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Cross-Sectional Study: Knowledge, Awareness, and Attitude Regarding COVID-19 (Coronavirus) Infection Control and Prevention among Students and Staff in Alghad College in JEDDAH

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Abstract: *Awareness of an individual's knowledge and being able to predict his or her behavior is crucial when evaluating participants for pandemics with a highly pathogenic virus. This study aimed to identify and assess Knowledge, Awareness, and Attitude Regarding COVID-19 (Coronavirus) Infection Control and Prevention among Students and Staff in Alghad College in JEDDAH from 3rd March 2020to 20 April 2020. About 90 participants students and academic staff selected randomly with different ages between (20-45 years old) fill out the questionnaire forms, a Results: the females were more than male, 67.8% of the sample were females (32.2%) were male. The students were 63.3%while the academic staff was 36.7%. The percentage of awareness about the procedure of Hand hygiene was 96.6% with significant (p = 0.001). , stay home can reduce the spread of COVID-19 were93.3%, degree of participant awareness of precautions and infection control among COVID-19 were 81.1% and Avoid crowding, using sterilizer, and using facemask taken great and high percentage,67.8%,78.9%, and 57.8% respectively. Concerning attitude, more than 90% of students and staff exhibited a positive attitude toward COVID-19.*

Keywords: *Knowledge, Awareness, Coronavirus, prevention, Student, and Staff.*

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I. Introduction

Coronaviruses (CoV) are a large family of RNA viruses that cause diseases ranging from the common cold to more choric diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). The new strain of coronavirus identified in December 2019 in Wuhan city, Hubei province of China, has been named by the International Committee on Taxonomy of Viruses (ICTV) as Severe Acute Respiratory Syndrome Corona Virus-2 (SARS-CoV-2). The International Committee on Taxonomy of Viruses (ICTV) has determined that SARS-CoV-2is the same species as SARS-CoV but a different strain. [1]

The World Health Organization (WHO) has named the disease associated with SARS-CoV-2 infections as Corona "COVID-19". According to the WHO, as on February 17, 2020, there have been 71 429 confirmed cases of COVID worldwide. Although almost all the cases have been recorded and begin in China, COVID-19 has spread worldwide to 25 countries with some reporting local transmission. Most of the cases involved in the first cluster in December 2019 were linked to the large Wuhan Seafood Market. By March 2020, the World Health Organization (WHO) assessed the COVID-19 as a pandemic one. Cardiovascular disease, chronic respiratory disease, individuals aged 60 or older than 60 years old, and males have a higher risk of mortality than the rest of the population. [2-4]

Some of the public understands too little about this strain of the Coronavirus when viewed against the magnitude of its potential threat. This lack and insufficient knowledge are alarming and the public health agencies must respond aggressively. Furthermore, it has been recorded that understanding the perception of the general public to infectious disease threats would contribute to the ability of the Ministry of Health (MOH) to determine knowledge gaps and awareness to be addressed in public health awareness campaigns. Saudi MOH has committed a lot of resources toward effectively containing the outbreak, preventing COVID-19, and promoting health through public education. Despite KSA MOH efforts calling for collective responsibility by the public health community in Saudi Arabia to raise public awareness and knowledge toward this disease, more public involvement is needed and this almost done by many resources of awareness methods. [5]

Sustained human to human transmission has been confirmed and documented in China where numerous healthcare workers have been infected in clinical settings with overt clinical illness and fatalities. While most cases have been associated with fever and respiratory disease symptoms (coughing, shortness of breath (SOB), and pneumonia), mild or subclinical cases cannot be ruled out.[6-8]

The most common strategies, as advised by WHO, include preventative measures such as quarantine and limitations of movement in infected areas, interruption of human-to-human transmission, early identification and isolation, providing appropriate care for 20 patients, identifying and reducing transmission from the animal source, and minimizing the social and economic impact through multispectral partnerships. [9]

KSA MOH take a wide awareness of public by some strategies and perform a guideline for decrease spread of COVID-19 – by Standard Precautions include Correct and consistent use of available personal protective equipment (PPE) and appropriate hand hygiene, Perform hand hygiene after contact with respiratory secretions., PPE effectiveness depends on adequate and regular supplies, adequate staff training and specifically appropriate human behavior. Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly. Thorough cleaning of environmental surfaces with water and detergent and applying commonly used hospital-level disinfectants (such as sodium hypochlorite) is an effective and sufficient procedure, Manage laundry, food service utensils and medical waste following safe routine procedures. Prevention of needle-stick or sharps injury, Ensure the following respiratory hygiene measures by Offer a medical mask for suspected COVID-19 infection for those who can tolerate it. And Cover nose and mouth during coughing or sneezing with a tissue or flexed elbow for others. [10]

II. MATERIALS AND METHODS

2.1Material and Methods

2.1.1Area and duration

A cross-sectional study was performed in Alghad International College for Applied Medical Science in JEDDAH. The study was obtained during the period from 3rd March to 20 April 2020.

