Abstract

Aim: The knowledge, attitude, and practice level of the people about the disease can provide data on behavioral change for the health authorities. This study aims to measure the knowledge, attitude, and practice levels of people living in Turkey towards COVID-19 and determine their anxiety levels.

Material and Methods: Eight hundred sixty people were reached through online surveys between May 20-30, 2020. Along with questions measuring demographic features, Knowledge, Attitude, and Practices (KAP) Towards COVID-19 and Coronavirus Anxiety Scale (CAS) were used in the research. Descriptive statistical analysis, chi-square tests, t-tests, one-way analysis of variance (ANOVA), multiple linear regression analyses, and logistic regression analysis were used in the study.

Results: The overall mean of the KAP scale was 10.65 ± 1.26. This shows that Turkish people have a high level of knowledge about COVID-19. Moreover, the overall mean of the anxiety scale was 1.96 ± 3.30, and the general anxiety levels of the participants were determined to be very low. Most of the participants showed positive attitudes towards the successful control of COVID-19 (65.9%) and Turkey’s ability to defeat the disease (82.1%).

Discussion: It can be stated that this study is important because it is the first study evaluating the KAP and CAS levels for COVID-19 in Turkey. As a result, health education programs and awareness-raising activities targeting individuals with less knowledge about COVID-19 can be important in controlling the outbreak.

Keywords
COVID-19; Knowledge; Attitude; Anxiety; Turkey
Knowledge, attitude and practices (KAP) towards COVID-19

Introduction
Coronavirus disease, also known as COVID-19, is an expanding pandemic caused by a new human coronavirus (available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports) [1]. COVID-19 was first reported in December 2019, in Wuhan. According to the COVID-19 situation report by WHO on 1 February 2021, there were 102,359,513 total confirmed cases, and the total confirmed death number increased to 2,217,005 (available at: https://www.who.int/publications/m/item/weekly-operational-update-on-covid-19---1-february-2021).

Understanding individuals' knowledge, attitude, and behavior towards COVID-19 in the early stages of the epidemic helps governments and authorities to effectively apply the preventive and control measures [2]. Knowledge, attitudes, and practices regarding COVID-19 (KAP) play an important role in determining whether the community is ready to accept the behavior change measures taken by healthcare authorities. Evaluation of the society's KAP level in relation to COVID-19 will help in the development of preventative strategies related to the disease and programs aimed at encouraging and improving health [3]. Collecting more information about anxiety, knowledge, and attitude of the society during an outbreak is crucial for the improvement of public health authorities' and clinicians’ efforts. This study aims to measure the knowledge, attitude, and practice levels of people living in Turkey towards COVID-19 and determine their anxiety levels.

Material and Methods
Participants
The population of this research consists of people who are above 18 years old and living in the seven regions of Turkey. The questionnaire was distributed via e-mail and expanded via snowball sampling. Data were collected for ten days. A total of 860 people participated in the study.

Measures
In the research, a questionnaire form was used as a data collection tool. The first part was devoted to the demographic features of the participants. In the second part, KAP which is developed by Lee (2020) [4] was used, in the third part, Coronavirus Anxiety Scale (CAS), which is a short mental screening to identify possible cases of dysfunctional anxiety related to the COVID-19 crisis and whose reliability and validity was completed by Bicer et. al. (2020) [5] was used. CAS is a 5-point Likert scale. KAP consists of 16 questions in total. Questions from 1-12, related to knowledge dimension, were answered as “true”, “false”, and “I don't know”, and they evaluated the level of knowledge. The highest score from this dimension was calculated as 12. Also, the 5th, 6th, and 9th questions of the scale were reverse coded. Two questions were included for the measurement of Attitude and Practice each, and these questions were dichotomous, which were answered as “yes” or “no”.

Statistical Analysis
The independent samples method was used to compare KAP scores according to demographic characteristics. T-test, the appropriate one-way variance analysis (ANOVA), or Chi-Square tests were made. Multivariate linear regression analysis, in which all demographic variables are used as independent variables and the knowledge score as the result variable was used to define factors related to information. Similarly, binary logistic regression analysis was used to identify the factors related to attitude and practice. In order to measure the relations between the variables and KAP and CAS, standardized regression coefficients (β), probability ratio (OR), and 95% confidence intervals were used. Data analyses were made with SPSS 22.0 version. The statistical significance level was identified as p<0.05.

