

# Assessing Knowledge, Attitude, and Practices of Hand Hygiene among Health Care Workers in Eradah Complex in Jeddah

## Abstract

**Background:** Most of the persons thought that nosocomial infection is spread from the hands of health care workers. The main aim of hand washing is to be aware for all to know that this is a myth that nosocomial infection is spread from hand.

**Methods:** This cross-sectional study was conducted in Eradah Complex in Jeddah. The Saudi Commission for Health Specialties (SCFHS) has accredited Eradah Complex for Mental Health- Jeddah, as a training center for addiction medicine fellowship program. An observation is done by providing a Google form to the health care workers of the Eradah complex in Jeddah. This is to observe the views of the health care workers on the issue of practices of hand hygiene.

**Results:** There were a total of 178 study participants (111 male and 67 participants). Age groups demonstrate that 34.27% of participants belong to the age group of 36 to 45 years. 32.02% of the participants belong to the age group of 26 to 35 years of age group. Moreover, the graph has shown that 14.04% of participants belong to the age group of 18 to 25 years. It has been seen that the number of female workers bearing the position of Nurse is less than those of males. It is important to have more respondents being nurses as the nurses usually communicate directly with the patients. There is a doctor too, but they are less interaction directly with the patient. Therefore, overall graph shows that only 6.18% participants prefer other professions whereas among other percentages, 7.30% participants are pharmacists, 25.28% people are nurses, and 18.54% participants are doctors.

**Conclusion:** The present study has discussed that maintenance of hand hygiene in the hospitals and clinics are of sheer importance. The research methodology that is incorporated in the present study has been helpful for the researchers in understanding the perception of the healthcare workers what they think about the aspect of washing hands primarily after the pandemic. Therefore, it has been seen that most of the participative healthcare workers primarily males do not find the aspect hand hygiene much important and so they rarely use

soap for hand wash. On the contrary, the female workers understand the importance of hand wash more and thus, they support the thought of hand hygiene at the workplace.

**Keywords:** Health care, Hand wash, Sanitization, Hygiene, Awareness

UNDER PEER REVIEW

## **Introduction**

Hand hygiene is an essential practice for every healthcare worker to keep safe and secure life and provide quality service to patients. This is important to make people aware about hand washing and influence them to practice good hand sanitation to keep a healthy lifestyle. There are some important steps in hand washing that should be followed by the health worker as they are highly associated with highly risk prone areas. The health workers need to have knowledge about correct steps and procedure regarding hand washing that help to show patients the right steps too (Allegranzi et al., 2011).

The importance of the hand hygiene is too aware for all people for hand hygiene, they should know about the hand hygiene to spread from the hand which is hygienic of health care worker in health department. The main purpose of the hand washing is to involve all the staff in the present in formal training and strongly agree with them hand washing. They use the soap and water to wash their hand protecting from the hand hygiene. The attitude of the some hand washing is positive, because all the staff are take it seriously and take the all response positive (Mathai et al., 2010; Pittet et al., 2009).

Health care-related infections are a serious problem in health care services because they can lead to prolonged hospital stays, high mortality rates, long-term disability, and high medical care costs. Most health care-related infections can be spread from patient to patient through the hands of health care workers. In other words, due to poor hand hygiene, the hands of medical staff are the most common type of carrier for spreading medical-related infections. Effective hand hygiene is the simplest and most effective way to reduce the prevalence of health care-related infections. Unfortunately, the prevalence of these infections continues to rise, and it is estimated that hundreds of millions of patients worldwide suffer from healthcare-related infections each year. Therefore, infection control is necessary to reduce high-level health care-related infections, and the importance of hand hygiene in infection control cannot be overemphasized (Patarakul et al., 2005).

In Asia, despite the high prevalence of healthcare-related infections in the region, there are few studies exploring this topic. Most of these studies explored the knowledge, attitudes, and practices (KAP) of doctors and nurses, and only a few included residents (8, 9). During the rotation period, the instructor will teach infection control and aseptic techniques to many Iranian residents. We believe that it is necessary to fully explore the effectiveness of residents' training programs in this regard. This will help identify gaps between KAP and hand hygiene to improve existing training programs and promote good practices and professional ethics in the future. However, our literature review failed to produce any studies

evaluating the knowledge, attitude, and behavior changes of Iranian residents after routine training (Patarakul et al., 2005; Chan et al., 2008).

The main purpose of this assignment is to analyze and assesses importance of knowledge, attitude and practice of hand washing for health worker to maintain a healthy and safe lifestyle. There are several process that is utilized by the health workers such as hand soap, alcohol based sanitizer to keep their hands from germs and infection. The staff of health sector needs to have positive attitude and practice along with correct knowledge about hand washing to ensure about safe environment.

#### **Aim of the work**

- To assess knowledge of hand hygiene among health care worker in Eradah Complex in Jeddah.
- To assess attitude and practices of hand wash among health care worker in Eradah complex in Jeddah.

