The COVID-19 Pandemic: Public Knowledge, Attitudes and Practices in a central of Iran

**Article Type**
Descriptive Study

**Authors**
Araban M.¹ PhD, Karimy M.² PhD, Mesri M.³ PhD, Rohani M.⁴ MD, Armoon B.⁵ PhD, Koohestani H.R.⁶ PhD, Shamsi M.⁷ PhD, Iran Stein L.⁸ MD

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1Department of Health Education and Promotion, Social Determinants of Health Research Center, Public Health School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2Social Determinants of Health Research Center, Saveh University of medical sciences, Saveh, Iran
3Department of Psychology, Medical School, Brown University, Brown, United States of America

**Correspondence**
Address: Social Determinants of Health Research Center, Saveh University of Medical Sciences, Saveh, Iran.
Phone: +98 (86) 42343395
Fax: +98 (86) 42343395
karimynahmood@yahoo.com

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**ABSTRACT**

**Aims**
There is a rapid increase in the number of people infected with COVID-19 throughout the world. The present study aimed to determine people’s knowledge, attitudes, and practices (KAP) regarding COVID-19 in an Iranian sample.

**Instruments & Methods**
This was a population-based cross-sectional study conducted on people over 18 years of age in Saveh city, Iran, in 2020. A multiple-stage sampling method was used. Participants (N=471) completed an anonymous and self-report questionnaire assessing socio-demographic variables and KAP. Data were analyzed using ANOVA and independent t-tests by SPSS 21. The significance level was considered to be ≤0.05.

**Findings**
Of participants, 74.5% did not have accurate knowledge of how the coronavirus is spread. In terms of attitudes, more than 63.2% considered COVID-19 to be a dangerous disease. About 59.6% of participants reported regular use of a mask in the past week. As compared to men, women reported attitudes and practices more aligned with recommended safety standards. Higher education level was significantly related to the mean KAP score (p<0.05).

**Conclusions**
Although the sample evidenced appropriate attitudes and some safety practices in general, a significant percentage of individuals did not engage in protective behaviors.

**Keywords**
COVID-19; Knowledge; Attitude; General Practice; Behavior

**CITATION LINKS**

Introduction
Corona Virus Disease-2019 (COVID-19), caused by a new beta-coronavirus called SARS-CoV-2, started in China in late December 2019 and spread worldwide in less than four months [1, 2]. The World Health Organization (WHO) referred to COVID-19 as a pandemic on March 11, 2020, emphasizing the widespread prevalence of the disease [3]. Unlike pandemic on March 11, 2020, emphasizing the in less than four months [1, 2] . The World Health Organization referred to COVID-19 as a pandemic on March 11, 2020, emphasizing the widespread prevalence of the disease [3]. Unlike the new beta-coronavirus called SARS-CoV-2, started in China in late December 2019 and spread worldwide.
simplicity were examined to determine the CVR and values greater than 0.79 were accepted [17]. The questionnaire’s reliability was also measured by Cronbach’s alpha method on 15 participants that were not later included in the main study. Cronbach alphas were 0.85, 0.82, and 0.78 for KAP questionnaires, respectively.

The Saveh University approved the ethical code of Medical Science. A researcher contacted individuals, the study purpose was explained, invited to participate, and then consented as relevant. Following consent, questionnaires were completed in person with a trained researcher. Data were collected using written anonymous and self-administered questionnaires for the literate and by interviews with trained teachers for the low-literate.

Data were analyzed by SPSS 21. The descriptive analysis was carried out for socio-demographics and KAP variables. One-way analysis of variance (ANOVA) and independent sample t-tests were used to compare differences in KAP scores by socio-demographic factors. A p-value under 0.05 was considered to indicate statistical significance.

Findings
A total of 500 consented, and 471 participants completed the questionnaires. About one-third of participants (31%) reported that one of their relatives had COVID-19, and N=23 reported that a relative had died of COVID-19. The majority of participants were male (52%). The mean±SD of age was 35.2±13.6 in men and 31.2±11.9 in women (Table 1). Women had attitudes and practice more aligned with reducing COVID-19 spread than men (p<0.05). Education had a significant relationship with KAP (p<0.05), with those graduating from a university having the highest scores. Married individuals had more knowledge and reported engaging in safer practices more frequently than single and divorced respondents (p<0.05). No differences were found for KAP by age (p>0.05).