Ethical Considerations
The necessary permissions for the scales used were obtained from their authors via e-mail. In addition, permission for the study was taken from the COVID-19 Scientific Research and Evaluation Committee within the body of The General Directorate of Health Care Services of the Republic of Turkey’s Ministry of Health (approved document number: 2020-05-12T13_15_57). Finally, ethics committee permission was taken from the Non-Interventional Clinical Research Ethics Committee of Sakarya University of Applied Sciences numbered 044.

Results
Women accounted for 66.4% of the participants and 33.6% of the participants were male. In addition, 62.9% (541) were single, 54.1% (293) were married and 3% (26) were divorced. Among the participants, 4.9% (42) had primary school education, 31.5% (271) had a high school education, 26% (224) had associate degree, 26% (224) undergraduate and 11.5% (99) graduate education. The average age in the sample was calculated as 29.35 (SD: 10.23, range: 18-72) years, and the average household income was 5,559.92 (SD: 3,611,50, range: 1,000-20,000). Among the survey participants, 52% (447) lived in the Marmara Region, 26.3% (226) in the Central Anatolia Region, and 21.7% (187) in other regions. It was also reported that 17.4% (150) of the participants were diagnosed with COVID-19.

In the dimension used for the measurement of the knowledge levels of the participants within the scope of the study, the highest score was reported as 12. The average knowledge score in the sample was calculated as 10.66 (SD: 1.26, range: 3-12). In the knowledge scale, the question with the highest frequency was K12, and the question with the lowest frequency was K5 (reverse question). Most of the participants indicated that COVID-19 was controlled successfully (65.9%), and they had positive attitudes toward Turkey’s ability to overcome the disease (82.1%). It was also seen that the participants highly adopted the practices such as avoiding crowded places (82.1%), and wearing masks when going out (96%). The highest score to be taken from the Coronavirus anxiety scale was 20. The anxiety score average was calculated as 1.97 (SD: 3,30, range: 0-20) in the sampling. Most of the participants answered questions such as “I felt dizzy, I had sleeping problems, I lost my appetite, I had nausea and stomach problems” with “rarely, less than a day or two or not at all”.

It was analyzed using t-test and ANOVA test (one-way variance analysis) whether the KAP evaluations of the participants and assessments of anxiety levels differ according to demographic variables. Tukey HSD test was used to determine from
Table 1. Results of multiple linear regression on factors associated with KAP

| Variable                      | Standardized Coefficient Beta | Standard error | t       | p     | VIF* |
|-------------------------------|-------------------------------|----------------|---------|-------|------|
| Gender                        |                               |                |         |       |      |
| Female                        | -.137                         | .008           | -4.059  | <0.001| 1.045|
| Male                          |                               |                |         |       |      |
| Education                     |                               |                |         |       |      |
| Primary School                |                               | .167           | .003    | 4.638 | <0.001| 1.187|
| High School                   |                               |                |         |       |      |
| Associate Degree              |                               |                |         |       |      |
| Undergraduate                 |                               |                |         |       |      |
| Graduate                      |                               |                |         |       |      |
| Region of Residence           |                               |                |         |       |      |
| Marmara                       |                               | .031           | .003    | .945  | .364 | 1.058|
| Central Anatolia              |                               |                |         |       |      |
| Aegean                        |                               |                |         |       |      |
| Mediterranean                 |                               |                |         |       |      |
| Black Sea                     |                               |                |         |       |      |
| Eastern Anatolia              |                               |                |         |       |      |
| Southeastern Anatolia         |                               |                |         |       |      |
| Marital Status                |                               | .088           | .008    | 2.033 | <0.001| 1.710|
| Married                       |                               |                |         |       |      |
| Single                        |                               |                |         |       |      |
| Divorced                      |                               |                |         |       |      |
| Age                           |                               | .093           | .008    | 2.131 | <0.001| 1.738|
| 18-29                         |                               |                |         |       |      |
| 30-49                         |                               |                |         |       |      |
| 50-72                         |                               |                |         |       |      |
| Total Household Income (TL)   |                               | .056           | .033    | .134  | .134 | 1.237|
| 1000-3999                     |                               |                |         |       |      |
| 4000-7999                     |                               |                |         |       |      |
| 8000 and higher               |                               |                |         |       |      |
| Has someone you know been diagnosed with coronavirus? | | | | | | |
| Yes                           |                               | -.086          | .059    | -2.543| <0.001| 1.016|
| No                            |                               |                |         |       |      |