#### **Subject and Methods:**

##### **Study design and Setting**

This cross-sectional study was conducted in Eradah Complex in Jeddah. The Saudi Commission for Health Specialties (SCFHS) has accredited Eradah Complex for Mental Health- Jeddah, as a training center for addiction medicine fellowship program.

An observation is done by providing a Google form to the health care workers of the Eradah complex in Jeddah (Jaakkola, 2020). This is to observe the views of the health care workers on the issue of practices of hand hygiene.

##### **Study observation**

The main purpose of providing Google form to the healthcare workers of the Eradah complex is to observe the attitude and the seriousness of the health care workers regarding the topic of practices of hand hygiene among the healthcare workers. This observation is done because the management has given the training on hand hygiene to healthcare workers and wants to know the result of that training. The management wants to know whether the workers are practicing the rules or not because hand hygiene is very necessary at the clinical workplace (Hillier, 2020). Healthcare workers continuously come in contact with the patients so the need for hand hygiene is very necessary because unhygienic hands can infect the patients which can affect the reputation of the complex.

## **Sampling and Sample**

Participants were chosen via non-probability convenient sampling technique according to the respondents to the Google forms. Completed questionnaire were selected for this study.

## **Eligibility Criteria**

Health care workers at Eradah Complex in Jeddah.

## **Data Collection**

In this assignment, the primary quantitative data collection method has been applied to collect data from the health workers of Eradah complex in Jeddah. For collecting data from health workers of this health sector regarding knowledge, attitude and practice of hand washing survey has been done. For this survey, Google form has been utilized to collect information about their attitude, knowledge in hand washing. In this Google form, there were 14 questions regarding their working department, professional sector and their practice of hand washing. From this survey the workers have been asked about the issues they faced while maintaining proper hand washing practice during working time. The main purpose of this data collection is to get authentic and reliable information regarding practice and attitude of health care workers of about hand washing.

They also asked about the views of the workers on hand hygiene issues, that is if they seriously follow the rules or not, what they think on hand washing. How they are taking this issue like washing hands is serious or formal. It is very important for the complex to know about the views of the workers because if they take the issue formally then they will not follow the rules by their own choice, which is going to be a big problem for the admitted patients there and also for the complex.

## **Instruments**

Self-administrated questionnaire to assess the knowledge and attitude of health care workers towards hand hygiene practice.

## **The study Questionnaire**

Through this self-administrated questionnaires attitude, knowledge and practice of health workers of Eradah healthcare complex in Jeddah has been evaluated to spread awareness about importance of hand washing. They are the responsible person within the healthcare complex to increase awareness of importance of hand washing for patients and for that they need to follow proper practice related to hand sanitization (Fagert, 2017).

In this questionnaire there are fourteen questions asked by the management to observe the people from the age of eighteen to forty five and above. This form is for both the genders either they are male or female. They asked fourteen questions that are about their gender,

about their age, if they are given the training or not and about their views on hand hygiene (Vermeil *et al*, 2019). ).In this survey the health workers has been asked about frequency of their hand washing, and issues they faced while maintain frequent hand sanitization. From this survey the management system of this assignment has got to know the level of burden of staffs to maintain productivity level along with proper hand washing practice. This survey has been focused on every professional staff of health care complex such as nurse, doctor, lab technologist and other staff. Most people responded in favor of hand hygiene but some people agreed on the question that they have sometimes more important work than washing hands which is an unhealthy practice.

Among all the staff of this healthcare complex, maximum number of employees has responded positively and with formal manners to provide information about their knowledge and practice about hand washing.

This is the main reason for providing this Google form so that the complex will be able to know how much their given training is efficient or implemented. Those people who have attended the training session have responded in favor of hand hygiene because in the training session they are made clear about the importance of hygiene and importance of the life of the patient. At last in the Google form the workers are asked about their attitude towards the hand hygiene and more or less every person responded with a positive attitude towards the hand hygiene (Yang, 2020). It is also observed from this Google form that a large number of workers use alcohol based sanitizer in comparison to soap and water which reflect the seriousness of the workers towards the health of the patients (Haque, 2020).

### **Data Analysis**

Data obtained from questionnaire were entered and analyzed using SPSS program version 23 computer software. Sociodemographic data are presented using descriptive statistics as means, median, percentages and standard deviation. Independent T test and one-way Anova are used to show statistical significance among patients' characteristics and tool scores. Chi square test is used to show relationship between categorical variables.

