

Assessment of Saudi nurses' knowledge, attitude and anxiety towards COVID19 during the current outbreak in KSA

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Abstract

Introduction

Coronavirus infection starts spreading rapidly throughout the world including Kingdom of Saudi Arabia (KSA). Currently, there is no medication available or no vaccine available for the prevention and management of Coronavirus spread. Hence, nurse should protect themselves while providing care to the patients.

Methods

A cross-sectional survey based study was conducted in the month of June for the nurses working in the KSA Government based hospital. 527 nurses were recruited in this study. Participants knowledge was determined using correct or incorrect or do not know format. The attitude and anxiety level were determined using the 4 and 5 points Likert scale.

Results

The nurse-respondents for this study were pretty experienced with majority of them having more than 10 years of experience. They also exhibited a cooperative attitude towards fighting the virus and many have adapted an open learning attitude especially that COVID-19 is a new pathogen. Moreover, the nurses' knowledge about COVID-19 is the same information that the public health arm of the government has informed the public about. The nurses do not believe that the virus came from a plant and that a vaccine is already available against the virus. Furthermore, the two major reasons causing the most anxiety among the nurses is finding out that they are COVID-19 positive and having to be placed in an isolation ward. They are also anxious about the government's capability to fight the battle against the virus and the availability of resources to continue this protracted fight against this virus.

Conclusion

To effectively control Coronavirus infection, it is essential to assess knowledge, attitude and anxiety of nurses working with Coronavirus patients. Based on knowledge of nurses about the COVID 19, effective education and training should be provided to the nurses. Self-reported attitude and anxiety of nurses about COVID 19 could be helpful in providing specific intervention to the nurses.

Key word: Saudi Arabia, coronavirus, healthcare workers, nurses, knowledge, attitude, anxiety.

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I. Introduction

Coronavirus is considered as the large group of viruses. Historical data give an idea that this virus spread mainly through the animals and birds. Moreover, humans are also susceptible to infection and transmission. Previous outbreak of Coronavirus was from two viruses such as Severe Acute Respiratory Syndrome-Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome-Coronavirus (MERS-CoV) in the year 2003 and 2015 respectively¹. SARS-CoV and MERS-CoV showed similarities with the novel Coronavirus which was appeared for the first time in December 2019 in Wuhan province in China². Coronavirus infection starts spreading rapidly throughout the world including Saudi Arabia. Hence, the World Health Organization (WHO) declared the COVID-19 infection as a Public Health Emergency of International Concern in 2020. The COVID-19 pandemic commenced in KSA on March 2, 2020 after the Ministry of Health of KSA confirmed the first case of coronavirus. By June 14., 2020, there were 127,541 confirmed COVID 19 cases in KSA with 84,720 recoveries and 972 deaths³.

Currently, there is no medication available or no vaccine available for the prevention and management of Coronavirus spread. Hence, guidelines were recommended to minimize the spread of infection and to address the challenges encountered during COVID 19 pandemic. The Center for Disease Control and Prevention (CDC) points out that the spread of the coronavirus is due to close contact with the infected person with respiratory manifestation such as cough and sneeze and through touching to the surface or object with virus on it. WHO estimated that approximately 80% patients can be with mild or without symptoms, 20 % patients can

develop serious illness with shortness of breath and multiorgan failure⁴. Death can occur in approximately 2% patients with COVID 19 infection patients⁵. The Kingdom of Saudi Arabia was experiencing outbreak of Coronavirus. Healthcare workers including nurses are at the significant risk of infection due to Coronavirus. Since, this is new type of virus, nurses might be lacking knowledge about the virus; hence, they might work with the patients with changed attitude and definitely there might be anxiety among them while treating these patients. Hence, it is essential to understand the knowledge, attitude and anxiety among nurses working in COVID 19 hospitals to improve nursing services to these patients⁶.