*VIF- Variance inflation factor
p<0.05 statistically significant

Table 1. Results of multiple linear regression on factors associated with CAS

| Variable                      | Standardized Coefficient Beta | Standard error | t       | p     | VIF* |
|-------------------------------|-------------------------------|----------------|---------|-------|------|
| Gender                        |                               |                |         |       |      |
| Female                        | -.169                         | .048           | -4.933  | <0.001| 1.045|
| Male                          |                               |                |         |       |      |
| Education                     |                               |                |         |       |      |
| Primary School                |                               | .005           | .022    | .140  | .889 | 1.187|
| High School                   |                               |                |         |       |      |
| Associate Degree              |                               |                |         |       |      |
| Undergraduate                 |                               |                |         |       |      |
| Graduate                      |                               |                |         |       |      |
| Region of Residence           |                               | .070           | .016    | 2.037 | <0.001| 1.058|
| Marmara                       |                               |                |         |       |      |
| Central Anatolia              |                               |                |         |       |      |
| Aegean                        |                               |                |         |       |      |
| Mediterranean                 |                               |                |         |       |      |
| Black Sea                     |                               |                |         |       |      |
| Eastern Anatolia              |                               |                |         |       |      |
| Southeastern Anatolia         |                               |                |         |       |      |
| Marital Status                |                               | -.013          | .053    | -3.05 | .761 | 1.710|
| Married                       |                               |                |         |       |      |
| Single                        |                               |                |         |       |      |
| Divorced                      |                               |                |         |       |      |
| Age                           |                               | -.051          | .048    | -1.163| .245 | 1.738|
| 18-29                         |                               |                |         |       |      |
| 30-49                         |                               |                |         |       |      |
| 50-72                         |                               |                |         |       |      |
| Total Household Income (TL)   |                               | .056           | .033    | .134  | .134 | 1.237|
| 1000-3999                     |                               |                |         |       |      |
| 4000-7999                     |                               |                |         |       |      |
| 8000 and higher               |                               |                |         |       |      |
| Has someone you know been diagnosed with coronavirus? | | | | | | |
| Yes                           |                               | -.086          | .059    | -2.543| <0.001| 1.016|
| No                            |                               |                |         |       |      |

*VIF- Variance inflation factor
p<0.05 statistically significant
which groups the difference originated for the factors with statistically significant difference as the result of the ANOVA test. The result of the analysis shows that the KAP scores of the participants show significant differences with gender (p<0.05). There was a significant difference between the participants’ KAP scores and their educational status (p<0.05). A significant difference was detected mainly between the graduates of primary school, high school, associate degree, and higher-level education graduates. Also, a significant difference was also detected between the marital status and ages of the participants (p<0.05). A significant difference was reported between married and single groups and between people aged 18-29 and older age groups. As a result of the analysis, it was seen that there was a significant difference between the CAS levels of the participants differed with the coronavirus diagnosis of someone they know (p<0.05). The significant difference was also detected mainly between the graduates of primary school, high school, associate degree, and higher-level education graduates. Also, a significant difference was detected between the marital status and ages of the participants (p<0.05). A significant difference was reported between married and single groups and between people aged 18-29 and older age groups. As a result of the analysis, it was seen that there was a significant difference between the CAS levels of the participants differed with the coronavirus diagnosis of someone they know (p<0.05). In the study, correlation analysis was conducted to examine the relationships between KAP and CAS. A strong negative relationship was detected between KAP and CAS (r=-0.730; p<0.05). A small positive relationship was detected between the belief that COVID-19 will be taken under control in the World and Turkey’s success on COVID-19 (r=0.235; p<0.01).

