a doctor (50.38±2.94), and having a healthcare professional in the family (47.47±3.73). There was a significant difference (p<0.05) between the GK average score and age (p=0.028), marital status (p=0.006), being a university student (p=0.012), being a student in a health department (p=0.000) and working status (p=0.001) (Table 4).

Table 3. Comparison between wearing a mask, gloves and taking food supplements against the general knowledge average score and the general precaution level average score (n=1192)

Precaution	Number (n)	Percentage (%)	GK Av± SD	P	GPL Av± SD	P
Wearing a mask						
Yes	950	79.7	47.58±3.64	0.007*	46.74±6.71	0.000*
No	242	20.3	46.63±3.26		42.99±6.73	
Wearing gloves						
Yes	702	58.9	47.15±3.54	0.094	47.05±6.61	0.000*
No	490	41.1	47.72±3.63		44.44±6.96	
Taking food supplements						
Yes	368	30.9	47.14±3.67	0.467	47.47±7.05	0.000*
No	824	69.1	47.50±3.54		45.31±6.69	

GK: general knowledge, GPL: general precaution level, *p<0.05, average score.

Table 4. Comparison between the general knowledge average score against socio-demographic data of the participants about the COVID-19 pandemic

Feature	Number (n)	Percentage (%)	Av Score	SD	Min	Max	P
Age							
10-19	72	6.0	46.19	4.14	36	55	0.028*
20-29	844	70.8	47.30	3.48	36	56	
30-39	114	9.6	47.22	3.52	40	52	
40-49	74	6.4	48.02	3.87	38	54	
50-59	80	6.7	48.97	3.61	42	58	
60-69	6	0.5	48.00	4.00	44	52	
Gender							
Female	832	69.8	47.46	3.78	36	58	0.762
Male	360	30.2	47.36	3.50	36	56	
Marital status							
Married	210	17.6	48.17	3.45	38	54	0.006*
Single	982	82.4	47.22	3.59	36	58	
Currently a university student							
Yes	824	69.1	47.15	3.61	36	56	0.012*
No	371	31.1	47.91	3.47	38	58	
Departments							
Medicine	340	28.5	48.32	3.62	38	56	0.000*
Dentistry	138	11.6	46.75	3.27	38	56	
Nursing	98	8.2	46.16	3.30	40	54	
Vocational School of Health Services	100	8.4	45.86	3.45	36	52	
Working status							
Doctor	52	4.4	50.38	2.94	44	58	0.001*
Health Professional	66	5.5	48.30	3.10	40	52	
Officer etc.	128	10.7	47.04	3.57	39	54	
Technician etc.	54	4.5	47.07	3.44	38	54	
Not working, retired, housewife etc.	71	6.0	47.94	3.20	42	53	
Healthcare professional present in family							
Yes	508	42.6	47.47	3.73	38	58	0.846
No	684	57.4	47.33	3.47	36	56	

*p<0.05; GK: general knowledge, Av: Average, SD: Standard deviation, Min: Minimum, Max: Maximum

Table 5 demonstrates the GPL average score of participants according to their socio-demographic features. According to that, participants who were between the ages of 60-69 (48.33±4.50), female (46.83±6.52), married (48.81±5.78), not a

university student (47.58±6.61), studying at a nursing department (47.65±5.47), working as a healthcare professional (nursing etc.) (50.18±4.98), did not have a healthcare worker in the family (47.58±6.61) were found higher GPL average score

when compared to other socio-demographical variables. A statistically significance difference was determined in between the GPL average score and age (p=0.012), gender (p=0.000), marital status

(p=0.000), being a university student (p=0.002), working status (p=0.000), and having a healthcare professional in the family (Table 5)

Table 5. Comparison between the general precaution level average score against socio-demographic data of the participants about the COVID-19.

Feature	Number (n)	Percentage (%)	Av Score	SD	Min	Max	P
Age							
10-19	72	6.0	46.16	6.07	34	57	0.012*
20-29	844	70.8	45.34	6.84	12	58	
30-39	114	9.6	48.01	5.98	37	58	
40-49	74	6.4	48.13	6.15	34	57	
50-59	80	6.7	47.37	8.79	24	60	
60-69	6	0.5	48.33	4.50	44	53	
Gender							
Female	832	69.8	46.83	6.52	22	60	0.000*
Male	360	30.2	43.99	7.26	12	57	
Marital status							
Married	210	17.6	48.81	5.78	33	60	0.000*
Single	982	82.4	45.37	6.94	12	58	
Currently university student							
Yes	824	69.1	45.26	6.87	12	58	0.000*
No	371	31.1	47.58	6.61	24	60	
Departments							
Medicine	340	28.5	42.90	7.26	12	58	0.002*
Dentistry	138	11.6	47.08	6.37	28	57	
Nursing	98	8.2	47.65	5.47	37	56	
Vocational School of Health Services	100	8.4	46.68	5.86	28	57	
Working status							
Doctor	52	4.4	43.73	5.24	34	53	0.000*
Health Professional	66	5.5	50.18	4.98	38	58	
Officer etc.	128	10.7	46.62	5.69	34	60	
Technician etc.	54	4.5	50.07	7.58	24	58	
Not working, retired, housewife etc.	71	6.0	47.82	8.07	28	57	
Healthcare professional present in family							
Yes	508	42.6	45.26	6.87	12	58	0.002*
No	684	57.4	47.58	6.61	24	60	

*p<0.05; GPL: general precaution level, Av: Average, SD: Standard deviation, Min: Minimum, Max: Maximum

DISCUSSION

The Coronavirus 2 agent (SARS-CoV-2), which came up as Coronavirus disease 2019 (COVID-19), causing severe acute respiratory syndrome, became a pandemic. Thus, compliance with the public health precaution measures by the human population of each country had noticeably allowed the respective country to halt the spread of the disease. As mentioned above, the compliance with set precautions as well as the high level of awareness among the population of Northern Cyprus resulted in cessation of new emerging cases by April 17th, 2020 as the last patient receiving treatment was discharged from a hospital on May 11th, 2020. During that period of time 108 cases had been identified (17,18).