II. Literature review

Healthcare professionals including nurses are primarily involved in the treatment of highly transmittable Coronavirus. Hence, it has positioned as high occupational health risk factor owing to frequent exposure of nurses to Coronavirus patients. Since, COVID 19 pandemic occur for the first time, most of the nurses might not be aware of the infection control practices for COVID 19⁷. Knowledge about the disease can significantly affect the attitude of nurses; moreover, it can also influence psychological aspect such as anxiety. Improper attitude of the nurses augments the risk of infection⁸. Literature suggested that nurses fighting against COVID19 feel great amount of stress due to improper knowledge and personal safety issues⁹. Nurses with lack knowledge regarding the virus, with improper attitude and anxiety about the spread of virus might be at risk of health issues including death¹⁰. Lack of knowledge among nurses about Coronavirus might lead to delayed diagnosis, spread of infection and inadequate infection control¹¹. In many countries with COVID19 pandemic, several thousands of healthcare professionals including nurses have already been infected. Moreover, hundreds of nurses have already died due to COVID19 complications¹².

Amid COVID19 pandemic outbreak, WHO has issued guidelines to improve knowledge about the prevention of Coronavirus spread. Moreover, WHO initiated several online courses and guidelines to improve awareness and preparedness about prevention and management of COVID19 among healthcare professionals including nurses. Most of the countries including KSA prepared guidelines and recommendations for nurses to prevent and reduce occupational spread of infection¹³. However, it is difficult to evaluate, up to what extent all these guidelines and recommendations can be put in practice. Hence, it is essential to assess the knowledge, attitude and anxiety among nurses to facilitate proper use of guidelines and recommendations.

III. Aim and objective

The aim of this study was to explore the knowledge, attitude and anxiety of nurses in KSA towards COVID19 outbreak.

Objectives

- To explore knowledge and awareness of nurses about the COVID 19.
- To explore attitude of nurses about the COVID 19.
- To explore psychological and anxious behavior of nurses towards COVID 19.

Research significance:

COVID 19 pandemic occurs for the first time. Hence, it is essential to understand this outbreak for the effective management. Nurses are the most exposed healthcare professionals to the COVID 19 patients. Nurses need to prevent effective intervention to the patients; since, they are frontline caregivers to the patients. At the same time, they need to protect themselves and their family members from infection of this virus. Hence, it is essential to understand about their knowledge, attitude and anxiety of nurses. Understanding these aspects can be helpful in providing appropriate training and education to the nurses in order to improve upon the deficiency identified during the evaluation. Outcome of this study could be applicable to all the nurses working for COVID 19. Hence, all the nurses can be benefited from the outcome of this study.

VI. Method

Study design and study setting

A cross-sectional survey based study was conducted in the month of June for the nurses working in the KSA Government based hospital. An online web-based questionnaire was designed for the collection of data. Questionnaire were made available to the participants through social media (WhatsApp and Twitter). Participation for the nurses was voluntary for nurses and details of the nurses participating in the study was not recorded anywhere on the questionnaire.

Questionnaire and Data Processing

Questionnaire were mainly divided into four parts such as demographic information, knowledge, attitude and anxiety. Demographic information comprises of information of nurses about Age, Gender, Martial Status, Qualification level, and work experience.

Sampling

A systematic random and non-probability purposive sampling was the method used in this study. 557 nurses working in the COVID 19 hospitals in the KSA were selected and 527 nurses were recruited in the study based through nonprobability convenience sampling technique. At least 85% of the recruited participants were considered with 95% confidence level and 5% confidence interval.

Following were the inclusion criteria for the participation in the study

1) Nurses working in the COVID 19 hospital, 2) Nurse worked for at least for the duration for 15 days for COVID 19 patients, 3) nurses with access to computer with internet connection, 4) nurse with minimum qualification with degree in nursing.

Study variables

Dependent variable: Knowledge, attitude and anxiety were the dependent variables.

Independent Variables: Socio-demographic and personal factors were the independent variables.

Data collection

Data was collected through online questionnaire which was based previous study about MERs CoV and Question and Answer about COVID-19 in the webpage of WHO. Questionnaire was approved by the infectious disease experts at medical university and hospitals in KSA. Final questionnaire was decided based on the validation during the pilot study. Participants were allowed to complete the questionnaire and it takes 15 to 20 minutes to complete. Issues regarding operating website for completion of survey were addressed during pilot study. Moreover, training was also given for the participants for the completion of online survey. Participants were encouraged to attempt all the questions from the survey which helped in accurate data analysis.