According to the results of the multiple regression analysis, in which demographic questions were the dependent variables and KAP was independent variable (Table 1), there was a significant effect on gender (β=−0.137: p<0.001), education (β=0.167: p<0.001), marital status (β=0.088: p<0.001), and age (β=0.093: p<0.001). There was no versatile evidence between the region of residence, total household income, coronavirus diagnosis of a person they know, and knowledge (VIF range = 1.016 and 1.237: p>0.05). In the multiple linear regression analysis conducted to determine the effect of demographic questions on CAS (Table 1), gender (β=−0.169: p<0.001), region of residence (β=0.070: p<0.001), and coronavirus diagnosis of a person known (β=−0.086: p<0.001) showed a significant relationship with anxiety score. There was no versatile evidence between the education, marital status, age, a total household income with anxiety (VIF range= 1.187 and 1.738: p>0.05).

Table 2. Chi-squares Test Results

| Variable | A1: Do you agree that COVID-19 will finally be successfully controlled? | A2: Do you have confidence that Turkey can win the battle against the COVID-19 virus? |
|----------|-------------------------------------------------|-------------------------------------------------|
|          | Agree (n, Row %) | Disagree (n, Row %) | Don’t know (n, Row %) | X² Value df* p | Yes (n, Row %) | No (n, Row %) | X² Value df* p |
| Gender   |                                                |                                                |                          |               |               |               |               |
| Female   | 371(65%) | 71(12.4%) | 371(65%) | X²=2.170 df=2 p=0.338 | 463(81.1%) | 108(19.8%) | X²=1.466 df=1 p=0.226 |
| Male     | 196(67.8%) | 40(13.8%) | 196(67.8%) | 392(92.9%) | 37(7.1%) |               |               |
| Education |                                                |                                                |                          |               |               |               |               |
| Primary School | 35(83.3%) | 0 | 35(83.3%) | X²=15.681 df=4 p=0.047 | 226(83.4%) | 45(16.6%) |               |               |
| High School | 178(65.7%) | 54(12.5%) | 178(65.7%) | 186(83%) | 38(17%) |               |               |
| Associate Degree | 155(69.2%) | 27(12.1%) | 155(69.2%) | 186(83%) | 38(17%) |               |               |
| Undergraduate | 142(63.4%) | 37(16.5%) | 142(63.4%) | 177(79%) | 47(21%) |               |               |
| Graduate | 57(57.6%) | 15(13.1%) | 57(57.6%) | 78(79.8%) | 20(20.2%) |               |               |
| Region of Residence |                                                |                                                |                          |               |               |               |               |
| Marmara | 301(63.4%) | 55(12.3%) | 301(63.4%) | 370(82.8%) | 77(17.2%) |               |               |
| Central Anatolia | 139(61.5%) | 31(13.7%) | 139(61.5%) | 185(81.9%) | 41(18.1%) |               |               |
| Aegean | 15(71.4%) | 0 | 15(71.4%) | X²=1.460 df=2 p=0.226 | 167(76.2%) | 52(23.8%) |               |               |
| Mediterranean | 21(72.4%) | 5(17.2%) | 21(72.4%) | 248(88.9%) | 31(11.1%) |               |               |
| Black Sea | 19(70.4%) | 1(3.7%) | 19(70.4%) | 248(88.9%) | 31(11.1%) |               |               |
| Eastern Anatolia | 20(71.4%) | 3(10.7%) | 20(71.4%) | 26(92.9%) | 2(7.1%) |               |               |
| Southeastern Anatolia | 52(63.4%) | 16(19.5%) | 52(63.4%) | 67(81.7%) | 15(18.3%) |               |               |
| Marital Status |                                                |                                                |                          |               |               |               |               |
| Married | 195(66.6%) | 40(13.7%) | 58(19.8%) | X²=2.448 df=2 p=0.054 | 243(82.9%) | 49(17.1%) | X²=0.181 df=2 p=0.693 |
| Single | 353(65.2%) | 118(21.8%) | 70(12.9%) | 443(81.9%) | 98(18.1%) |               |               |
| Divorced | 19(73.1%) | 2(3.8%) | 6(23.1%) | 21(80.8%) | 5(19.2%) |               |               |
| Age |                                                |                                                |                          |               |               |               |               |
| 18-29 | 356(65%) | 73(13.5%) | 110(20.4%) | 444(82.4%) | 95(17.6%) |               |               |
| 30-49 | 168(65.3%) | 36(13.5%) | 62(23.3%) | 215(80.8%) | 51(19.2%) |               |               |
| 50-72 | 48(78.2%) | 2(3.6%) | 10(18.2%) | 48(78.2%) | 7(12.7%) |               |               |
| Total Household Income (TL) |                                                |                                                |                          |               |               |               |               |
| 1000-3999 | 199(65.7%) | 35(11.6%) | 69(22.8%) | 263(86.8%) | 40(13.2%) |               |               |
| 4000-7999 | 251(67.1%) | 50(13.4%) | 73(19.5%) | 309(82.6%) | 65(17.4%) |               |               |
| 8000 and higher | 117(63.9%) | 24(12.4%) | 40(23.9%) | 135(73.9%) | 48(26.2%) |               |               |
| Has someone you known been diagnosed with coronavirus? | Yes | 95(63.5%) | 22(14.7%) | 32(22%) | 121(80.7%) | 29(19.3%) | X²=0.296 df=1 p=0.587 |
| No | 472(65.6%) | 89(12.5%) | 149(21%) | 586(82.5%) | 124(17.5%) |               |               |
| Attitude Score | 567 (65.9%) | 111 (12.9%) | 182 (21.2%) | X²=45.519 df=16 p<0.001 | 707 (82.2%) | 153 (17.8%) | X²=7.172 df=9 p=860 |

