

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

**Comment [Ma1]:** I suggest you remove the comma (,.)

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## Abstract

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. Everyone should know about hand hygiene, in which every part are present to aware them of how they practice the hand washing and how they attitude the hand washing practicing. The health care of Jeddah is working on the implementation of the knowledge of hand hygiene; however, they are making wards to represent hand hygiene. There is some observation of hand hygiene in which so many workers agree to practice hand washing and some do not agree to practice the hand washing. Most of the staff is response very well to give importance of the hand washing and most not giving response to health hygiene. There are also mention most males or females are used to washing their hands is soap and water and most use alcohol-based hand rub, in which the presence of alcohol kills all the hygienic viruses of hand in health care workers.

**Comment [Ma3]:** Abstract is a sketchy summary of the main points of the manuscript. It should have the following:  
Introduction (optional, depending on the journal submission guidelines)  
Purpose/Aim/Objective  
Methodology  
Results/Findings  
Conclusion  
Recommendation  
Please, structure your abstract as indicated above. Note, the entire abstract should be within 250 to 500 words.  
Rewrite the abstract again.

**Comment [Ma4]:** Please, consider the grammar by taking time to read through. Restate the sentence again. More so, there are a lot of grammatical mistakes.

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

## 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. 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.

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.

## 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:

### Method

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.

### Study design:

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**Comment [Ma6]:** Take this to abstract

**Comment [Ma7]:** Indicate the knowledge gap that led to this research being carrying out.

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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.

#### **Collection of data:**

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).

#### **Ethical consideration:**

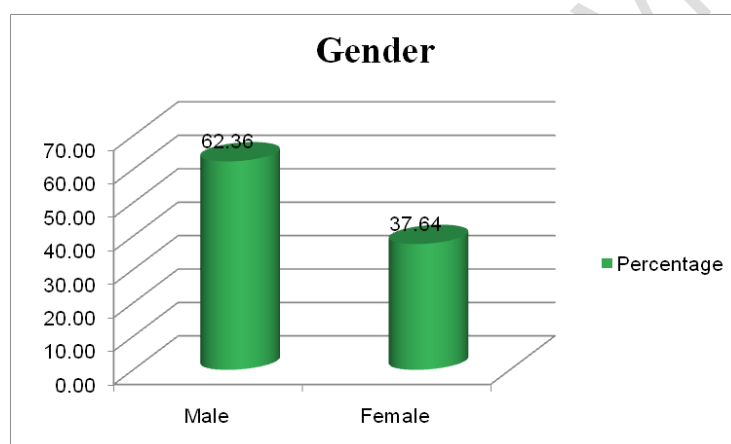
While implementing a research methodology the aspects of ethical consideration is very important in order to ensure accuracy of the research. The part of ethical consideration primarily helps the researchers to maintain authenticity and efficiency of the research

(Kamatheewatta *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).

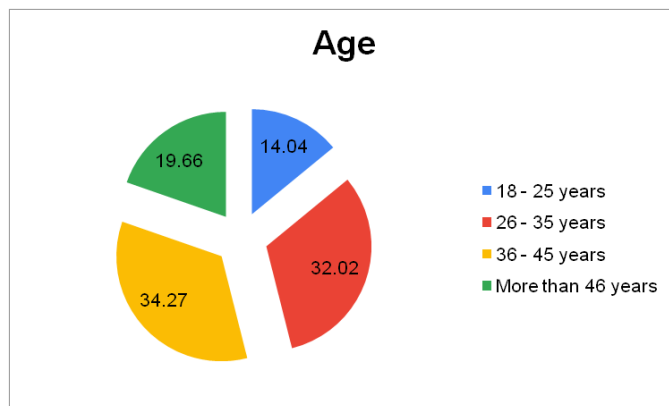


**Figure 1: Gender**

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.