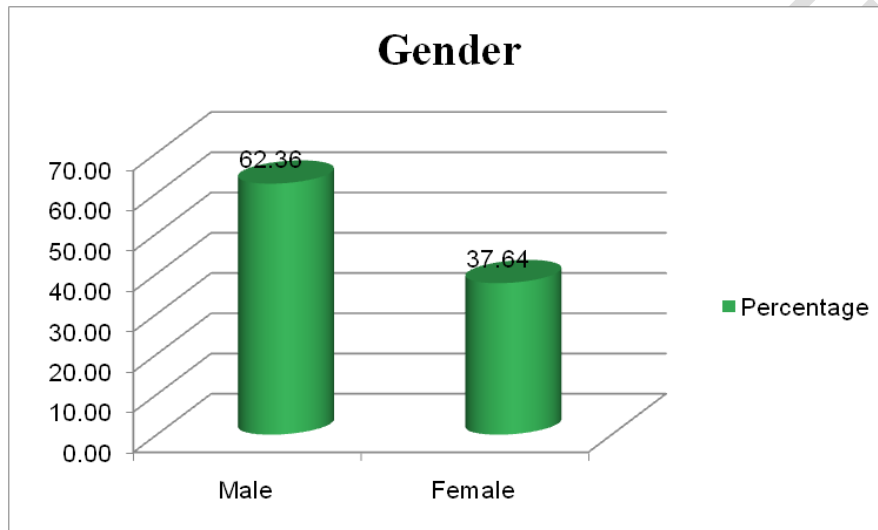
### **Ethical consideration:**

While implementing a research methodology the aspects of ethical consideration is very important in order to ensure accuracy of the research. The part of ethical consideration primarily helps the researchers to maintain authenticity and efficiency of the research (Kamathewatta *et al*. 2020). Ethical consideration part involves some of the important aspects of the research methodology which are as follows

- The researcher has taken prior consideration from the participants before starting the research and they were informed about the research topic in the beginning.
- The researcher has maintained the authenticity of the collected data.
- The researcher has respected the opinion of the participants and no one has been forced during the research method.
- Secrecy of the overall research methodology has been kept by the researcher throughout the process.

## Results

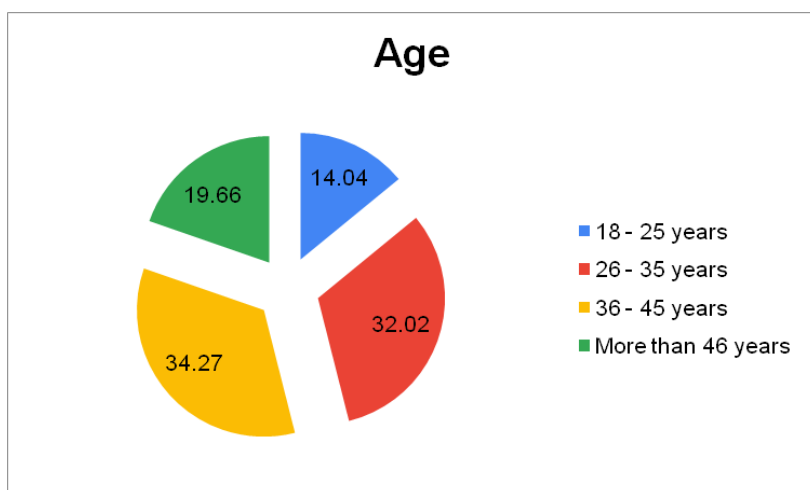
There were a total of 178 study participants (111 male and 67 participants).



**Figure 1: Gender**

Gender	Frequency	Percentage
Male	111	62.36
Female	67	37.64

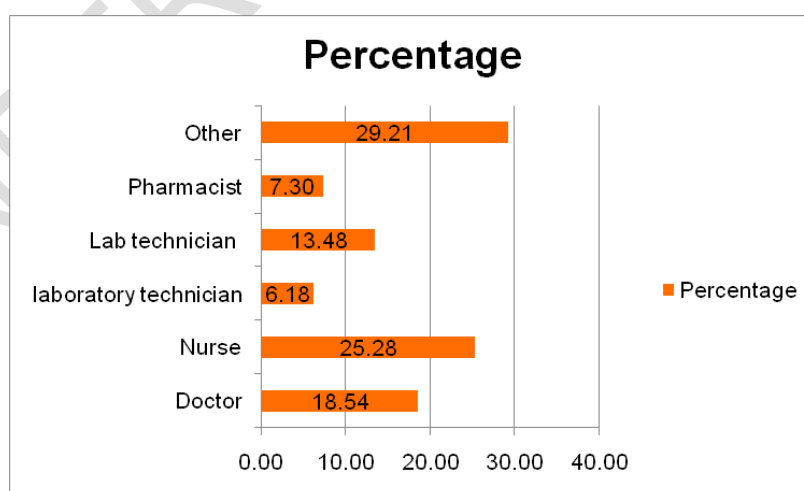
It can be seen in the graph created that the responses had been collected from 62.36% of male and 37.64% of female healthcare workers. It shows that the response of male HCWs bears more significance. However, as the response from female respondents is one-third, they are also significant.