2.1.2 Sample study

The sample of this research consisted of 90 participants of student and academic staff in Alghad international colleges for applied medical science in JEDDAH. Google form questionnaire was distributed to all student and academic faculty members to assess the degree of Knowledge, Awareness, and Attitude Regarding COVID-19. 61 of the sample were female (67.8%) and 29 were male (32.2%) aged between 20-45 years old, from all 90 of participants, students were 57 (63.3) and 33 were academic staff (36.7%).

2.2.2 Statistical analyses

By using SPSS program version16 all data and variables are analyzed. Descriptive statistics, including frequency and percentages, were calculated. ANOVA test was applied to test the significance, the *p*-value of less than 0.005 was considered to be statistically significant.

III. Results

All collected data analyzed and tabulated in tables and graphs as follows:

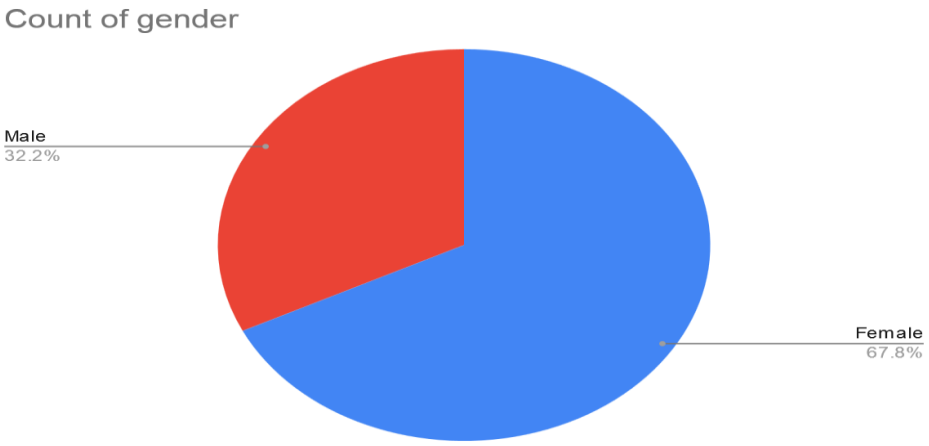

Figure no 1: a pie chart display gender distribution.

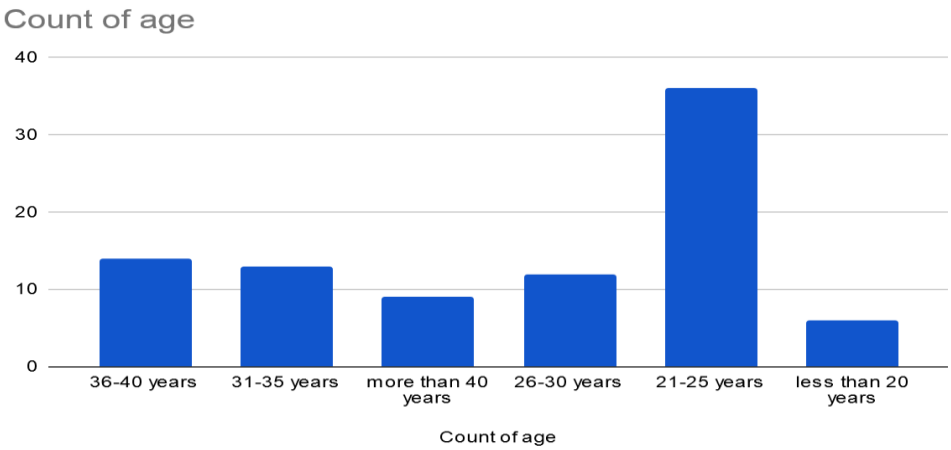

Figure no 2: display age distribution.

