

# INVESTIGATION OF UNDERGRADUATE'S KNOWLEDGE, ATTITUDE AND BEHAVIORS IN THE COVID-19 ERA, TURKEY

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## ABSTRACT

The COVID-19, which affects the world, has become the only agenda for all humanity. Due to COVID-19, the number of cases and deaths is gradually increasing and people's living conditions are negatively affected. Universities have also been heavily affected by COVID-19. With this study, it was aimed to determine the knowledge, attitude and behavior levels of Turkish university students towards COVID-19. This descriptive descriptive cross sectional study was carried out with undergraduate students studying at Bingöl University between August-September 2020. Online data-based survey method was used as data collection method. The research was completed with 1054 students. The age range is (17-49), and the mean age of the participants is  $22.11 \pm 4.21$  years. 73.1% of the participants are women and 26.9% are men. 68.3% of them stated that they are worried about the future due to COVID-19. In our study, it was found that 81.8% of the students had medium level knowledge, 83.9% had a high level of attitude and 89.6% had a high level of behavior. A statistically significant difference was found in knowledge, attitude and behavior according to sociodemographic characteristics ( $p < .05$ ). There is also a significant positive correlation between knowledge, attitude and behaviour towards COVID-19 ( $p < .05$ ). University students' knowledge, attitude and behavior towards COVID-19 are at a good level. Information should be given to students in their educational curricula and online student platforms to raise awareness of COVID-19 and keep them informed of current developments.

**KEYWORDS:** COVID-19, Knowledge, Attitudes, Behavior, University students.

## INTRODUCTION

Coronavirus disease (COVID-19) was first seen in China/Wuhan in December 2019 and then affected the whole world, especially countries close to China (1). The rate of transmission and spread caused the World Health Organization (WHO) to declare the COVID-19 infection as a pandemic on March 11, 2020 (2). Known symptoms of the disease occur in the form of high fever, sore throat, difficulty breathing, flu-like symptoms such as cough, fatigue, and shortness of breath. Due to the mutation of the virus, loss of smell and slurred speech have recently emerged as new symptoms (3, 4).

As of September 2020, according to data from the World Health Organization, the total number of cases detected worldwide due to the COVID-19 outbreak is 31 million, and the number of deaths is approximately 1 million (5). Along with the world, the coronavirus pandemic in Turkey continues to show its effects. Since the first cases seen in Turkey, March 9, 2020, the

total number of cases is 305.000, the number of deaths is 7.574 and the number of those who recovered is approximately 270.000. The number of patients with severe conditions is 1491 (6).

The COVID-19 pandemic has changed the course of daily life and has affected many sectors. Universities represent a critical factor in innovation and human capital development and play a central role in the success and sustainability of the knowledge economy (7). Therefore, studies on COVID-19, which deeply affect the world, should be carried out in universities that are knowledge production centers and these studies are quite important. This study aims to determine the knowledge, attitudes and behaviors of university students towards COVID-19.

## MATERIALS AND METHODS

### Samples

This descriptive cross sectional study was carried out with university students of Bingöl University between August and September 2020. There are 8520

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undergraduate students at the university. However, due to the difficulty in reaching all students, the sample has been selected. The sample size of the study was calculated according to the formula below (8):

$N$  = Universe

$n$  = Number of samples

$p$  = Frequency of the feature we are interested in in the universe (0.50 was taken)

$q$  = Frequency of not seeing the feature we are interested in in the universe (1- $p$ )

$Z$  = Standard value according to confidence level (from normal distribution tables 1.96 for 95%)

$t$  = tolerable error (0.05 was taken)

$$n = \frac{N \times p \times q \times Z^2}{[N - 1 \times t^2] + (p \times q \times Z^2)}$$

According to the formula, the minimum sample size that can represent the population at 95% confidence interval was calculated as 361. Within the scope of coronavirus measures, students were reached through an online data-based survey method instead of face to face interview technique. However, some students did not participate in the study due to reasons such as illness and not wanting to fill out the questionnaire. The research was completed in line with the ethical principles of the Declaration of Helsinki with 1054 university students who voluntarily participated in the study.