**Figure 2: Age responses**

Age group	Frequency	Percentage
18-25	25	14.04
26-35	57	32.02
36-45	61	34.27
More than 46	35	19.66

The results about the age groups of the participants shown in the above graph demonstrate that 34.27% of participants belong to the age group of 36 to 45 years. 32.02% of the participants belong to the age group of 26 to 35 years of age group. Moreover, the graph has shown that 14.04% of participants belong to the age group of 18 to 25 years.

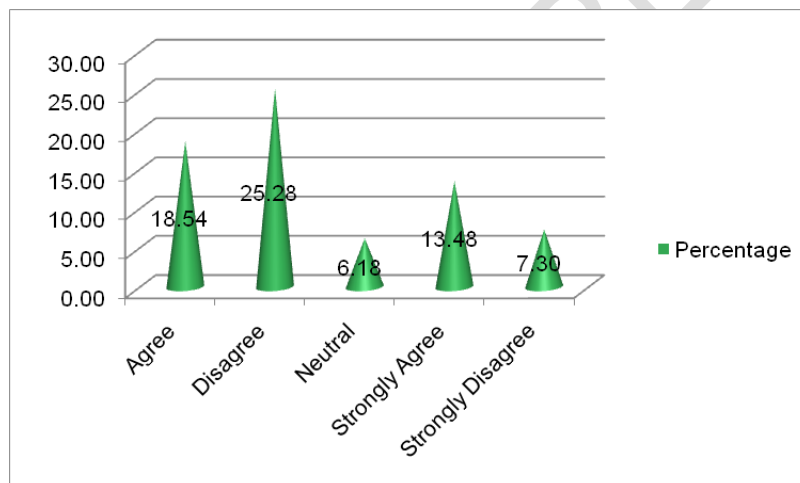


**Figure 3: Profession**

Profession	Frequency	Percentage
Other	29	29.21
Pharmacist	7	7.30
Lab technician	13	13.48
laboratory technician	6	6.18
Nurse	25	25.28
Doctor	18	18.54

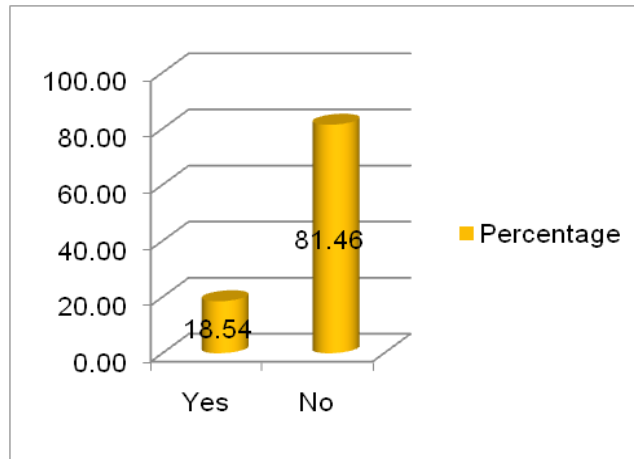
Doctor	33	18.54
Nurse	45	25.28
Laboratory Technician	35	19.66
Pharmacist	13	7.3
Others	52	29.21

It has been seen that the number of female workers bearing the position of Nurse is less than those of males. It is important to have more respondents being nurses as the nurses usually communicate directly with the patients. It has been seen that above-mentioned graph by age is defined that almost males are lab technicians according to females. There is a doctor too but they are less interaction directly with the patient. Therefore, overall graph shows that only 6.18% participants prefer other professions whereas among other percentages, 7.30% participants are pharmacists, 25.28% people are nurses, and 18.54% participants are doctors.



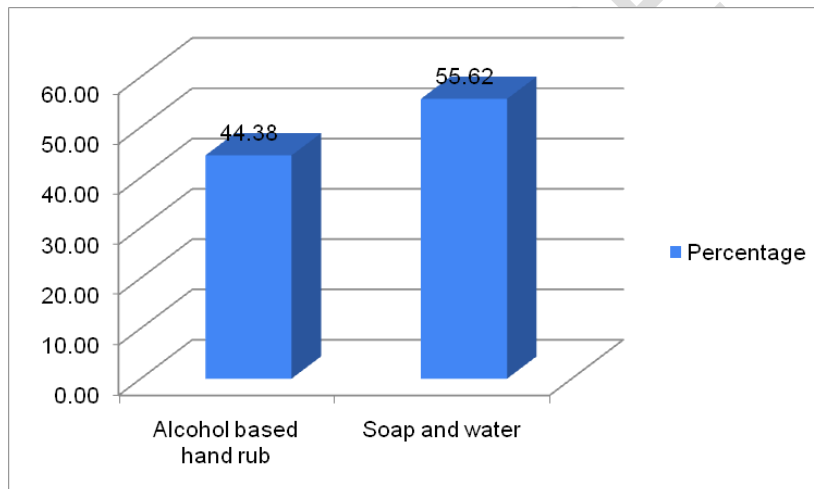
**Figure 4: Other important things to do than hand washing**

The above graph shows the percentage of hand washing, which shows sometimes people give more importance to other things than hand washing, from 18.54% of agreeing and 25.28% of disagreeing or neutral is 6.18% and the percentage of strongly agree is 13.48 and last from 7.30 of strongly disagree.