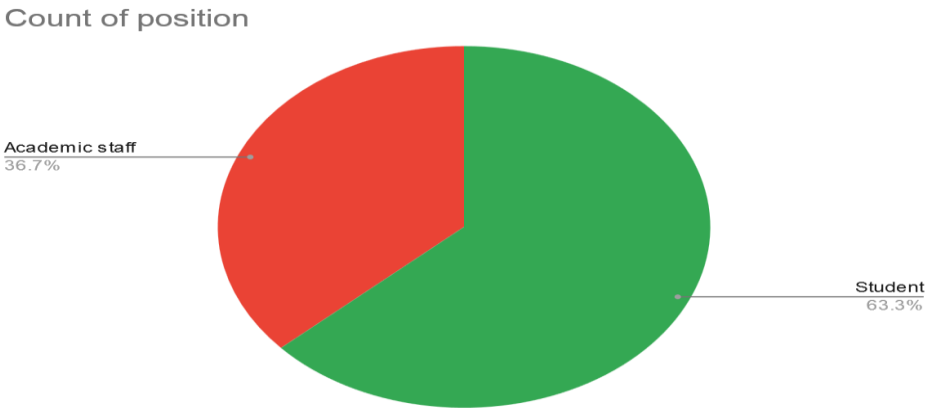

Figure no 3: pie graph show staff and student frequency

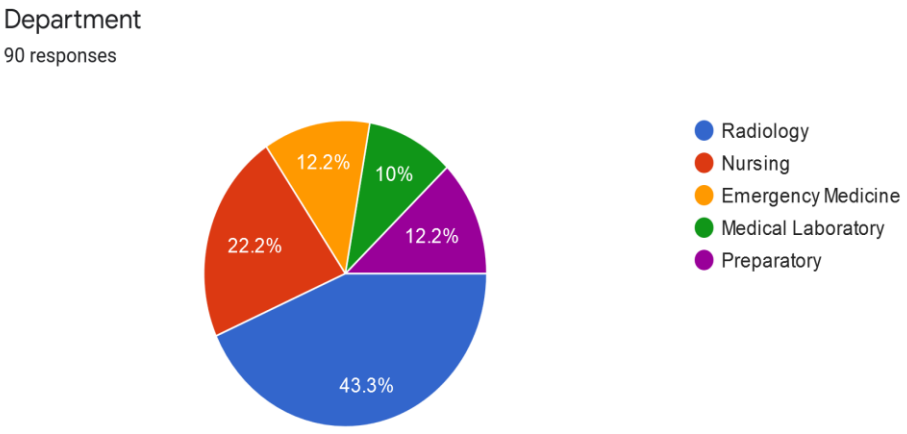

Figure no 4: pie graph show department distribution

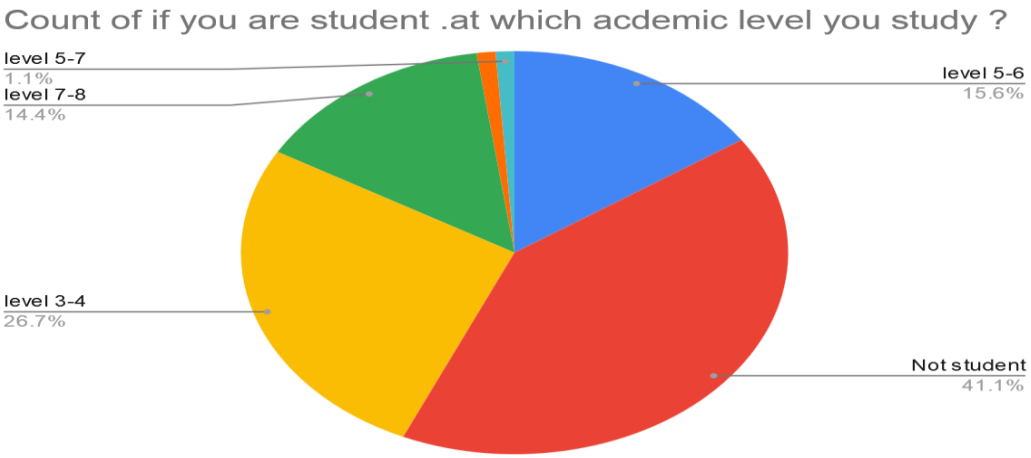

Figure no 5: pie graph shows the count of students level

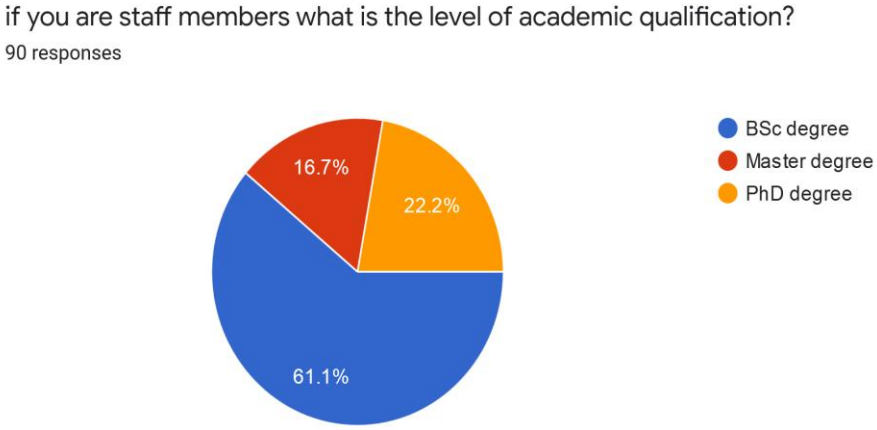

Figure no 6: pie graph shows the percentage of participants according to their qualification

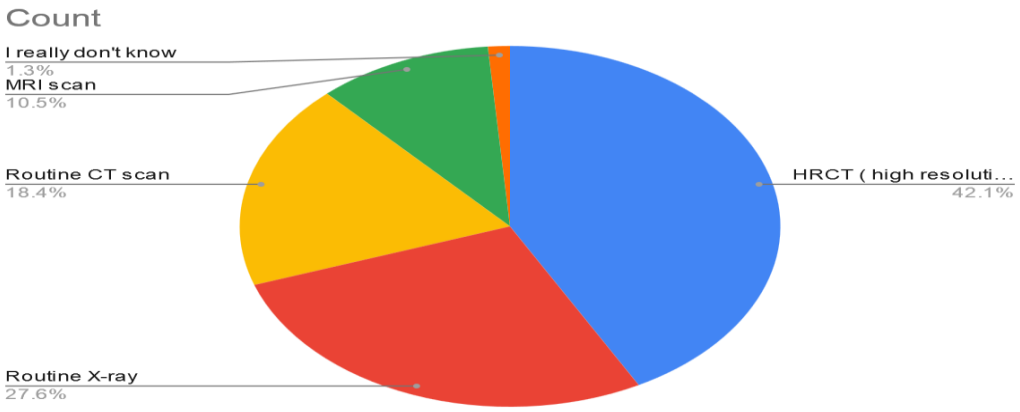

Figure no 7: pie graph show parentages of radiology investigation help diagnosing COVID-19

Table (1): show type of account of knowing how far radiology department can help in diagnosing COVID-19 And the frequency of how your specification can help in the detection and diagnosing COVID-19

from your Knowledge how far the radiology department can help in diagnosing COVID-19?	**COUNTA of How your specification can help in the detection and diagnosing COVID-19?**
HRCT (high-resolution CT scan for Chest)	19
HRCT (high-resolution CT scan for Chest), MRI scan	0
I don't know	1
Infrared Radiation	1
MRI scan	0
Routine CT scan	3
Routine CT scan, HRCT (high-resolution CT scan for Chest)	2
Routine CT scan, MRI scan	0
Routine X-ray	7
Routine X-ray, HRCT (high-resolution CT scan for Chest)	4
Routine X-ray, HRCT (high-resolution CT scan for Chest), MRI scan	1
Routine X-ray, Routine CT scan	2
Routine X-ray, Routine CT scan, HRCT (high-resolution CT scan for Chest), MRI scan	6
Routine X-ray, Routine CT scan, MRI scan	1
The Radiology department has a lot of Machines but the help is taking a projection for chest (lung).	1
We don't need radiology department	0
Grand Total	48