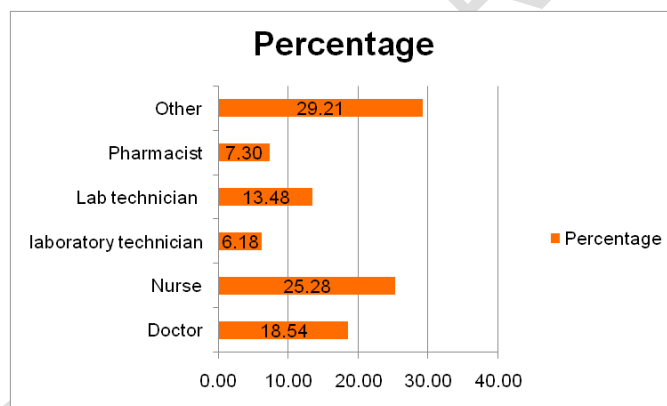
**Comment [Ma9]:** Consider structuring your methodology along the following points:  
 Study design, e.g., cross-sectional, descriptive, exploratory, qualitative, quantitative, etc.  
 Study population (add inclusion and exclusion criteria).  
 Sampling technique used to arrive at your sample size.  
 Research instrument/tool used, e.g., self-administered questionnaire, provision of google form, interviews, etc.  
 Software/Tool for Data analysis, e.g. SPSS, EPI info, STATA, etc.  
 Presentation of results, e.g., descriptive statistics such as tables and frequencies, charts, etc. If logistic regression was done, please indicate it over here, showing how significant the variable(s) is/are depending on the estimation of the p-value.  
 Ethical consideration

**Comment [Ma10]:** Make frequency tables and group the results under the following headings and comment on the important findings:  
 Sociodemographic (i.e., Background information of respondents), e.g., Sex, gender, profession, etc.  
 Knowledge – bring all variables you assume to be knowledge base under this section.  
 Attitude – bring all variables that have attitude characteristics under this section.  
 Practices – bring all variables that have attributes of practices under this section.  
 In addition, you need to give an operational definition as to what constitute positive and negative knowledge, attitude and practices. What you have presented is bland and does not show any categorization.



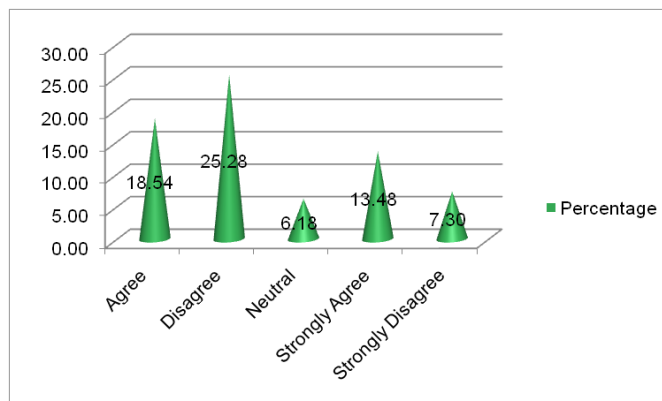
**Figure 2: Age responses**

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.



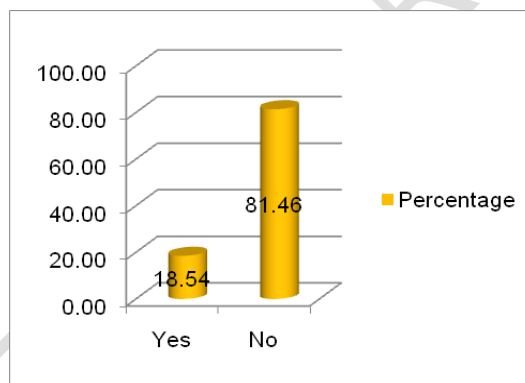
**Figure 3: Profession**

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.



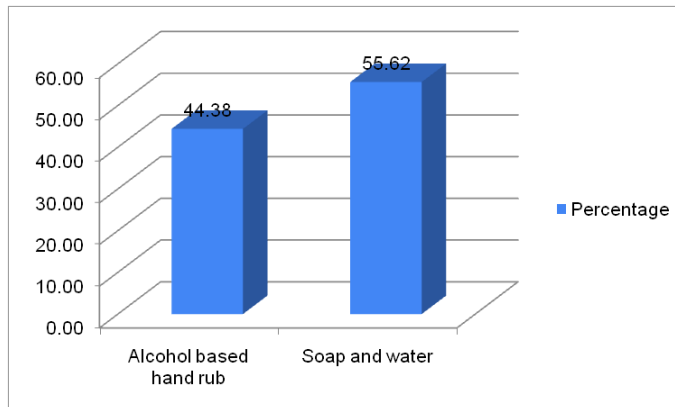
**Figure 4: Other important things to do than hand washing**

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.