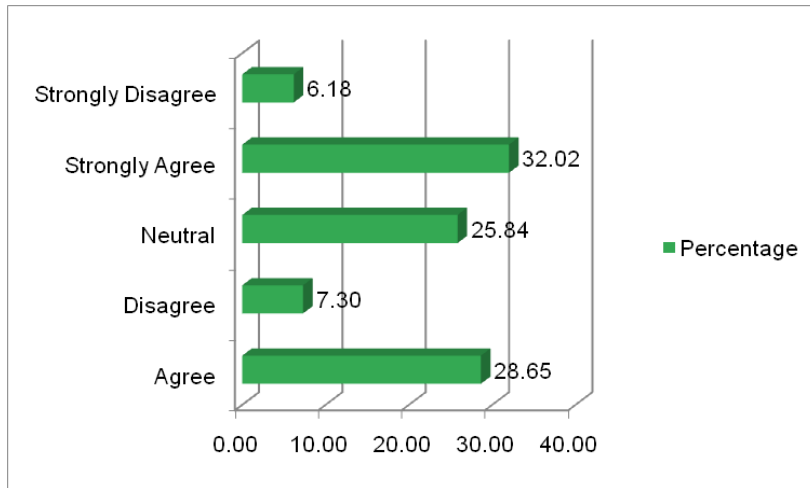
**Figure 5: Formal training on hand hygiene**

It can be seen in the graph created that the responses had been collected from 18.54% of yes and 81.46% of no of healthcare workers. Hence it shows that the response of taking training on formal hand hygiene.



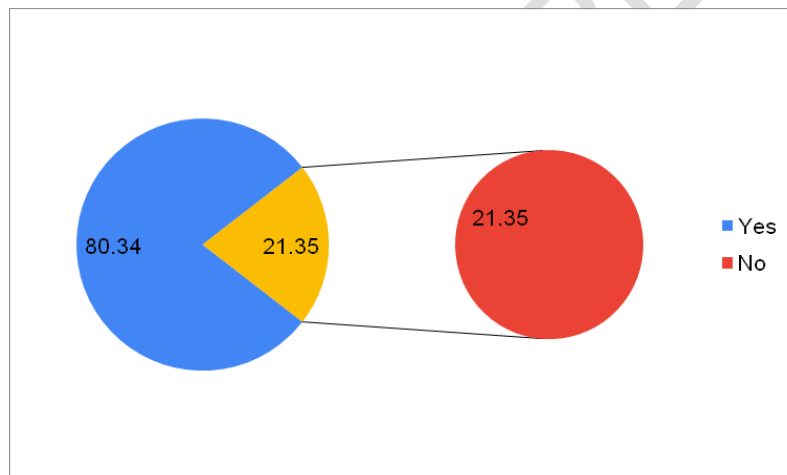
**Figure 6: Use of hand hygiene**

It can be seen in the graph created that the responses had been collected from 44.38% of alcohol-based hand rub and 55.62% of soap and water. Most health workers are used soap and water with respect to alcohol-based hand rubs.



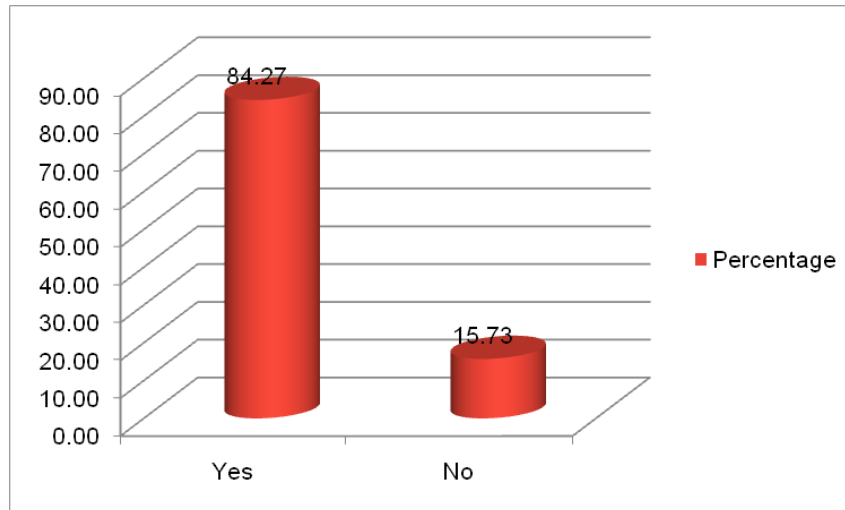
**Figure 7: Practicing the use of hand hygiene**

It can be seen in the graph created that the responses had been collected from 28.65% of agreeing and 7.30% of disagreeing or from 25.84% of neutral, strongly agree percentage is 32.02% and last from 6.18 of strongly disagree.