Different outcomes had been observed in different countries since the start of the pandemic until today across the world. England, for instance, implemented an alternative strategy; wherein they allowed the virus to disseminate in favour of an increased herd immunity across its population. However, before execution, the country ensured that the elderly population and the population with co-existing comorbidities would receive sufficient protection. This strategy was abandoned shortly in the following period (19).

When looking at examples from Italy, it was noted that the insufficient preparation at the time during the first 2 weeks of the pandemic played an important role in dictating the disease dynamics (20). The first case in Northern Cyprus was seen on March 10th, 2020, and the efforts to raise awareness in the population well in advance had resulted in a positive outcome (10).

In a WEB-based study about COVID-19 carried out on a group comprised of 68% health workers in Asia (30.2% of the participants were doctors, and 29.6% were medical students) it was found out that a significance number of participants had insufficient or weak knowledge on the methods of transmission of the disease and symptoms with a ratio of 61% and 63.6% respectively (21). In our study 65.6% of the participants (n=782) were working as a healthcare professional. The level of general knowledge about the COVID-19 transmission methods, signs and symptoms among the people who worked as a healthcare professional was determined to be 47.55 ± 3.62 during the pandemic.

Among individuals that work in a non-health related field, the GK average scores were determined to be 47.07 ± 3.51 . According to this, there was no statistical difference when comparing individuals working in a health-related field and those who did not ($p=0.118$); both groups achieved 'good' GK levels. Once the results were interpreted, the ratio of awareness among the people residing in Northern Cyprus was found to be high during the COVID-19 pandemic. Whether an individual works as a healthcare professional or not carried no significance.

In the study where participants were medical students, it was found that 79.6% of the students had a 'high' level of knowledge about COVID-19 (22). It was observed that students who were studying medicine in Northern Cyprus had achieved a higher average GK score when compared to students of other faculties (48.32 ± 3.62). This average illustrates that medical

students have 'good' GK levels surrounding the COVID-19 pandemic.

In a study done in Iran during the pandemic, it was reported that more than half the nurses (56.5%) demonstrated good knowledge levels (23). The overall average scores of individuals working in a health-related field in Northern Cyprus was determined to be 48.14 ± 3.25 ; with their average GK score at the level 'good'. Among the participants' occupations, the highest average General Knowledge (GK) scores belonged to doctors (50.38 ± 2.94). These results demonstrate that having high GK levels among individuals, both in healthcare professionals/students and other professionals, plays an important role when it comes to the prevention of disease spread.

In a study done in China, at the end of the first month of the outbreak, it was found that the ratio of correct answers in a knowledge survey about COVID-19 was between 70.2-98.6%, and that the mean knowledge level was determined at 90% (24). In our study the ratio of correct answers in the GK questions around the COVID-19 pandemic ranged from 24.5-99.5% and the average percentage was 76.3%. Thus, the society that succeeded in controlling the outbreak which broke out in China had high levels of knowledge and awareness, which was comparable to that of the population of Northern Cyprus.

Myanmar, a country with a population of over 54 million, had faced 378.3 thousand cases by August 2021. Criteria such as hand hygiene, mask wearing, and abidance by social distancing rules demonstrated a compliance ratio of over 80% by the population, indicating a high awareness ratio in

the study (25). Similarly, the Hong Kong community, with a population of over 7 million people, demonstrated a 90% awareness ratio (26). It was shown that the compliance ratio to precautions in Northern Cyprus was high (Table 3).

Similar to other research results, our study results emphasize that implementing precautions by the population can be effective in reducing the number of cases. However large the sample of our study is, the results cannot be generalized to all island populations. This is the limitation of the study.

There is a study in the literature confirming the importance of comprehensive approaches combining education and advice in increasing COVID-19 vaccination rates among nurses and midwives in Cyprus (27). Similar to the results of this study, our results emphasize that there is a direct correlation between education level and knowledge scores about COVID-19. It was determined that the knowledge, attitude and behaviour of both healthcare professionals/students and other professionals about COVID-19 were good. The fact that using personal protective equipment due to COVID-19 is an indication that the participants are aware of the pandemic. As a result of the measures taken at the border gates opened as of 30th June 2020, the entrance of the country to be inspected by the RT-PCR test shows that the determined cases in the North Cyprus are import cases. After April 17, no-community-based cases have been identified in people who are living on the island. However, in the ongoing process, cases started to be seen again.

Limitation

This study was limited to participants who agreed to participate and met the research criteria.

CONCLUSIONS

COVID-19 still continues to affect the whole world with positive cases and deaths. For this reason, the necessary information load and importance provide the desired and positive development of attitudes and behaviors.

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