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COVID-19-Related Awareness Among Healthcare Professionals and Students at the University of Mississippi Medical Center

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COVID Awareness Among Healthcare Professionals and Students

Background: In late 2019, the novel COVID-19 was reported to cause severe viral pneumonia in Wuhan, China. It has spread worldwide, resulting in a pandemic that has now infected more than 123 million people, causing more than 2.7 million deaths globally. Mississippi has become one of the hotspots for spreading the virus with a very high positivity rate. As of June 9, 2021, there were a total of 318,685 cases and 7,347 deaths reported in Mississippi. *Purpose*: This study aimed to assess the COVID-19-related knowledge among faculty and staff working in our healthcare system. We also assessed if there are any gender differences in COVID-19-related knowledge. *Methods*: Approval for this cross-sectional study was obtained from our institutional review board at the University of Mississippi Medical Center (UMMC). A readily available sample of staff members, students, and residents was invited to complete an online survey. The data were collected from September 29 to October 16, 2020. We asked participants to report demographics (age, gender, and profession), COVID-19-related knowledge (15 questions), whether they received hand-hygiene training (one question), and whether they would choose to receive a COVID-19 vaccine if made available in the future (one question). SPSS 26 was used to conduct statistical analysis. Descriptive statistics were calculated for all the variables. Chi-square, one-way analysis of variance, independent samples t-test were conducted, as appropriate. A *p*-value of <0.05 was considered statistically significant for all the analyses. *Results*: A total of 750 individuals completed the study questionnaire. Overall, respondents reported a mean score of 10.03 (standard deviation = 1.06; range 5–13) on the knowledge questions. About one-fourth (26.8%) reported that they had not received any formal training in hand hygiene in the last three years. In addition, almost as many participants (24.3%) indicated that they would not choose to receive the COVID vaccine in the future. Upon analysis, the question, "Use of a face mask is essential in which of the following groups?" was answered incorrectly by more males (7.4%) than females (2.2%; $p = 0.001$). The question, "Is COVID a 'hoax'?" was also answered incorrectly by more male (3.0%) than female participants (0.7%; $p = 0.018$). We also found that, when participants were asked, "If a proven safe and effective COVID vaccine were made available to you in the future, would you choose to receive the vaccine?" there was a statistical greater difference of "No" responses in females (28.1%) than in male participants (13.4%; $p < 0.001$). *Conclusion*: There is a noticeable gap in knowledge among different age groups. Our institution and others alike around the United States should provide mandatory education sessions regarding COVID-19. The gender differences in COVID awareness responses show that educational awareness should be tailored toward different genders.

Keywords: COVID-19 awareness, hand hygiene, Mississippi COVID-19

Introduction

In late 2019, a novel coronavirus, COVID-19, was reported to cause severe viral pneumonia in Wuhan, China. Unfortunately, it has spread worldwide, resulting in a pandemic that has now infected more than 123 million people, causing more than 2.7 million deaths globally (Wang et al., 2020). As a result, the World Health Organization (WHO) declared coronavirus disease a pandemic on March 11, 2020. Personal protective equipment (PPE), proper handwashing, and hand hygiene are critical in decreasing the transmission of and risk of infection with COVID-19 in hospitals. Therefore, adequate training, knowledge, and resources are necessary to prevent hospital-acquired infections due to cross-contamination to other patients receiving care in the hospitals.

The rapid and extensive spread of the COVID-19 pandemic has become a significant cause of concern for healthcare professionals. Mississippi has become one of the hotspots for spreading the virus with a very high positivity rate. According to the Mississippi State Department of Health (2021), as of June 9, 2021, there were 318,685 cases and 7,347 deaths reported in Mississippi. In order to educate the community, it is important that the reliable and most trusted sources of information (i.e., healthcare workers) are aware of and educated to disseminate correct information. Against this backdrop, the purpose of the study is to assess COVID-19-related knowledge that our healthcare workers possess. We also assessed if there are any gender differences in COVID-19-related knowledge. The outcomes of the data obtained from this study will help our institution bridge the gap in misinformation. This is essential to educating the public and subsequently decreasing infection rates and COVID-related deaths.