### Questionnaire

In the research, a questionnaire form developed by Srichan et al. to determine the knowledge, attitude and behavior towards COVID-19 was used (9). We contacted T. Apidechkul, the responsible author in the original study, and the English version of the questionnaire was sent to us after getting the necessary permission for the translation and use of the questionnaire form into Turkish. The questionnaire was translated from English to Turkish by three people with an advanced level of English. The resulting questionnaire was translated back into English by a total of three people, one of whom was a linguist and the other two were native English. At the last stage, the semantic difference was prevented by ensuring the equality of forms in both languages (Appendix A) (10). Reliability indicates whether all items in a measurement tool are homogeneous (11). In this study, Cronbach's Alpha (CA) coefficient was calculated to test the internal consistency of the questionnaire form.

The questionnaire form used in the study consists of 4 parts and 38 questions.

## Appendix A

### Questionnaire for the COVID-19 Project

#### Part I General information

1. Gender
  - a) Male
  - b) Female
2. Age \_\_\_\_\_ years
3. Place of residence
  - a) Province
  - b) District
  - c) Village
4. Income
  - a)  $\leq$  3500 Turkish Liras
  - b) 3501-6000 Turkish Liras
  - c)  $\geq$  6001 Turkish Liras
5. Number of family member
  - a) 1-3
  - b) 4-6
  - c)  $\geq$  7
6. Are you worried about the future because of COVID-19?
  - a) Worried
  - b) Not worried
  - c) Undecided

#### Part II Knowledge regarding COVID-19 prevention and control

Item	Question	Correct	Incorrect
1.	COVID-19 is a close-contact communicable disease		
2. (n)	COVID-19 is caused by having unhealthy food in everyday		
3. (n)	COVID-19 is a treatable disease		
4.	Everyone is vulnerable for the COVID-19 infection		
5.	Vaccine for COVID-19 is not available today		
6. (n)	Children are the highest vulnerable for COVID-19 infection		
7.	Having a good personal hygiene could prevent COVID-19 infection		
8. (n)	Self guarantee is needed only those who have signs and symptoms related to COVID-19		
9.	Antibiotic is used for treatment COVID-19 disease		
10. (n)	COVID-19 is targeted only elderly population		

\* n is the negative question

**Part III Attitudes toward COVID-19 prevention and control**

Item	Question	Totally disagree	Disagree	Neutral	Agree	Totally agree
1.	COVID-19 is serious disease					
2.	To prevent and control COVID-19, we need to collaborate with a doctor from health center.					
3. (n)	I feel very comfortable to go movie					
4. (n)	I will visit my grandfather and grandmother next few days as usual					
5.	Calling and chatting through video call is preferred to communicate with parents, instead to see them at their resident					
6. (n)	I will join social activities in this coming day					
7. (n)	Meeting and discussing with friends or colleagues with close distance is acceptable					
8.	Stay at home is a good way to prevent and control COVID-19					
9.	Everyone needs to responsible to prevent and control COVID-19, not just a doctor.					
10. (n)	Regularly updating the information on COVID-19 is not necessary					

\* n is the negative question

**Part IV Behaviors toward COVID-19 prevention and control**

Item	Question	Always	Sometime	Never
1. (n)	Frequency of going to crowded areas such as a theater			
2. (n)	Frequency of having close contact with people who you know well or someone you do not know them			
3. (n)	Frequency of going to a hospital			
4.	Frequency of self check on signs and symptoms related to COVID-19 disease			
5.	Frequency of cooperation with the public health measures to prevent and control COVID-19			
6.	Frequency to support the effective practice to prevent elderly and other vulnerable for COVID-19 infection			
7.	Frequency of receiving the latest COVID-19 information			
8.	Frequency of wearing a surgical mask			
9.	Frequency of washing hands each day			
10.	Frequency of use soap while washing hands			

\* n is the negative question

# Sociodemographic characteristics

It consists of six questions created by the authors as a result of the literature information such as gender, age, place of residence, monthly income, number of members in the family and future anxiety due to coronavirus.