More than 63.2% considered COVID-19 to be dangerous in terms of attitudes, 66% believed they might contract coronavirus if they were not careful, 69% were worried about their families and friends, 38.5% thought that disease and health are God-given (Table 3).

In terms of safety practices over the past week (Table 4), more than 70% of participants regularly washed hands, and 80.2% avoided shaking hands and kissing others. Rates were 63.9% and 59.6% for regular disinfectant use and regular use of a mask, respectively.

### Table 1) Differences in KAP scores by socio-demographic group

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
<th>Subgroup mean score±SD</th>
<th>Knowledge</th>
<th>Attitudes</th>
<th>Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>112 (23.7)</td>
<td>8.2±1.5</td>
<td>15.1±6.5</td>
<td>16.4±1.8</td>
<td></td>
</tr>
<tr>
<td>30-49</td>
<td>151 (32)</td>
<td>8.3±1.7</td>
<td>15.6±4.3</td>
<td>17.0±5.2</td>
<td></td>
</tr>
<tr>
<td>50-69</td>
<td>132 (28)</td>
<td>7.8±1.4</td>
<td>14.8±5.5</td>
<td>15.3±2.2</td>
<td></td>
</tr>
<tr>
<td>70+</td>
<td>76 (16.1)</td>
<td>7.8±1.4</td>
<td>12.9±3.6</td>
<td>14.9±2.7</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.439</td>
<td>0.401</td>
<td>0.260</td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>245 (52)</td>
<td>7.3±1.4</td>
<td>14.3±4.4</td>
<td>15.4±3.1</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>226 (48)</td>
<td>7.5±1.5</td>
<td>15.6±4.3</td>
<td>16.4±2.6</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.378</td>
<td>0.051*</td>
<td>0.050*</td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uneducated/Primary</td>
<td>50 (10.5)</td>
<td>6.5±1.8</td>
<td>12.5±2.8</td>
<td>13.8±5.2</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>106 (22.5)</td>
<td>7.1±1.6</td>
<td>14.2±3.1</td>
<td>15.0±5.1</td>
<td></td>
</tr>
<tr>
<td>High school/diploma</td>
<td>230 (49)</td>
<td>7.3±1.2</td>
<td>15.2±2.8</td>
<td>17.5±3.6</td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>85 (18)</td>
<td>8.7±1.5</td>
<td>16.1±4.2</td>
<td>18.7±3.1</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.040**</td>
<td>0.039**</td>
<td>0.006**</td>
<td></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>274 (58.2)</td>
<td>8.7±1.2</td>
<td>15.2±4.5</td>
<td>18.5±6.6</td>
<td></td>
</tr>
<tr>
<td>Divorced/Widow</td>
<td>18 (3.8)</td>
<td>7.5±1.2</td>
<td>14.2±2.5</td>
<td>13.5±4.2</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>179 (38)</td>
<td>7.8±1.4</td>
<td>14.1±2.6</td>
<td>15.4±5.0</td>
<td></td>
</tr>
<tr>
<td>p-value</td>
<td></td>
<td>0.034**</td>
<td>0.745</td>
<td>0.050**</td>
<td></td>
</tr>
</tbody>
</table>

* Independent t-tests; **ANOVA

### Table 2) Response of study participants to Covid-19 knowledge questions

<table>
<thead>
<tr>
<th>Question (Correct Answer)</th>
<th>N (%)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Coronavirus can be lethal (yes)</td>
<td>410 (87)</td>
<td></td>
</tr>
<tr>
<td>2 Only the elderly are at risk of contracting the COVID-19 disease (no)</td>
<td>306 (65)</td>
<td></td>
</tr>
<tr>
<td>3 Some people with coronavirus have no specific symptoms (yes)</td>
<td>167 (35.5)</td>
<td></td>
</tr>
<tr>
<td>4 Washing hands with soap and water can be effective in preventing the COVID-19 disease transmission (yes)</td>
<td>386 (82)</td>
<td></td>
</tr>
<tr>
<td>5 Wearing a mask can be effective in preventing the COVID-19 disease transmission (yes)</td>
<td>387 (82.1)</td>
<td></td>
</tr>
</tbody>
</table>
Of participants, 74.5% did not have accurate knowledge about healthy coronavirus vectors. As shown in Table 2, most participants (82%) understood that wearing a mask and hand-washing effectively prevents coronavirus.