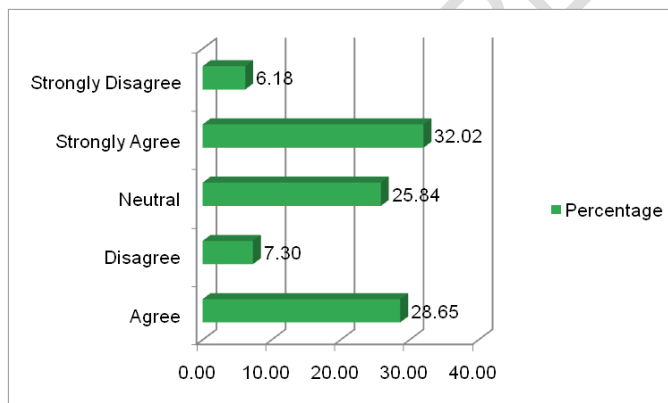
**Figure 5: Formal training on hand hygiene**

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**

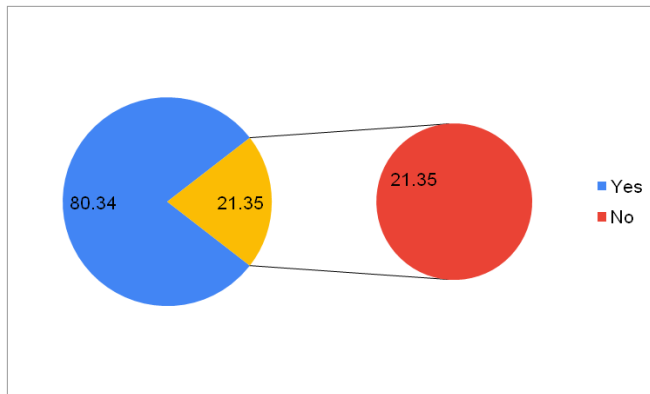
It can be seen in the graph created that the responses had been collected from 44.38% of alcohol-based hand rub and 55.62% of soap and water. Most health workers are used soap and water with respect to alcohol-based hand rubs.



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

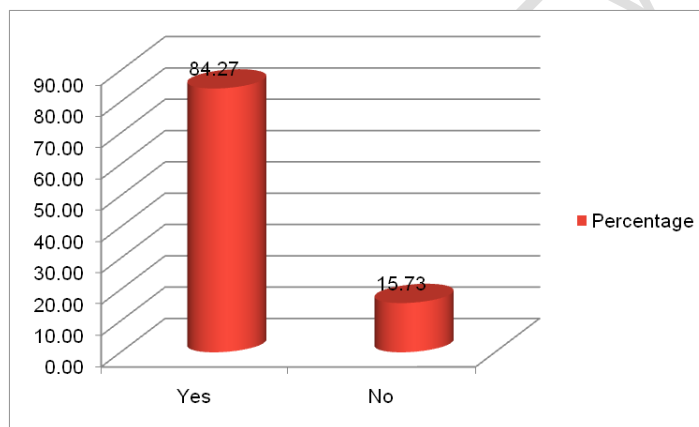
It can be seen in the graph created that the responses had been collected from 28.65% of agreeing and 7.30% of disagreeing or from 25.84% of neutral, strongly agree percentage is 32.02% and last from 6.18 of strongly disagree.