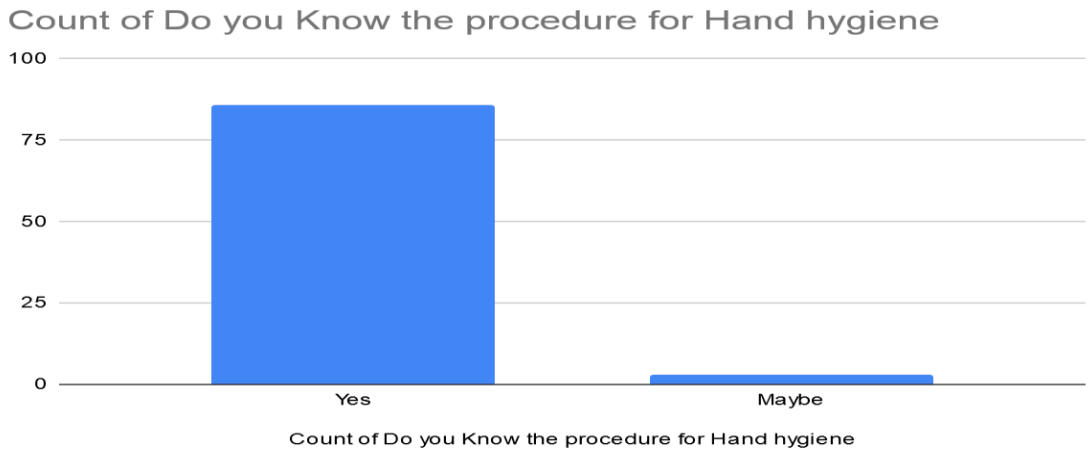

Figure no 8: Chart show percentage of participant's awareness about Hand hygiene Procedure

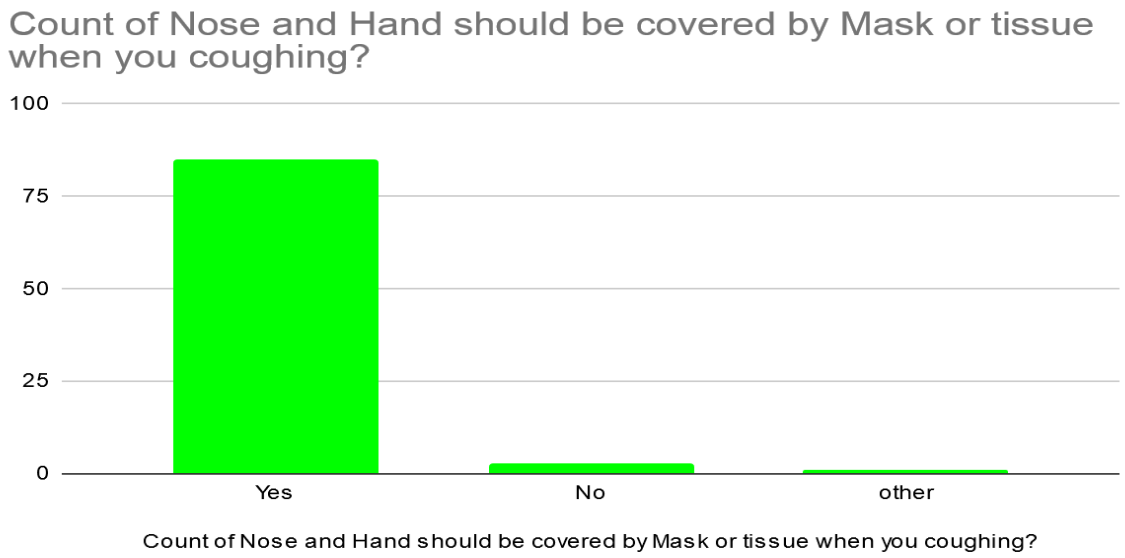

Figure no 9: Chart show percentage of participant's Knowledge about methods of using Mask during coughing