Methods

Study Design and Instrument

Approval for this cross-sectional study was obtained from our institutional review board at the University of Mississippi Medical Center (UMMC). A convenience sample of staff members, students, and residents at the medical center in Jackson, Mississippi, was invited to complete an online survey. The data were collected from September 29 to October 16, 2020. The participants voluntarily completed the survey questionnaire. We asked participants to report demographics (age, gender, and profession), COVID-19-related knowledge (15 questions), whether they received hand-hygiene training (one question), and whether they would choose to receive a COVID-19 vaccine if made available in the future (one question). The experts reviewed the questionnaire for face and content validity. Inclusion criteria were all staff members at the medical center, including students and faculty from medical, dental, nursing, and physical therapy schools and institutes, nonclinical staff and administrators, paramedical staff, and professionals from the allied health sciences.

Statistical Analysis

SPSS 26 was used to conduct statistical analysis. Descriptive statistics were calculated for all the variables. Chi-square, one-way analysis of variance, independent samples t-test were conducted, as appropriate. A *p*-value of <0.05 was considered statistically significant for all the analyses.

Results

A total of 750 individuals completed the study questionnaire. The majority of participants were between 31 and 45 years of age (38.1%) and female (72.7%). About one-third (32.8%) of the study participants were administrative/nonclinical staff members, and 20.6% were medical physicians and residents.

Overall, respondents reported a mean score of 10.03 (standard deviation = 1.06; range 5–13) on the knowledge questions. About one-fourth (26.8%) reported that they had not received any formal training in hand hygiene in the last three years. It is noteworthy that 24.3% indicated that they would not choose to receive the COVID vaccine in the future.

Upon analysis, the question "Use of a face mask is essential in which of the following groups?" was answered incorrectly by more male (7.4%) than female participants (2.2%; $p = 0.001$). The question "Is COVID a 'hoax'?" was also answered incorrectly by more male (3.0%) than female participants (0.7%; $p = 0.018$). We also found that, when participants were asked, "If a proven safe and effective COVID vaccine were made available to you in the future, would you choose to receive the vaccine?" there was a statistical greater difference of "No" responses in females (28.1%) than in male participants (13.4%; $p < 0.001$).

Table 1

Demographic Characteristics of the Participants

Characteristics	***n* (%)**
Age Group (years)	
15–30	172 (22.9)
31–45	285 (38.0)
46–65	265 (35.3)
>65	27 (3.6)
Gender	
Male	202 (26.9)
Female	545 (72.7)
Profession	
Nonclinical/Admin Staff	246 (32.8)
Medical Doctor and Residents	154 (20.5)
Clinical Staff	104 (13.9)
Nursing (Student and Faculty)	83 (11.1)
Health Related Professions (Student and Faculty)	44 (5.9)
Dentistry (Students and Faculty)	41 (5.5)
Translational Research Staff	32 (4.3)
Medical Students	29 (3.9)
Allied Health Sciences	16 (2.1)

Table 2.

Frequency and Percentage of Correct Responses to COVID-19-Related Questions (Descending Order)