Participants knowledge was determined using correct or incorrect or do not know format, attitude and anxiety level was determined using 4 and 5 points Likert scale. Knowledge section comprised of 13 items which include nature of disease (3-items), etiology (1-items), symptoms (2-items), risk group (1-item), testing (1-item), transmission (1-item), treatment (2-items) and precautions/preventions (2-items). Questions were responded as correct, incorrect and do not know. Correct, incorrect and do not know answers were marked as 2 for correct, 0 for incorrect and 1 for do not know respectively. Total score for each participant ranges from 0-26. Score ≥ 21 was considered as good knowledge and score ≤ 21 was considered as poor knowledge. Attitude section comprised of 12 items. Attitude of nurses was specifically determined towards treatment, infection control procedure and information regarding COVID-19. Response was recorded on 5-point Likert scale such as strongly agree (1-point), agree (2-point), Undecided (3-point), disagree (4-point), and strongly disagree (5-point). Total score for attitude ranges from 7 to 35. Participant with overall lower score indicate positive attitude towards COVID-19. The Anxiety questionnaire included four-point Likert-type items for anxiety determination such as: (1), Not at all (2) Somewhat, (3) Moderately, and (4) Very Much. Anxiety-present and anxiety-absent items such as feeling frightened and feeling relaxed were included in the four-point Likert-type items.

Data analysis

All the collected were entered in the Microsoft Excel sheet and transcribed verbatim. Data was coded by researcher who was part of the study and who did participate in the data collection. It would be helpful in eliminating problem of biasness. Data coding proved useful in eliminating biasness in analysis of data. Data analysis was performed by two independent researchers and average of data analysis of two researchers was considered as the outcome. Data is presented in the form of descriptive analysis in the form of percentage.

Ethics

The study was conducted according to the declaration of Ministry of Health. Study protocol was approved from the Ministry of Health research committee in Hail Region with number KACS, KSA:H-08-L-074. Consent portion comprises of purpose, nature of survey, study objectives, volunteer participation, declaration of confidentiality and anonymity.

VII. Results

Table 1:Demographic information

| Characteristic | | Number of participants (N=527) | |
|-----------------|---------------|--------------------------------|-------|
| | | N | % |
| Age | 21 -30 years | 232 | 44.2% |
| | 31 - 40 | 208 | 39.6% |
| | 41 - 50 | 66 | 12.6% |
| | 51 – 60 | 15 | 2.9% |
| | 61 above | 4 | 0.8% |
| Gender | Male | 54 | 10.4% |
| | Female | 467 | 89.6% |
| Marital Status | Married | 324 | 61.7% |
| | Singled | 189 | 36% |
| | Divorced | 5 | 1% |
| | Other | 7 | 1.3% |
| Qualifications | Diploma | 6 | 1.1% |
| | BSN | 513 | 97.8% |
| | Master Degree | 6 | 1.1% |
| | PhD | 0 | 0 |
| Work Experience | < 1 year. | 14 | 2.7% |
| | 1 – 5 years | 148 | 28% |
| | 6 – 10 years | 5 | 1% |
| | >10 years | 360 | 68.3% |

Profile of the Respondents

Approximately eighty-four percent of the respondents were between the ages of 21 to 40 years old, showing the relative youth of the respondents. Nine out of ten respondents were also women. Around 3 out of 5 respondents were also married. An overwhelming 98% of the respondents have a BSN degree as their highest academic qualification. This is also an experienced group of respondents as around 7 out of 10 nurse-respondents have more than 10years of experience.