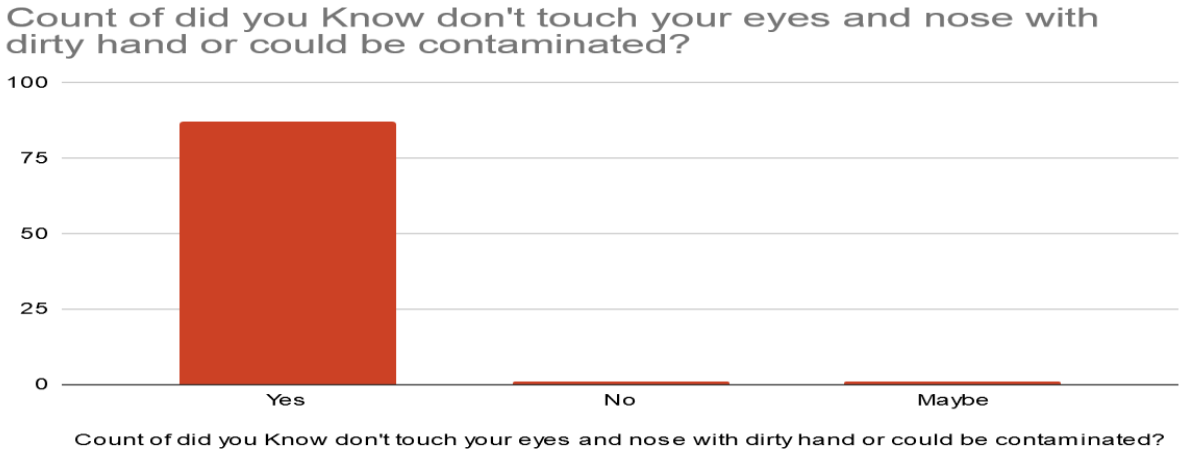

Figure no 10: Chart show percentage of participant's Knowledge about avoiding touching nose and eyes.

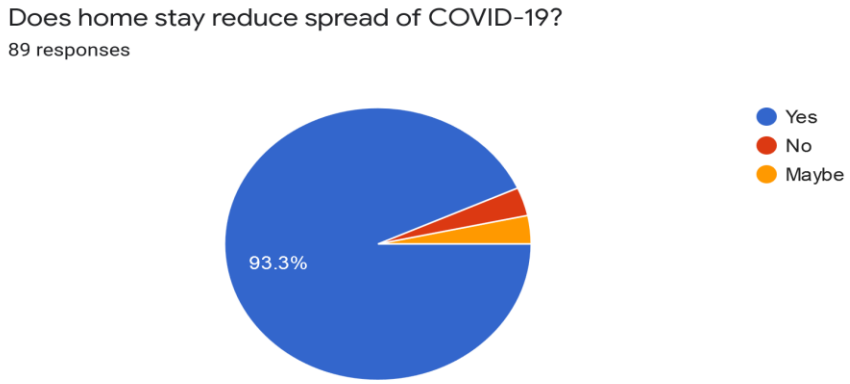

Figure no 11: pie graph shows the percentage of awareness about reducing COVID-19

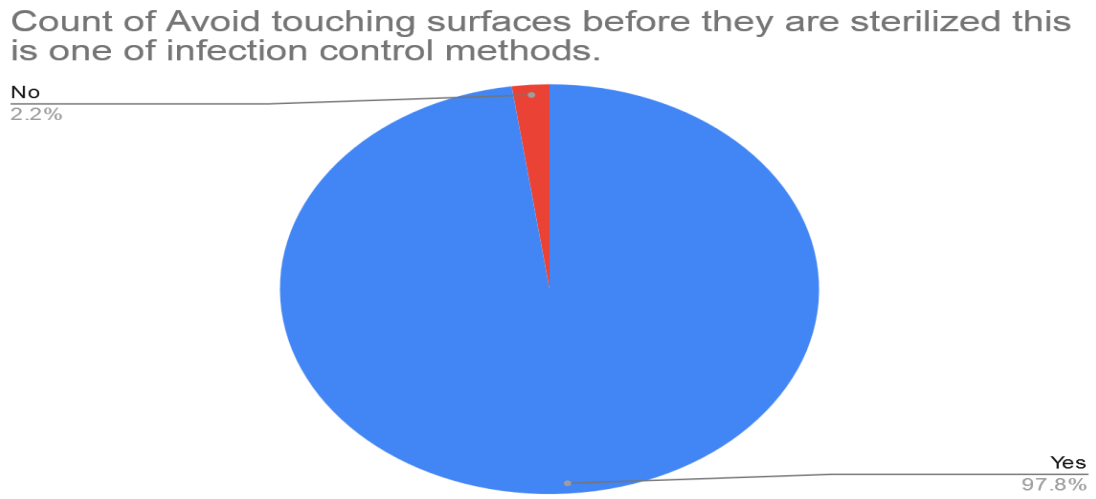

Figure no 12: The pie graph shows the percentage of participant's Knowledge about avoid touching non sterilized surfaces.