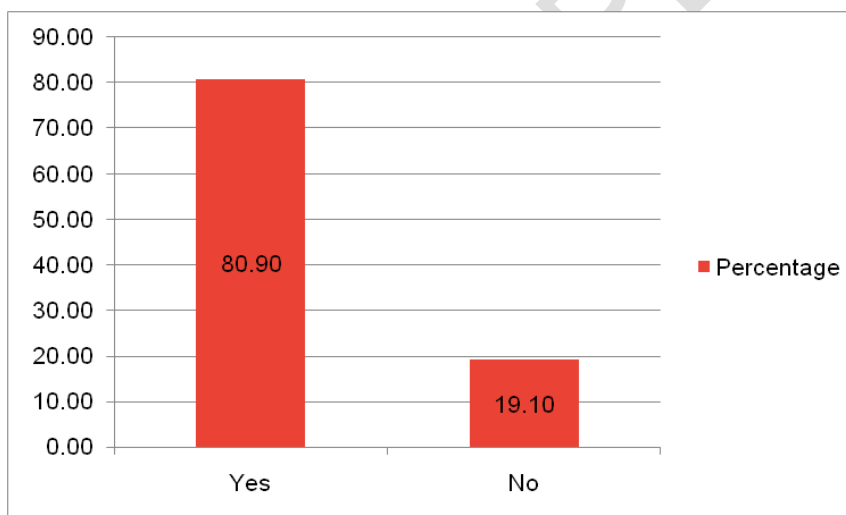
**Figure 8: Hand hygiene practices in hospital**

It can be seen in the graph created that the responses had been collected from 80.34% of yes and 21.35% of No, who not practice hand hygiene in hospital.



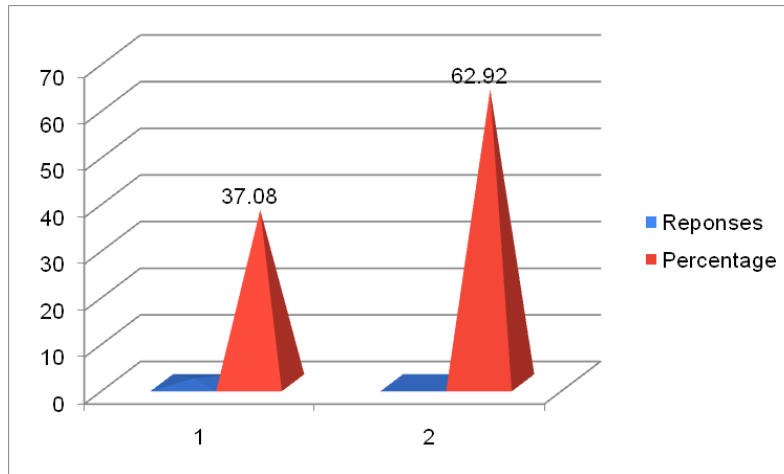
**Figure 9: Awareness of hand hygiene**

It can be seen in the graph created that the responses had been collected from 84.17% of aware of hand hygiene and 15.73% of do not aware of hand hygiene. Hence, it shows that the awareness of hand hygiene is more in the health workers.



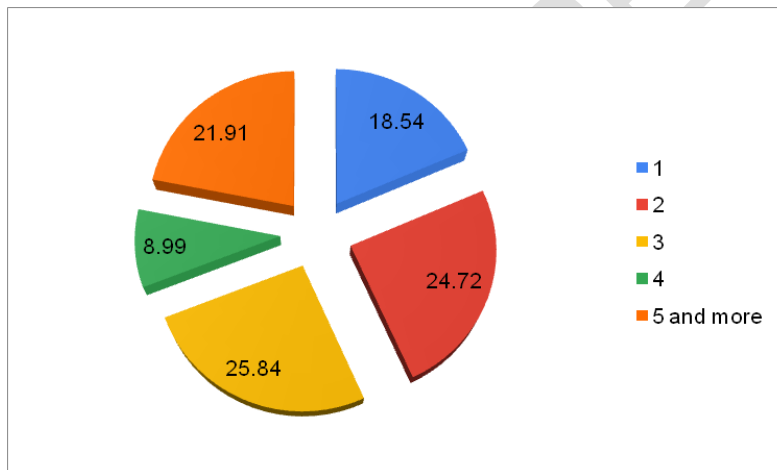
**Figure 10: Succeeding hand hygiene practices**

It can be seen in the graph created that the responses had been collected from 80.90% of follow for hand hygiene practice and 19.10% of do not follow for hand hygiene practice. Hence, it shows that the awareness of hand hygiene practice is more in the health workers.