Table 2: Following questions were included to assess the knowledge of nurses about COVID19

| No | Items | Correct | Incorrect | Do not Know |
|----|----------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|
| 1 | Influenza vaccine also imparts protection from the COVID-19 virus. | 234 44.4% | 87 16.5% | 206 39.1% |
| 2 | Special type of provision should be given if patients presents with fever, cough and breathing problems. | 496 94.1% | 18 3.4% | 13 2.5% |
| 3 | The origin of Coronavirus may be a plant. | 39 7.4% | 401 76.1% | 87 16.5% |
| 4 | Coronavirus patients develop acute respiratory illness. | 489 92.8% | 32 6.1% | 6 1.1% |
| 5 | Washing hands with soap and water is the primary measure to prevent Coronavirus infection. | 516 97.9% | 7 1.3% | 4 0.8% |
| 6 | Coronavirus can be spread through close contact during caring. | 489 92.8% | 27 5.1% | 11 2.1% |
| 7 | Polymerase chain reaction (PCR) can be used as diagnostic test for Coronavirus. | 353 67% | 68 12.9% | 106 20.1% |
| 8 | People with comorbidity like diabetes and hypertension are at higher risk of Coronavirus infection. | 470 89.2% | 42 8% | 15 2.8% |
| 9 | Vaccine for Coronavirus is available. | 28 5.3% | 442 83.9% | 57 10.8% |
| 10 | Antibiotics administration can be considered as first line treatment for COVID 19. | 295 56% | 191 36.2% | 41 7.8% |
| 11 | Incubation period for Coronavirus is 2-14 days. | 495 93.9% | 18 3.4% | 14 2.7% |
| 12 | Coronavirus infection can be fatal. | 438 83.1% | 48 9.1% | 41 7.8% |
| 13 | COVID19 is a viral infection. | 493 93.5% | 17 3.2% | 17 3.2% |

Analysis: Assessing the Knowledge of Nurses about COVID19

Things Which They Believed to Be Correct

The things which the respondents believed to be correct about COVID-19 are also generally what the public knows already about the disease and how it is spread. This information has also been relayed to the public through public health announcements through different forms of media, so it is no surprise that each statement got scores between 89% to 98%. This information includes giving importance to people showing signs of COVID-19 like fever, cough and breathing problems; that coronavirus patients may develop acute respiratory illness; that washing of hands with soap and water is the primary measure to prevent the spread of the disease; that close contact through caring can spread it; that it is a viral infection with an incubation period of 2-14 days; and that people with comorbidity like diabetes and hypertension are at higher risk of dying from the infection.

Things Which They Believed to Be Incorrect

Two items stood out which the respondents believed to be incorrect, that the virus came from a plant and that a vaccine for it is already available. Both information is also false in the general public's mind.

Things Which They Needed More Information About

Two statements that the respondents needed more information are as follows – that the influenza vaccine can give protection from the COVID-19 where 2 out of 5 said they did not know but around 44% said that it was correct. However, the WHO has already said this “the influenza vaccine is not effective against COVID-19 virus¹⁴. Furthermore, one out of five respondents said that they did not know that polymerase chain reaction (PCR) can be used as diagnostic test for COVID-19 while 67% said that it was correct. The PCR is defined as “a nucleic acid amplification technique where RNA is converted into DNA and repeatedly multiplied for detection”¹⁵ and is one of the ways to identify a positive COVID-19 patient.