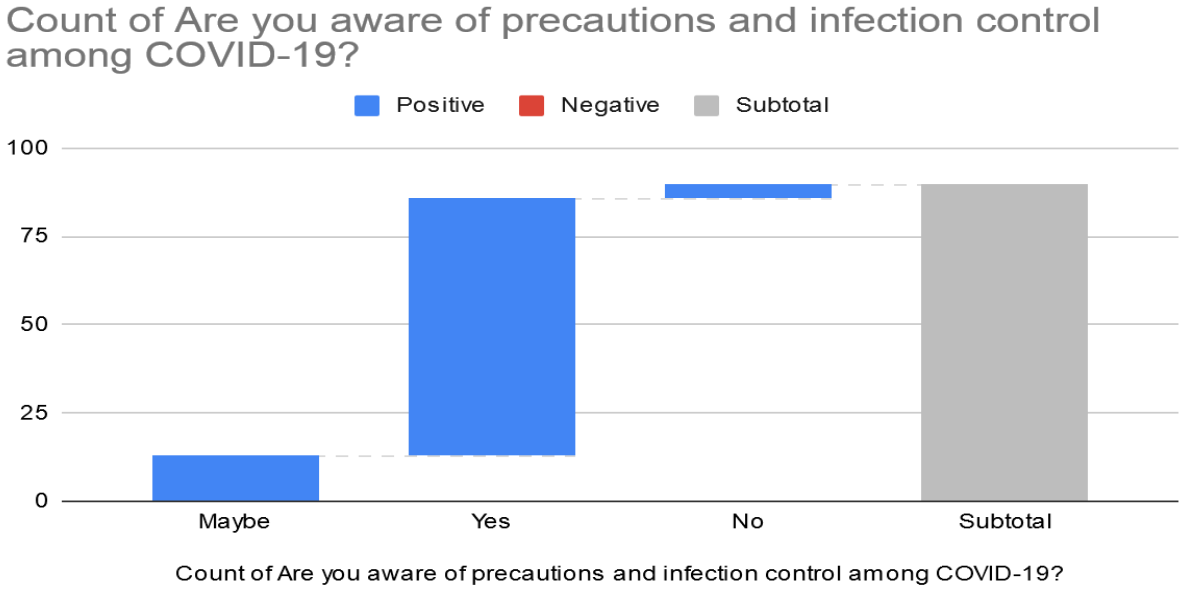

Figure no 13: Chart show grade of awareness of participant's about precautions among COVID-19

IV. Discussion

The sample of this research consisted of 90 participants of Alghad International College for Applied Medical Science in Jeddah students and academic faculty members. The gender distribution shows the percentage of female 67.8% is more than male 32.2% in figure 1.

figure (2) shows that the age between 21-25 years old had a high percentage of 40% because the student's age in between this level of ages and is more than academic staff as in figure 3, students percentage were 63.3% while the staff was 36.7%.

Figure 4 shows the academic department of the participant and most of the participants from the Radiology department with 43.3 %,22.2%nursing departments,12.2% for the emergency department,12.2% in preparatory, and 10% in medical laboratory department.

Figure 5 shows the count of student-level he most students at level 3-4 with 26.7% and level 5-6 were 15.6%, level 7-8 14.4%while lower percentage in level 5-7were1.1%.

In figure 6 we assess the qualification of academic staff in three-degree Bsc, Master and Ph.D. However the most participants were students the high percentages in BSc degree with 61.1%, Ph.D. were 22.2% and low participants were master degree from academic staff about 16/7%.

Awareness and knowledge assessment:

In figure 7 we assess the degree of awareness of all participants by asking them how radiology investigation help in diagnosis and detection of coronavirus and what is the best modality in give accurate significant reports of COVID-19, the most of participants said that high resolution computed tomography (HRCT scan) is most accurate and effective with high percentage 42.1% and this is truly the fact comparing this with other studies.27.6& is for route chest x-ray, routine CT scan was 18.4% and Magnetic resonance imaging MRI was 10.5% with few participants were not Know what is the best about 1.3% that means most of them according to their Knowledge and awareness HRCT scan is best one to diagnosis and give a positive and accurate report about COVID-19. Also these results in table 1 which show that the HRCT scan for chest is the high-level assessment by 19 of 48 of the total response. While 7 routine x-ray exams.