# Knowledge regarding COVID-19 prevention and control

There are 10 questions to determine the knowledge levels of the participants about COVID-19. 5 of the questions contain negative and 5 have positive statements. It is calculated by giving "0" points for wrong answers and "1" points for correct answers. Accordingly, those who score 0-5 are considered to have a poor knowledge level, those who score 6-8 are considered to be moderate, and those who score 9-10 are considered to be good (9).

# Attitudes toward COVID-19 prevention and control

To determine the attitudes of the participants towards COVID-19, there are 10 questions in a five-point Likert type. 5 of the questions contain negative attitude statements and 5 of them contain positive attitudes. It is scored as 1 point for "Totally disagree" and 5 points for "Totally agree". Those who score below 26 are considered to be poor, those who score between 26-40 points as a medium, and those who score 41 and above are considered to have a good attitude (9).

# Behaviors toward COVID-19 prevention and control

There are 10 questions regarding the respondent behaviors of the participants towards COVID-19. The questions were scored in 3-Likert type with 3 points for "always", 2 points for "sometimes" and 1 point for "never". The behavior level of those below 16 points is considered to be poor, those who score between 16-24 points are considered to have moderate, and those who score 25 and above are considered to have a good response behavior (9).

# Statistical analysis

The analysis of the research data was done with the SPSS (Version 21, Chicago IL, USA) statistics program. The arithmetic mean, standard deviation, and frequency analysis were used to analyze descriptive statistics. Whether the data show normal distribution or not was determined by the kurtosis and skewness values. It was observed that the Skewness and Kurtosis values were in the  $\pm 2$  range, showing a normal distribution (12). Due to the normal distribution of the data, the Independent Samples T-Test was used to compare two independent groups, One Way ANOVA to compare three or more groups, Post Hoc Tukey Test to determine the differences between groups, and Pearson Correlation analysis to

determine the relationships between variables. Statistically, a value of  $p < 0.05$  was considered significant.

# Ethical Considerations

Ethics committee permission was obtained from Bingöl University (dated 13/05/2020 and numbered 92342550/044/E8505) for the research.

# RESULTS

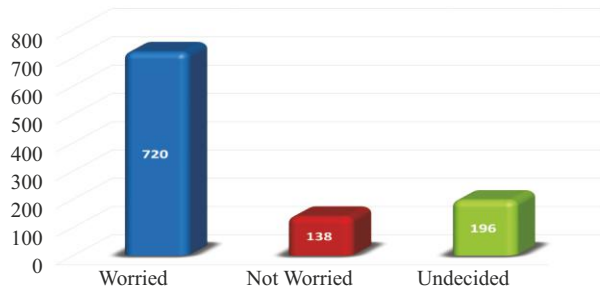
The age range is (17-49), and the mean age of the participants is  $22.11 \pm 4.21$  years with majority within the age group of 21-24 years, 578 (54.8%). Greater number of the participants were females 770 (73.1%) while males are 284 (26.9%). Most of the participants were lived in the province 698 (66.2%), 702 (67.2%) of them have a monthly income of 3500 TL or less, 678 (64.3%) of them have 4-6 members of family. The sociodemographic characteristics of the participants are presented in Table 1.

Variables	n	%
Sex		
Female	770	73,1
Male	284	26,9
Age groups (year)		
$\leq 20$	358	34,0
21-24	578	54,8
$\geq 25$	118	11,2
Place of residence		
Province	698	66,2
District	216	20,5
Village	140	13,3
Montly income		
$\leq 3500$ TL	708	67,2
3501-6000 TL	214	20,3
$\geq 6001$ TL	132	12,5
Number of family member		
1-3	196	18,6
4-6	678	64,3
$\geq 7$	180	17,1
Are you worried about the future due to COVID-19?		
Worried	720	68,3
Not worried	138	13,1
Undecided	196	18,6

Table 1: Sociodemographic Characteristics of the Participants



With the question "Are you worried about the future because of COVID-19?", it was found that 720 (68.3%) of the participants were worried. 138 (13.1%) were not worried, and 196 (18.6%) were undecided (Fig. 1).