Table 3: Questions to assess the attitude of nurses

| Sr. No | Items | Frequency of responses (N/ %) | | | | |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------|------------|----------------|--------------|
| | | Strongly disagree | Disagree | Undecided | Strongly agree | Agree |
| 1 | Nurses should familiarise themselves with all the relevant information about COVID-19. | 40 7.6% | 13 2.5% | 13 2.5% | 341 65.1% | 117 22.3% |
| 2 | Transmission and spread of Coronavirus can be prevented effectively through following precautionary measures advised by WHO and CDC. | 47 9% | 14 2.7% | 8 1.5% | 296 56.5% | 159 30.3% |
| 3 | Any relevant information related to COVID-19 should be disseminated through all the healthcare professionals including nurses. | 34 6.5% | 20 3.8% | 16 3.1% | 276 53% | 175 33.6% |
| 4 | The spread and prevalence of Coronavirus can be prevented effectively through active participation of nurses in the hospital infection control program. | 33 6.3% | 18 3.4% | 10 1.9% | 262 50% | 201 38.4% |
| 5 | Emergency and intensive treatment should be given to the diagnosed patients. | 35 6.7% | 37 7.1% | 22 4.2% | 221 42.3% | 207 39.7% |
| 6 | Patients infected with Coronavirus should be kept in isolation. | 31 5.9% | 14 2.7% | 5 1.1% | 358 68.6% | 114 21.8% |
| 7 | PPE such as gowns, gloves, mask and goggles should be used while treating patient infected with Coronavirus. | 32 6.1% | 10 1.9% | 10 1.9% | 368 70.5% | 102 19.5% |
| 8 | Improving awareness about COVID19 is an important aspect in preventing the spread of infection. | 23 4.4% | 11 2.1% | 12 2.3% | 352 67.3% | 125 23.9% |
| 9 | Not touching the eyes, nose and mouth during treatment can be beneficial in reducing the spread of infection. | 27 5.2% | 9 1.7% | 8 1.5% | 341 65.1% | 139 26.5% |
| 10 | Covering the nose with a tissue during sneezing and coughing can spread the infection. | 125 24% | 147 28.2% | 10 1.9% | 153 29.4% | 86 16.5% |
| 11 | Lack of policies and procedures can be considered a barrier to the prevention of spread of the Coronavirus. | 37 7.1% | 66 12.6% | 34 6.5% | 184 35.2% | 202 38.6% |
| 12 | The commitment of nurses can be considered as important aspect of effective control of the spread of infection. | 28 5.4% | 8 1.5% | 23 4.4% | 273 52.3% | 190 36.4% |

Analysis of the Attitudes of the Nurses

The infection caused by COVID-19 is something new to the nurses yet many of them have taken a cooperative attitude towards fighting it, considering the effects the disease has on their profession. They have adapted an open learning attitude towards getting more information about the virus (87% of the respondents). The nurses have shown cooperation towards the health protocols which they have to follow to avoid getting sick

because of the highly contagious nature of the disease. This can be seen in their willingness to wear PPEs (90% of respondents) which is understandably cumbersome and uncomfortable, but will definitely save their lives. They have also adjusted to the idea of not touching their eyes, noses, and throats (92% of the respondents), at any point when in contact with patients. They also believed that patients with the virus should immediately be isolated (90% of respondents), which is the SOP now adapted by many governments. The less contact of the COVID-19 positive patient with the public, the less likely the number of infected people. Eighty-nine percent of the respondents have also committed to their daily life-threatening tasks, and as front liners, they have been acknowledged as modern-day heroes worldwide. Ninety-one percent of the respondents also want a large-scale public information campaign on the health protocols so as to lessen the speed of the spread of the virus. Eighty-seven percent of them also believe that the transmission and spread of the virus can be slowed down by following the WHO guidelines and protocols. However, almost 3 out of 4 respondents have assailed the lack of policies and procedures from the side of the government, in many aspects of daily living which can help in the prevention of spread of the coronavirus. They want that their efforts of caring for the positive COVID-19 patients not go to waste as people are now starting to get out of the lockdown and increasing their risk exposure.

Table 4: Questions to assess anxiety among nurses

| Sr. No | Items | Frequency of responses (%) | | | |
|--------|-------------------------------------------------------------------------------|----------------------------|--------------|--------------|--------------|
| | | Not at all | Somewhat | Moderately | Very much |
| 1 | COVID19 can be successfully controlled | 71 13.5% | 163 31% | 193 36.8% | 98 18.7% |
| 2 | KSA has all the resources needed to fight the battle against COVID19. | 30 5.7% | 103 19.7% | 208 39.7% | 183 34.9% |
| 3 | You believe that you will possibly get infected with COVID19. | 78 14.9% | 216 41.3% | 128 24.5% | 101 19.3% |
| 4 | You are worried that a member of your family might become infected. | 94 18% | 143 27.4% | 92 17.6% | 193 37% |
| 5 | If you were infected with Coronavirus you would be sent to an isolation ward. | 20 3.8% | 39 7.5% | 69 13.2% | 394 75.5% |
| 6 | I feel depressed and hopeless about the COVID19 pandemic. | 112 21.5% | 163 31.2% | 139 26.7% | 106 20.4% |
| 7 | I find it difficult to get to sleep due the to Coronavirus pandemic. | 188 36.9% | 162 30.9% | 117 22.3% | 57 10.9% |
| 8 | I am feeling tired or fatigued because of the COVID19 outbreak. | 111 21.2% | 185 35.3 | 113 21.6% | 115 21.9% |
| 9 | It is difficult to concentrate on work | 185 35.2% | 154 29.3% | 110 21% | 76 14.5% |
| 10 | I feel restless or unsettled because of the outbreak. | 151 28.7% | 174 33% | 120 22.8% | 82 15.6% |