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The ratio of the right answers in the attitudes in KAP scale was generally high (Table 2); 65.9% of the participants believe that COVID-19 can be successfully controlled. Also, 82.2% of the participants believe that Turkey can win the war against the COVID-19 virus. Univariate analysis is significantly related to education and total household income (p <0.005); 83.3% of primary school graduates, 69.2% of associate degree graduates, 63.4% of undergraduate graduates believe that COVID-19 can be successfully taken under control. Furthermore, 82.6% of the people whose total household income is between 1000-3999 and 86.8% of the respondents with income between 4000-7999 believe that Turkey could win the war against the COVID-19 virus.

The level of correct answers was found to be high in the implementation questions on the KAP scale (Table 2) in general; 82.1% of the participants have not visited crowded places in recent days. In addition, 96% of the participants have worn masks when they left home recently. Univariate analysis is significantly related to gender, age and total household income (p <0.005); 85.8% of women have not gone to crowded places in recent days, and 97.2% have used masks in recent days; 87.3% of participants between the ages of 50-72 have not visited crowded places in recent days, and 98.2% of them wore masks when leaving the house. While 78.7% of the participants with a total household income of 8000 and above did not go to crowded places, 97.8% of them used masks when they left home recently.

### COVID-19 attitudes according to demographic variables

| Variable                        | Practices, n (%) or mean (standard deviation) | P1. In recent days, have you gone to any crowded place? | P1. In recent days, have you gone to any crowded place? |
|---------------------------------|---------------------------------------------|------------------------------------------------------|------------------------------------------------------|
|                                 |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
|                                 |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Gender                          |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Male                            |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Female                          |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Age                             |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| 18-29                           |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| 30-49                           |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| 50-72                           |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Region of Residence             |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Marmara                         |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Aegean                          |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Mediterranean                   |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Black Sea                       |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Eastern Anatolia                |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Southeastern Anatolia           |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Marital Status                  |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Married                         |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Single                          |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Divorced                        |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Education                       |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Primary School                  |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| High School                     |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Associate Degree                |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Undergraduate                   |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Total Household Income (TL)     |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| 1000-3999                       |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| 4000-7999                       |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| 8000 and higher                 |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Has someone you know been diagnosed with coronavirus? | X²-Value dt=1 p=0.005 | X²-Value dt=1 p=0.005 | X²-Value dt=1 p=0.005 |
| Yes                             |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| No                              |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |
| Practice Score                  |                                             | X²-Value dt=1 p=0.005                                  | X²-Value dt=1 p=0.005                                  |

*p<0.005 statistically significant

Results of Logistic Regression Analysis evaluating the relationship between socio-demographic features of the participants and their attitude towards COVID-19

It was detected that the knowledge score of COVID-19 (OR: 1.01: p>0.005) has no significant relationship between beliefs and socioeconomic characteristics of the participants. The ratio of the right answers in the attitudes in KAP scale was generally high (Table 2).
Knowledge, attitude and practices (KAP) towards COVID-19. It was determined that the COVID-19 knowledge score (OR: 0.93; p> 0.005) has no significant relationship with going to crowded places in recent days. However, it was seen that women pay attention to going to crowded places 2.27 times more than men. The COVID-19 knowledge score (OR: 0.65; p <0.001) was found to be significantly associated with wearing a mask when leaving home recently. It was detected that those with a total household income of 1000-3999 TL were 4.01 times more careful about wearing a mask when leaving home than the group with an income of 8000 or more.