**Fig. 1: Worried about the Future due to COVID-19**

The distribution of knowledge, attitudes and behaviors of university students towards COVID-19 were examined. It was found that 81.8% (n=862) have moderate level of knowledge, 83.9% (n=884) had good level of attitude, 89.6% (n=944) had high level of behavior (Table 2).

	Poor		Moderate		Good	
	n	%	n	%	n	%
Knowledge	122	11.6	862	81.8	70	6.6
Attitude	2	0.2	168	15.9	884	83.9
Behavior	2	0.2	108	10.2	944	89.6

**Table 2: Distribution of Participants' Knowledge, Attitudes and Behaviors to Wards COVID-19**

	n	Knowledge		Attitude		Behavior	
		M±SD.	p	M±SD.	p	M±SD.	p
<i>Gender</i>							
Female	770	6.83±1.14	≤0.001	45.08±4.11	≤0.001	27.46±1.98	≤0.001
Male	284	7.13±1.20		43.88±5.45		26.50±2.44	
<i>Age groups (year)</i>							
≤20 <sup>1</sup>	358	6.85±1.18	0.14	44.75±4.36	0.15	27.35±2.27	0.02 1-3=0.01
21-24 <sup>2</sup>	578	6.97±1.16		44.91±4.37		27.21±1.89	
≥25 <sup>3</sup>	118	6.79±1.12		44.01±5.74		26.72±2.84	

**Table 4: Knowledge, Attitude and Behavior towards COVID-19 according to Sociodemographic Characteristics of University Students**

Descriptive information and correlations for the questions in our study are presented in Table 3. It was found that the average score of the participants' knowledge level about COVID 19 ( $76.91 \pm 1.16$ ) is moderate, the mean score of the attitude level ( $44.75 \pm 4.54$ ) was good, and the behavior level ( $27.20 \pm 2.15$ ) was good. It is seen that the CA coefficient is above 0.7. It is seen that there is a slight and significant correlation in the same direction between knowledge, attitude and response preparedness skill towards COVID-19 ( $p < 0.01$ ).

Variables	1	2	3	M.	SD.	CA
1. Knowledge	1			6.91	1.16	0.76
2. Attitude	0.351**	1		44.75	4.54	0.81
3. Behavior	0.301**	0.378**	1	27.20	2.15	0.85

**Table 3: Correlation, Reliability and Statistical Findings of Variables**

When the questions were examined according to sociodemographic characteristics; A statistically significant difference was found between the groups in the level of knowledge about COVID-19 according to gender, place of residence, monthly income and number of family member, attitude level by gender and number of family member, and behavior level by gender and age groups (Table 4).

<i>Place of residence</i>								
Province <sup>1</sup>	698	7.00±1.13	≤0.001	44.98±4.65	0.08	27.22±2.19	0.80	
District <sup>2</sup>	216	6.63±1.20	1-2≤0.001	44.28±4.34		27.23±1.94		
Village <sup>3</sup>	140	6.90±1.20		44.37±4.22		27.10±2.27		
<i>Montly income</i>								
≤3500TL <sup>1</sup>	708	6.83±1.19	0.003	44.57±4.82	0.09	27.13±2.31	0.33	
3501-6000 TL <sup>2</sup>	214	7.07±1.18		1-2=0.02		45.34±3.94		27.35±1.77
≥6001 TL <sup>3</sup>	132	7.12±0.94		1-3=0.02		44.77±3.78		27.33±1.80
<i>Number of family member</i>								
1-3 <sup>1</sup>	196	6.97±1.10	≤0.001	44.74±4.20	0.001	27.08±1.97	0.21	
4-6 <sup>2</sup>	678	7.03±1.13	1-3≤0.001	45.05±4.21	2-3≤0.001	27.29±2.05		
≥ 7 <sup>3</sup>	180	6.41±1.22	2-3≤0.001	43.67±5.80		27.02±2.66		

Independent Samples T Test, One Way ANOVA, Post Hoc Tukey Test, M: Mean, SD:Standard deviation, CA: Cronbach's Alpha

**Cont. Table 4: Knowledge, Attitude and Behavior towards COVID-19 according to Sociodemographic Characteristics of University Students**

## DISCUSSION

Universities, whose origins date back to very ancient times, are institutions that conduct both education and research in different specialties, train qualified employees who meet developing and developed economic needs. In other words, universities are considered as higher education and scientific institutions that provide service to the society, where knowledge is produced and researches are conducted (13).