**Discussion**

COVID-19 is a contagious and growing disease. This study aimed to determine people’s awareness, attitude, and safety practices to reduce the spread of COVID-19. In brief, higher education level, being married, and being female were related to knowledge, attitudes, and/or practices that reduce the risk of spreading COVID-19; many persons did not have accurate knowledge of how the disease is spread, more than 60% were concerned about the risk of spreading COVID-19; many persons did not believe COVID-19 is dangerous and felt they could not prevent it. In the present study, married people had more knowledge and engaged in more safety practices than single and widowed/divorced people. In a study by Zhong et al. [21], married people also had better KAP than single people. Previous studies have confirmed a healthier lifestyle in married people [23, 24]. This may be due to married people caring more about their health than single and divorced people [25].

In the present study, respondents in the current study appeared to be more knowledgeable regarding COVID-19 than those in a study conducted in India [26]. That being said, most participants in the current study did not have accurate knowledge of how the virus is spread, which could play a very important role in containing the disease [7]. Therefore, it may be essential to conduct more public education and outreach regarding the transmission of the disease, including transmission by asymptomatic individuals. About 35% of the sample was unaware that persons other than the elderly are at risk of contracting COVID-19; hence, public education and outreach on the risk for all age groups seem necessary.

In terms of attitudes, more than 30% of the sample did not believe COVID-19 is dangerous and felt they did not need to engage in certain risk-reduction behaviors at times (i.e., washing hands because they drink herbal teas). In a study in Bangladesh [20], more than a third of respondents had less than optimal attitudes towards some protection strategies. Furthermore, more than a third of the sample believed that illness and death were in God’s hands; in other words, the individuals had an external locus of control [27]. Therefore, outreach and education for the public on strategies they can use and that are effective to reduce this disease may encourage and
facilitate behaviors to reduce the viral spread in the population. Evaluation of safety practices indicated that 41% of participants did not regularly wear masks in public places in the past week. The relatively poor practice of participants wearing masks, despite their good knowledge and attitude (about 80%) about the importance of masks, may be explained by the lack of masks and lack of access in the market. Consistent with our findings, a study in India [28] showed that half of the participants did not have access to masks. Because masks are particularly important in controlling the pandemic [29], health policymakers may be particularly interested in addressing masks’ availability. Only 61% complied with home quarantining, probably because there were few restrictions on leaving home in Iran, and respondents needed to maintain their jobs. About a third of respondents did not properly disinfect hands or surfaces, perhaps due to lack of access to disinfectants. Given that human behavior is a powerful tool in managing the contagious diseases, it is essential to attend to access to masks and disinfectants, and to provide education and outreach on relevant safety practices.

The study used a cross-sectional design; thus, causal relationships cannot be inferred. Not all questionnaires were completed (5.8% were not completed). Despite these limitations, findings can inform the formulation of public education campaigns, and the loss of only 5.8% of respondents is more than acceptable. Given the lack of knowledge for how the disease is spread, more educational interventions regarding COVID-19 are recommended, including protective practices to implement.

Conclusion

In particular, key safety practices were not regularly utilized by a relatively large percentage of respondents (i.e., masks, hand-washing). The use of multifaceted educational interventions, legislation, health-promoting policies, and a robust public health campaign is needed to enhance public safety.

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Ethical Permissions: The ethics committee of the Saveh University of Medical Science approved this study, and permission to conduct the research was obtained from this committee (Number: IR.SAVEHUMS.REC.1399.001).

Conflict of Interests: The authors declare that they have no competing interests.

Authors’ Contributions: Araban M. (First author), Original researcher (15%); Karimy M. (Second author), Methodologist/Original researcher/Statistical analyst (25%); Mesri M. (Third author), Introduction author (10%); Rohani M.R. (Forth author), Discussion author (10%); Armoon B. (Fifth author), Statistical analyst (10%); Koohestani H.R. (Sixth author), Methodologist (10%); Shamsi M. (Seventh author), Introduction author/Discussion author (10%); Stein L. (Eighth author), Methodologist (10%).

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