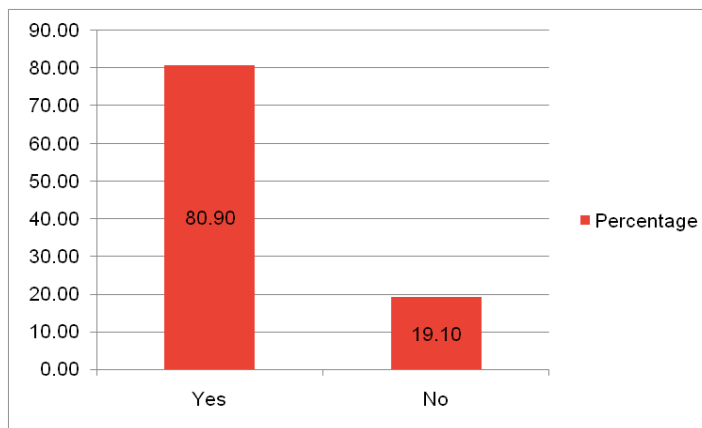
**Figure 8: Hand hygiene practices in hospital**

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.



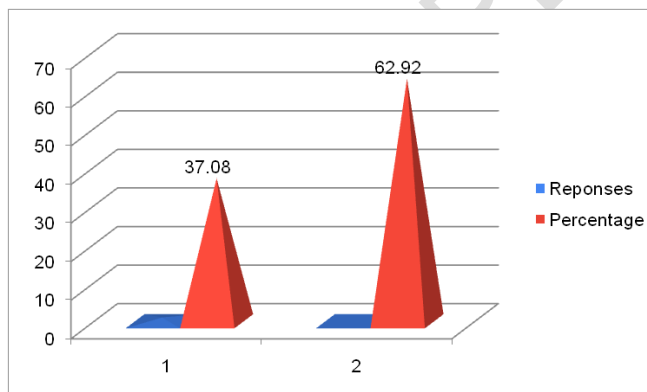
**Figure 9: Awareness of hand hygiene**

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.



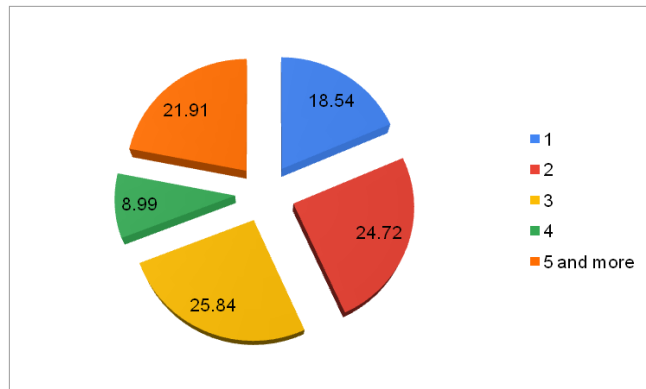
**Figure 10: Succeeding hand hygiene practices**

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.



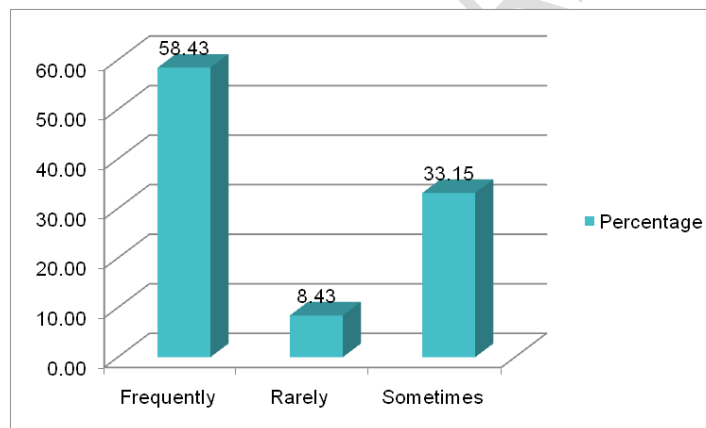
**Figure 11: Uncomfortable process on hand hygiene**