Same results with Hanaa Zakaria Nooh et al across-sectional study through a reliable questionnaire including sociodemographic and MERS-CoV knowledge data of 384 participants in Al-Jouf government concluded was the majority of the participants showed generally moderate knowledge about COVID-19. The public awareness and knowledge about the nature, communicability, and lethal effect of the disease was good overall; however, knowledge about the incubation period of the virus, clinical picture, and epidemiology of the disease needs more governmental concern. And recommended frequent communication between healthcare providers and both school students and non-educated individuals is help the Saudi government in controlling the disease outbreak. [11]

Attitude assessment:

In this research, we assess also the degree of awareness among staff and students regarding COVID-19 infection control and prevention of diseases spread. In figure 8 we ask the participant about did they aware and know the Hand hygiene procedures 96.6% said yes they know, and in figure 9 assess participant's Knowledge about methods of using Mask and tissues during coughing they said yes about 95.5%.in figure 10 participant's Knowledge about avoiding touching nose and eyes by hand when touching with the contaminated surface, they know that and the degree of awareness is very high with 97.8%.

Figure 11 shows if we stay home this reduces the spread of COVID-19 or not, 93.3% were yes stay home decrease the spread of coronavirus among public and this is one of WHO restrictions. 97.8% of participant knows to avoid touching non sterilized surface is one of the infection control methods as in figure 12.

Figure 13 shows the grade of awareness of participant's about precautions among COVID-19 81.1% yes (positive Attitude) and 14.4% maybe and the rest is NO knowledge.

Comparing these results with Mohamed O et al that had a cross-sectional study was conducted in Makkah public hospitals from September 2014 to April 2015. About 281 participants representing healthcare providers were included in his study. Data representing knowledge, attitude, and practices were collected and documented using questionnaires. The mean age of the participants was 30.8 ± 6.3, years ranged from 21 to57. More than half of them were females (57.7%) and 46.3% were nurses. His conclusion was only one-third of them (32.4%) acquired good knowledge about the infection with mean knowledge score 18.3 ± 3.9 (out of 28) and most of them (91.8%) showed a negative attitude towards the infection with mean attitude score 5.4 ± 1.6 (out of 11). However, 87.9% reported good practices with a mean practice score of 7.2 ± 1.5 (out of 8). There are significant positive associations between knowledge and both attitude and practice scores. The mean knowledge score was significantly higher among those with age ≥ 30 years, physicians, and those with > 10 years of experience, and the mean practice score was significantly more among females. And there are a knowledge gap and negative attitude among healthcare providers at Makkah hospitals towards MERS-CoV infection although they reported good practices. [12]

The same results were Khalid M. Almutairi et al, who collected 1147 adult subjects recruited from various shopping malls in Riyadh was conducted, by using a questionnaire that tested their knowledge, attitudes, and use of precautionary measures concerning the MERS-CoV pandemic.

The majority of the participants showed high levels of concern and had utilized precautionary measures. Gender was the only significant predictor of the level of concern ($P < .001$), while knowledge was the significant predictor of both the level of concern and precaution ($P < .001$). High concern translated into higher compliance with precautionary recommendations. Frequent communication between health care providers and the public is recommended to help dispel myths about the disease and to empower the public with the information needed to help the Saudi government in containing the disease outbreak. [13]

This study had some limitations. Firstly, the questionnaire data may have been subject to recall bias and misclassification and simple design for easy understand to all students' levels. Secondly, our study was limited to the student and medical academic staff in alghad colleges in Jeddah, thus the results presented here may not be generalizable to the rest of the country. Finally, a few sample size of participants is a potential limitation. Therefore, carrying out further large scale studies from other regions in Saudi Arabia is important to further explore awareness and attitude among COVID-19 at the national level.

V. Conclusion

According to the Saudi ministry of health by the middle of April 2020, the total number of cases in Saudi Arabia 11,631 and 1,640 recoveries and 109 were mortality by COVID-19. Globally was 2,494,915 cases of COVID-19, 658,009 recoveries, and 171,249 were mortality. With this pandemic of COVID-19 awareness for the general public is important to keep people safe stay home to save your lives. In this study, we found satisfying knowledge, awareness of preventive measures, and infection control between student and academic staff discussed above.

Frequent communication between healthcare providers and both school students and non-educated individuals is recommended in further researches to help the Saudi government in controlling the disease outbreak.

Acknowledgments

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