Table 3. Logistic regression analysis results

| Variable                  | OR    | P   | OR    | P   |
|---------------------------|-------|-----|-------|-----|
| A1: disagree with final success (vs. agrees) |       |     | A2: no confidence of winning |     |
| Gender                    |       |     |       |     |
| Female                    | 1.17  | 0.526 | 0.75  | 0.177 |
| Male (Reference)          |       |     |       |     |
| Education                 |       |     |       |     |
| Primary School            | 1.50  | 0.989 | 2.21  | 0.240 |
| High School               | 1.00  | 0.990 | 0.92  | 0.817 |
| Associate Degree          | 1.24  | 0.621 | 0.92  | 0.814 |
| Undergraduate             | 0.75  | 0.466 | 0.85  | 0.602 |
| Graduate (Reference)      |       |     |       |     |
| Region of Residence       |       |     |       |     |
| Mediterranean             | 0.34  | 0.234 | 0.13  | 0.019 |
| Central Anatolia          | 0.46  | 0.312 | 0.35  | 0.179 |
| Marmara                   | 0.56  | 0.454 | 0.40  | 0.238 |
| Aegean                    | 823   | 0.992 | 0.24  | 0.125 |
| Black Sea                 | 2.04  | 0.578 | 0.61  | 0.609 |
| Southeastern Anatolia     | 0.33  | 0.163 | 0.29  | 0.132 |
| Eastern Anatolia (Reference) |     |     |       |     |
| Marital Status            |       |     |       |     |
| Married                   | 0.53  | 0.322 | 1.10  | 0.855 |
| Single                    | 0.22  | 0.169 | 1.35  | 0.574 |
| Divorced (Reference)      |       |     |       |     |
| Age                       |       |     |       |     |
| 18-29                     | 0.11  | 0.017 | 0.82  | 0.703 |
| 30-49                     | 0.14  | 0.022 | 0.71  | 0.472 |
| 50-72 (Reference)         |       |     |       |     |
| Total Household Income(TL)|       |     |       |     |
| 1000-3999                 | 1.05  | 0.870 | 2.39  | 0.001 |
| 4000-7999                 | 0.98  | 0.962 | 1.66  | 0.030 |
| 8000 and higher (Reference) |     |     |       |     |
| Has someone you know been diagnosed with coronavirus? |       |     |       |     |
| Yes                       | 0.94  | 0.854 | 0.94  | 0.827 |
| No (Reference)            |       |     |       |     |
| COVID-19 Knowledge Score  | 1.01  | 0.881 | 3.22  | 0.176 |

Factors significantly related to COVID-19 practices

| Variable                  | OR    | P   | OR    | P   |
|---------------------------|-------|-----|-------|-----|
| P1: going to a crowded place |       |     | P2: not wearing a mask |     |
| Gender                    |       |     |       |     |
| Female                    | 2.27  | 0.000 | 0.50  | 0.090 |
| Male (Reference)          |       |     |       |     |
| Education                 |       |     |       |     |
| Primary School            | 3.94  | 0.082 | 0.77  | 0.782 |
| High School               | 0.84  | 0.607 | 0.38  | 0.162 |
| Associate Degree          | 0.99  | 0.994 | 0.27  | 0.084 |
| Undergraduate             | 0.80  | 0.482 | 0.51  | 0.334 |
| Graduate (Reference)      |       |     |       |     |
| Region of Residence       |       |     |       |     |
| Mediterranean             | 1.28  | 0.719 | 1.22  | 0.856 |
| Central Anatolia          | 1.32  | 0.587 | 0.63  | 0.593 |
| Marmara                   | 1.03  | 0.943 | 0.38  | 0.257 |
| Aegean                    | 4.59  | 0.998 | 0.84  | 0.896 |
| Black Sea                 | 2.91  | 0.224 | 0.93  | 0.948 |
| Southeastern Anatolia     | 2.12  | 0.187 | 1.25  | 0.791 |
| Eastern Anatolia (Reference) |     |     |       |     |
| Marital Status            |       |     |       |     |
| Married                   | 0.77  | 0.645 | 0.63  | 0.701 |
| Single                    | 0.81  | 0.703 | 0.31  | 0.322 |
| Divorced (Reference)      |       |     |       |     |
| Age                       |       |     |       |     |
| 18-29                     | 0.67  | 0.421 | 1.19  | 0.882 |
| 30-49                     | 0.44  | 0.073 | 1.21  | 0.864 |
| 50-72 (Reference)         |       |     |       |     |
| Total Household Income(TL)|       |     |       |     |
| 1000-3999                 | 1.12  | 0.669 | 4.01  | 0.028 |
| 4000-7999                 | 1.05  | 0.887 | 0.91  | 0.931 |
| 8000 and higher (Reference) |     |     |       |     |
| Has someone you know been diagnosed with coronavirus? |       |     |       |     |
| Yes                       | 0.96  | 0.880 | 1.25  | 0.643 |
| No (Reference)            |       |     |       |     |
| COVID-19 Knowledge Score  | 0.93  | 0.390 | 0.65  | 0.000 |
Discussion