**Figure 11: Uncomfortable process on hand hygiene**

It can be seen in the graph created that the responses had been collected from 62.92% of the percentage on the response for comfortable with hand hygiene and 37.08% of response with the uncomfortable process on hand wash.

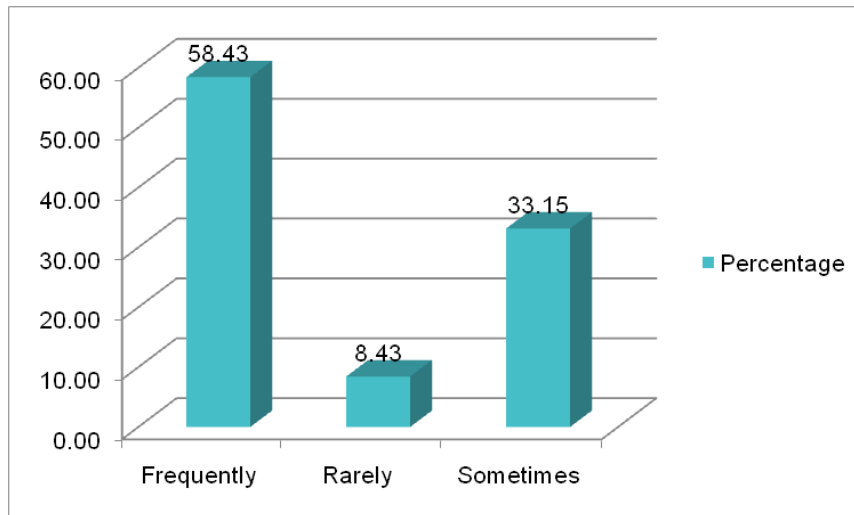


**Figure 12: Presentation of hand washing station ward**

Number of hand washing stations	Frequency	Percentage
1	33	18.54
2	44	24.72
3	46	25.84
4	16	8.99
5 and more	39	21.91

It can be seen in the graph created that the responses had been collected from 18.54% of the first ward, 24.72% of the second ward, 25.84% of the third ward, 8.99% of the fourth ward,

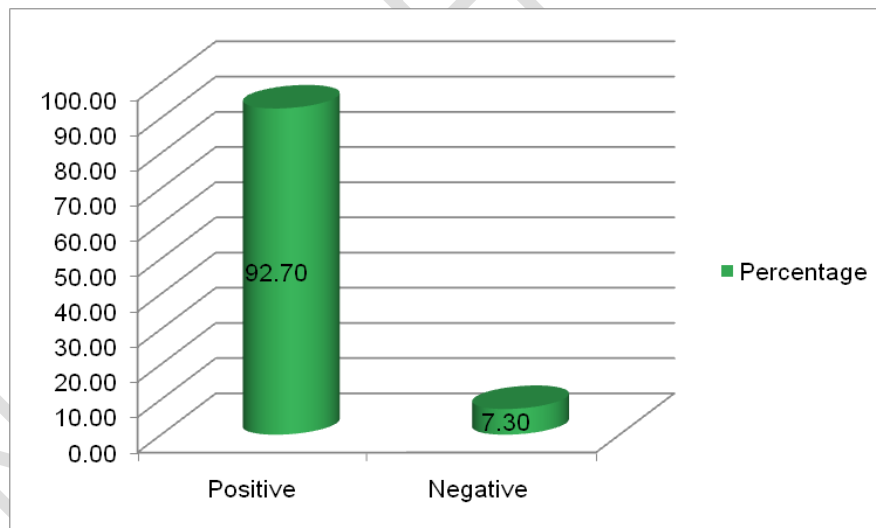
and last ward is 21.91%. Therefore, it shows how many hand-washing stations are present in every ward.



**Figure 13: Importance of hand washing practices**

It can be seen in the graph created that the responses had been collected from 58.43% of frequent practices of hand washing and 8.43% of rare practices on hand washing or 33.15% of sometimes frequently use of importance of hand washing.

**Q 14:**



**Figure 14: Attitude towards hand hygiene**

It can be seen in the graph created that the responses had been collected from 92.70% of positive respond and 7.30% of negative responses to prevent the disease in the hospital.

### **Discussion**

Based on the response sheet and graph created it has been seen that most of the females interact directly with the patients. Hence, it was necessary to have an adequate response from them so that the hand wash-related hygiene practices followed by them can be analyzed

properly (Caris *et al.* 2018). In addition, it has also been found out that the lab technicians and pharmacists are the health workers, they interact directly with patients. Based on the age, it has been seen that most of the male lab technicians interact directly. Some of how uses alcohol-based hand rub and other used soap and water to prevent nosocomial infection in the health department (Gould *et al.* 2017). Participants, who belong to the age group of 18 to 25 years of age, have preferred using alcohol based hand wash. Moreover, people belonging to the age group of 26 to 35 years have been observed to prefer alcohol-based hand wash as well. It has been noticed that most of the male participants belonging to the age group of 26 to 35 years use soap and water, while women from the same age group do not prefer using these products. In addition to this, most of the male and female participants belonging to the age group of above 46 years prefer also prefer using soap for washing their hands. The whole survey method has resulted in the conclusion that only 6.18% participants belong to the profession of laboratory technician and most of the female participants from this profession agree to conduct a training process on hand hygiene than the male participants. The number of female professionals is more than the male professional when it comes to the participants belonging to the job of lab technician. In other profession male are more than females, approximately in the profession of the nurses are simultaneous in both male and female (Elston, 2020).