The COVID-19 outbreak, which negatively affects life all over the world as a health crisis, has caused great changes in people's lifestyles and the functioning of institutions. In this context, universities are one of the institutions most affected by COVID-19. Therefore, it is inevitable for universities, which have an important place in the education sector, to be affected in terms of their working methods and scientific activities in the COVID-19 process. Most of the universities continue their education online. Besides, considering that this process will continue in the coming days, it is believed that different perspectives and methods on this issue will be developed. This study aims to determine the level of knowledge, attitude and behavior of university students towards COVID-19.

In our study, it was found that 81.8% of the students had medium level knowledge, 83.9% had a high level of attitude and 89.6% had a high level of behavior. In a study conducted by Patidar et al. with new graduates in

India, 52.89% of them were found to have sufficient knowledge and attitude (14). In the study conducted by Olaimat et al. with university students in Jordan, it was found that 56.5% had good knowledge, 40.5% had moderate knowledge, and 3% had poor knowledge (15). In the study conducted by Alqrache et al. with university students in Saudi Arabia, it was found that the participants had moderate knowledge (16). Other research results were lower than our study. It is considered that the reason for this is that other studies were carried out in the first months of the onset of COVID-19 and therefore the awareness of the participants was low.

In the study of Olaimat et al., there were no significant differences in the level of knowledge of students according to their sociodemographic characteristics, such as age, gender, place of residence and university location (15). In our study, the level of knowledge of males was higher than females. The level of knowledge of those living in the province was found to be higher than those living in the district. The knowledge level of those with medium and high monthly income was higher than those with low monthly income. The level of knowledge of those with fewer members in the family was found to be higher than those with more. The attitudes of women are higher than men and those living in the district have higher attitudes than those living in the village. When

the behavioral levels were examined, it was found that women were at a better level than men, and those who were younger than those who were older. It is considered that younger ones may have higher awareness due to more social media and internet usage than older ones. It is also considered that increasing socio-economic status has a positive effect on knowledge, attitude and behavior. Due to the biopsychosocial characteristics of women, their higher ability to attach importance to hygiene and to comply with the rules is considered to be effective in having higher attitudes and behavior. Similarly, in the study of Bostan et al., women were found to have better attitudes and behaviors compared to men (17).

In our study, it was found that there is a slight and significant correlation in the same direction between knowledge, attitude and behavior towards COVID-19. In a study conducted by Uzuntarla (18) with students, it was found that increasing the level of knowledge by providing education affects attitude and behavior positively. The research results are similar to the literature.

It is evaluated that COVID-19 will cause many problems in the short and long term and will have negative psychological effects on children, young people, the elderly and healthcare personnel (19). In the study conducted by Korkmazer et al. With healthcare professionals in Azerbaijan, it was observed that the majority of the participants perceived themselves at risk, their anxiety levels were quite high, and it was suggested that studies should be conducted to reduce anxiety (20). Similarly, 68.3% of the participants in our study stated that they are worried about the future due to COVID-19. It is estimated that disrupting education, online training, inability to conduct practice internships, decreased employment and an increase in the unemployment rate due to COVID-19 are effective, in worrying about the future of the students.

## CONCLUSION

As a result, it was found in our research that the knowledge, attitude and behaviors of university students towards COVID-19 are at a good level. In order to raise awareness about COVID-19 and keep up to date with current developments, students should be informed in their education curricula and online student platforms. Besides, studies examining the effect of online education on students are recommended.

The research is limited to the university where the data are collected and cannot be generalized to the entire universe.

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