The general knowledge level about COVID-19 is critical to applying precautions and controlling the epidemic. In this sense, it is significant to increase the level of knowledge, attitude, practices towards the virus, and decrease anxiety. This study determines the level of anxiety in society and KAP level of COVID-19. KAP level is high in Turkey. This shows that people in Turkey have a high level of knowledge about COVID-19. Most of the participants have positive attitudes towards the successful control of COVID-19 and Turkey's ability to overcome the disease; 98.5% of respondents know that people who come into contact with someone infected with the COVID-19 virus should be isolated in a suitable place immediately, and the overall observation period is 14 days. It is also seen that participants have highly adopted practices such as not going to crowded places or wearing masks when going out. At the same time, 97.8% of the participants know that they should avoid public transport to prevent COVID-19 infection. Also, the low levels of general CAS average indicate very low anxiety levels.

As a result of the analysis, it was found that the variables such as gender, age, total household income, and education were related to KAP. Most of the society took measures such as avoiding crowded places and wearing masks when going outside to prevent the spread of COVID-19. These strict preventive practices are primarily restrictions by the government, but the high level of community participation is important for prevention and control. The epidemic-preventive behavior results from the society’s awareness of the COVID-19 virus, which can spread easily. This study shows that 17.9% of the participants went to crowded places and 4% of them did not wear a mask. Potentially, this is seen as a result of low knowledge of COVID-19, and people showing this behavior were mainly men, primary school graduates, and had a total household income lower than 1000-3999 TL. In terms of regions, people from East Anatolia and the Black Sea regions show this kind of behavior. KAP level is high in Turkey. The findings of this research coincide with the findings of many studies in the field [3-6--16]. However, studies conducted in some countries show that KAP levels are low [17-20].

Within the scope of this study, based on the meaningful relationships between knowledge, attitude, and practice, it is understood that KAP levels in the Turkish community are high and its anxiety level is low. Strong health care system of Turkey, serious measures taken from a scientific point of view by government and health authorities since the outbreak first occurred in China, the daily and transparent share of information about the virus, and public awareness raised by specialists through media can be shown as the reasons for this situation. Although the general level of the society is high, for individuals with low knowledge, application, and practice, awareness can be raised through measures such as health education programs, encouraging positive attitudes, and maintaining safe practices.

It is important to stay away from social media in order to prevent information pollution, to adhere to the recommendations and precautions of healthcare authorities. Combining rumors is extremely harmful because wrong information can cause harmful effects on public health. Disadvantaged and vulnerable groups, such as the elderly population and rural residents, are more likely to have low knowledge, negative attitudes, and practices regarding COVID-19 due to their limited access to the internet and online health information resources. For this reason, the knowledge, attitude, and practice of vulnerable groups towards COVID-19 should also be improved. Moreover, it is recommended for future researches to study the KAP levels of disadvantaged groups and people living in rural areas. Revealing general knowledge, attitude, and practice levels and anxiety levels in Turkey through a randomized selected, high-volume sampling, covering the entire country by the Ministry of Health or the Turkish Statistical Institute (TÜİK), can provide significant information. As any other study, this study has some limitations. A web-based research method was used for the study, and participation in the study was not obtained by the probability sampling method.

Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.

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Conflict of interest

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