The average knowledge score of female residents was higher than that of male residents. There is plenty of evidence to confirm our findings. Hand hygiene training is significantly related to residents' knowledge of hand hygiene. Those who have been trained have more compliance than those who have not. This finding is also consistent with other surveys conducted in the UK and China, showing that training is positively correlated with the hand hygiene compliance of all medical staff. This may be because training can develop the ability of residents, which has a lot to do with hand hygiene compliance. In fact, training is essential for hand hygiene compliance; by extension, follow-up after training may help improve hand hygiene (Yuan *et al.*, 2009).

In the current survey, participants' attitudes towards all aspects of health care-related infections were low. The failure of residents to answer questions is worrying. In addition, there are many areas where attitudes are low, especially with regard to infections that can be transmitted to patients by health care workers. Therefore, if the infection rate associated with health care is to be reduced, this particular population needs to receive better hand hygiene training (Naderi *et al.*, 2012). In our research, surgical and internal medicine residents have better attitudes towards hygiene than other specialty residents.

Regarding all aspects of hand hygiene, there are still many unresolved issues. Although hand hygiene habits are simple, observing hand hygiene belongs to the category of human behavior; changing human behavior is complex and a huge challenge. The study was conducted in a large number of wards with various designated specialties in a referral hospital. Therefore, our research results can be extended to all medical degree graduates who have practiced in different designated hospitals across the country. Since the curriculum structure and system of most Saudi medical universities are similar, our research results should be used as the basis for future Saudi medical education and healthcare research. The lack of such information hinders the development of effective hand hygiene policies at the national and local levels. The results of this study can provide useful evidence for scholars interested in this field.

While discussing about the context of washing hands most of the health workers have agreed that they do not maintain the criteria of hand hygiene before starting their duties while lesser number of participants agreed that they prefer hand hygiene. Sometimes they behave neutral and the percentage of neutral is 6.18% is the minimum percentage of health care staff who neutral respond in the hospital. Sometimes they strongly agree with 13.48% and strongly disagree with 7.30% of responses in the hand washing response. There is formal training in the hospital in this so many staff is agreeing or so many staff disagree (Lotfinejad *et al.* 2020). There are from 18.54% are agree to take training of hand hygiene and 81.46% are do not agree to take hand hygiene. In the hospital, so many staff is using the alcohol-based hand rub and some staff is using soap and water. The percent is 44.38% of alcohol-based hand rub and 55.62% of soap and water in health care department. They are mostly practicing in the health care department.

### **Recommendations**

Maintenance of hand hygiene primarily after the impact of the COVID-19 pandemic has been the most important aspect for the healthcare workers. Therefore, the guidelines for improving the maintenance of hand hygiene must be outlined by the hospital authorities (RN *et al.* 2017). In order to promote the importance of hand hygiene, the healthcare workers must be given proper training so that they understand they follow the guidelines properly. It has been observed from the above research methodology and discussion that female healthcare participants are more aware about the aspect of hand hygiene than the male healthcare workers (Cheng *et al.* 2019). Not only the lab technicians, but also other healthcare workers like nurses as well as the doctors should be well aware about the importance of hand wash

before starting their duties. In order to do so, these healthcare workers need to be more efficient while playing their responsibilities (Mustafa, 2019).

### **Future work**

The present study has discussed the importance of maintaining hand hygiene for the healthcare workers. Therefore, the present study can be relevant for the future researchers while they would make further evaluation of the same topic. The research has implemented a survey method where the healthcare workers belonging different departments were involved as participants. Hence, the present study would be fruitful for the future works by other researchers on the topic of understanding the importance of maintaining hand hygiene while attending the patients in the hospitals. The survey research can be significant for the future work of the same research topic that would help in making a better understanding on hand hygiene.

### **Conclusion**

The present study has discussed that maintenance of hand hygiene in the hospitals and clinics are of sheer importance. The research methodology that is incorporated in the present study has been helpful for the researchers in understanding the perception of the healthcare workers what they think about the aspect of washing hands primarily after the pandemic. Therefore, it has been seen that most of the participative healthcare workers primarily males do not find the aspect hand hygiene much important and so they rarely use soap for hand wash. On the contrary, the female workers understand the importance of hand wash more and thus, they support the thought of hand hygiene at the workplace.

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