Statements (Correct Response)	***n* (%)**
Clinical management includes prompt implementation of recommended infection prevention and control measures and supportive management of complications. (True)	744 (99.2)
In which of the situations below does a healthcare worker need to perform hand hygiene in order to prevent virus transmission? (All of the above: After the healthcare worker has touched a patient; On exposure to body fluids; After being exposed to the immediate surroundings of a patient; Before wearing and upon removal of personal protective equipment (PPE), which includes the gloves)	744 (99.2)
First COVID case was reported in Wuhan, a city in the Hubei province of China. (True)	741 (98.8)
Is COVID a "hoax"? (No)	740 (98.7)
The most effective method for prevention of COVID-19 infection from a positive or suspected patient in the healthcare setting is? (Avoidance of exposure)	724 (96.5)
Use of a face mask is essential in which of the following groups? (All of the above: People who are well, to protect themselves and others from COVID-19 infection; Being in close contact of a person suspected or known to have COVID-19; Healthcare professionals)	721 (96.1)
The virus is transmitted from person to person mainly via? (Respiratory droplets)	719 (95.9)
The personal protective equipment that needs to be worn by individuals transporting confirmed or suspected COVID-19 patients within UMMC? (All of the above: Gloves; Gown; Face shield; Surgical mask; N95 mask in case of aerosol-generating procedure)	714 (95.2)
Which method of hand hygiene would be the most beneficial for visibly soiled hands? (Hand rubbing with soap and water for at least 20 seconds)	714 (95.2)
COVID related illness has ranged from mild to severe symptoms of cough, fever, breathlessness which usually appear 2–14 days after exposure. Which of the following situations increase the chance of contracting COVID? (All of the above: Being in close contact with a person known to have COVID-19 without personal protective equipment (e.g., mask, eye protection); Living in an area with ongoing COIVD-19 infection; Recent travel from an area with ongoing spread of COVID-19)	700 (93.3)
Can "hydroxychloroquine" and "azithromycin" cure a person infected by COVID-19? (No)	687 (91.6)
Recommended infection control measures upon arrival of a suspected COVID-19 patient include? (All of the above: Rapidly triage the patients that are of a suspected COVID-19 patient include: symptomatic; Implementation of respiratory hygiene and cough etiquette; Placement of the patient in a separate, well ventilated area separated by 6 or more feet)	679 (90.5)
How do you define "close contact"? (Being within approximately 6 feet (2 meters) of a COVID-19 patient for a prolonged period of time without personal protective equipment [e.g., mask, eye protection]; Having direct contact with infectious secretions [sputum, serum, blood] from a COVID-19 patient without personal protective equipment [e.g., mask, eye protection])	574 (76.5)
The precautions that need to be taken by HCP providing routine non-COVID-related care to COVID-19 exposed asymptomatic patients? (Standard precautions)	210 (28.8)
Covid-19 infection is caused by the virus known as? (2019-nCoV & Severe Acute Respiratory Syndrome Coronavirus)	208 (27.7)

Discussion

There is a noticeable gap in knowledge between different age groups. Our institution and others across the United States should provide mandatory education sessions regarding COVID-19. The sessions will help alleviate concerns and dispel misinformation regarding this virus and any other infectious pandemics/epidemics that may arise in the future. The significantly different answers provided between genders for questions 1 (Is COVID a "hoax"?) and 2 (If a proven safe and effective COVID vaccine were made available to you in the future, would you choose to receive the vaccine?) are concerning. Males were apt to answer that COVID was, indeed, a hoax.

A poll conducted by the Gallup group during the first wave of COVID-19 showed gender differences in the perception of COVID-19 and its effects (McCarthy, 2020). Another study also showed that men were more likely to downplay the severity of the coronavirus and its effects (Ewig, 2020), possibly a result of psychological and behavioral norms. Our society has taught men to hide their fears, which leads them to respond with aggression and anger (Griffith et al., 2020). Subsequently, these individuals "tend to downplay the risk and are resistant to risk reduction policies" (Gupta, 2020).

Medical centers should be proactive in educating all healthcare workers and students with the proper information regarding COVID-19, to facilitate the dissemination of accurate information to our communities. The gender differences in COVID awareness responses show that educational awareness should be tailored to different genders. It has been suggested that men's education should be based on the "self-determination" theory (Griffith et al., 2020). The Centers for Disease Control and Prevention has suggested that messages to engage men should seek ways to motivate them to choose to engage in healthier behaviors and avoid messages of shame, pressure, or coercion (Griffith et al., 2020). Focusing on factors important to men, such as their family, community, or ethnic groups, is more likely to encourage them to receive health education and adopt health-promoting behaviors; conversely, focusing on the men's own risk and health is not as effective (Griffith et al., 2020).

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