Analysis of the Anxiety of the Nurses

The thing that causes most anxiety to the nurses is getting infected with coronavirus and having to be placed in an isolation ward. A whopping 96% of the nurses are somewhat affected to very much affected by this. This is actually the #4 source of anxiety in this particular study cited - "uncertainty that their organization will support/take care of their personal and family needs if they develop infection", this reason being the consequence of being placed in the isolation ward¹⁶. For this particular study, the nurses have picked this as their #1 source of anxiety. Their #2 source of anxiety at a close 94% of the respondents feeling somewhat affected to very much affected is if the KSA has all the resources needed to fight the battle against COVID19. This is a valid concern by the nurses because even though the country has improved in terms of clinical and scientific research on epidemics, it still has a long way to go in building its appropriate biocontainment laboratories and moving into better governance of research and development¹⁷.

The consequences of anxiety are also affecting the nurses. Sixty-five percent of them find it difficult to concentrate in work. Sixty-three percent of the nurses find it difficult to sleep. Those two are big numbers since they account for 3 out of 5 nurses, and that is worrying for the hospitals, who are already having staffing problems, especially if some of the nurses test positive for COVID19 and have to be quarantined, along with the other nurses they mingled with. Researchers believe that healthcare professionals like the nurses have a sense of purpose and meaning during this pandemic, and this sense of duty will carry them through even their darkest days. The Mental Health Foundation of the UK has also recommended that nurses get good access to good quality information about the virus because that can give them a sense of more control. They also recommend that they seek out information from trusted sources and only once or twice a day, instead of in a constant stream, since all that information to process will already aggravate their already heightened levels of anxiety as they deal with their day-to-day challenges¹⁸.

Other interesting results from the study is that a whopping 87% of the respondents believe that COVID-19 can be successfully controlled. This being a new disease confronting healthcare professionals worldwide, this seemingly high number can also be attributed to the country's former experience with handling the MERS-COV a full decade ago. A full month before the first reported case in the country, the government had already stopped all direct flights to the country from China¹⁹. This quick action can be attributed to the country's previous experience with MERS-COV, so that cutting off the source of the virus has helped a lot in mitigating the spread of the virus.

VIII. Discussion

To the best of our knowledge, this is the first study which systematically evaluated knowledge, attitude and anxiety of nurses about the COVID19 infection in Saudi Arabia. Every participant responded comprehensively to the questions about this viral infection. However, most of the nurses responded incorrectly to the question on the availability of vaccine. Improvement in knowledge of nurses about COVID19 would be helpful in creating awareness among patients and society. Since, this pandemic is new to the world, the proliferation of fake news or a large amount of misinformation may happen even to experienced nurses. Consequently, this may lead to xenophobia. This attitude towards non-KSA nurses might alter while providing intervention to the COVID19 patients. Moreover, nurses might also experience anxiety while handling these patients; specifically, due to the fear of the spread of infection from the patients^{9,20}. Nurses have already agreed to providing proper dissemination of information to other healthcare professionals and fellow nurses. However, a smaller number of participants demonstrated agreement towards lack of policies and procedures as barriers for prevention of spread of Coronavirus infection. The respondent nurses also showed some psychological stress during this COVID19 pandemic. One source of anxiety is their fear of being sent to isolation if infected with coronavirus.

IX. Conclusion

Based on the knowledge of nurses about the COVID 19, effective education and training should be provided to the nurses. Self-reported attitude and anxiety of nurses about COVID 19 could be helpful in providing specific intervention to them.

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