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**

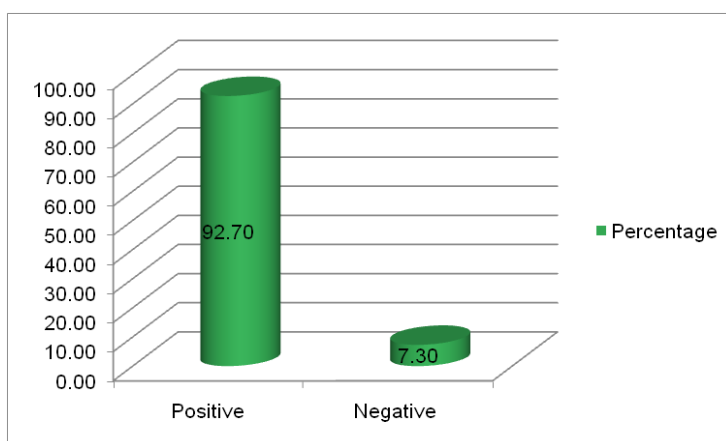
It can be seen in the graph created that the responses had been collected from 18.54% of the first ward, 24.72% of the second ward, 25.84% of the third ward, 8.99% of the fourth ward, and last ward is 21.91%. Therefore, it shows how many hand-washing stations are present in every ward.



**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).

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 may 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

**Comment [Ma11]:** I did not see any major heading on Discussion before you ended up Recommendations and conclusion. Conclusion comes first and Recommendation follows. Discussion compares the results in your study to others as reviewed in your literature (in this case, your introduction). It highlights the agreement and contradictions as found. In this case, it shows confirmations and the contrast of the study. I urge you to read other published articles to see their presentation style(s) and compare to your manuscript.

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.

**Comment [Ma12]:** Did you discussed knowledge, attitude and practices, or the maintenance of hand hygiene in the hospitals and clinics? Which hospitals and clinics were mentioned in your article?

Conclusion is made based on the inference made in the findings and the discussion.

## References

- Caris, M.G., Labuschagne, H.A., Dekker, M., Kramer, M.H., van Agtmael, M.A. and Vandenbroucke-Grauls, C.M., 2018. Nudging to improve hand hygiene. *Journal of Hospital Infection*, 98(4), pp.352-358.
- Cheng, H.C., Peng, B.Y., Lin, M.L. and Chen, S.L.S., 2019. Hand hygiene compliance and accuracy in a university dental teaching hospital. *Journal of International Medical Research*, 47(3), pp.1195-1201.
- Elston, D.M., 2020. Occupational skin disease among health care workers during the coronavirus (COVID-19) epidemic. *Journal of the American Academy of Dermatology*, 82(5), pp.1085-1086.
- Fagert, J., Mirshekari, M., Pan, S., Zhang, P. and Noh, H.Y., 2017. Monitoring hand-washing practices using structural vibrations. *Structural Health Monitoring*.
- Gould, D.J., Creedon, S., Jeanes, A., Drey, N.S., Chudleigh, J. and Moralejo, D., 2017. Impact of observing hand hygiene in practice and research: a methodological reconsideration. *Journal of hospital infection*, 95(2), pp.169-174.
- Haque, M., 2020. Handwashing in averting infectious diseases: Relevance to COVID-19. *Journal of Population Therapeutics and Clinical Pharmacology*, 27(SP1), pp.e37-e52.
- Hillier, M.D., 2020. Using effective hand hygiene practice to prevent and control infection. *Nurs Stand*, 35(5), pp.45-50.
- Jaakkola, E., 2020. Designing conceptual articles: four approaches. *AMS review*, 10(1), pp.18-26.
- Kamatthewatta, K., Bushell, R., Rafa, F., Browning, G., Billman-Jacobe, H. and Marendia, M., 2020. Colonization of a hand washing sink in a veterinary hospital by an *Enterobacter hormaechei* strain carrying multiple resistances to high importance antimicrobials. *Antimicrobial Resistance & Infection Control*, 9(1), pp.1-16.
- Lotfinejad, N., Peters, A. and Pittet, D., 2020. Hand hygiene and the novel coronavirus pandemic: the role of healthcare workers. *The Journal of hospital infection*, 105(4), p.776.
- Mustafa, M. and Lahu, A., 2019. Knowledge of Nurses in Prevention of Hospital Infection in Hospital "Sheikh Zayed" Vushtrri. *Materia socio-medica*, 31(3), p.207.
- RN, O.D., Jones, D., Martello, M., Biron, A. and Lavoie-Tremblay, M., 2017. A systematic review on the effectiveness of interventions to improve hand hygiene compliance of nurses in the hospital setting. *Journal of Nursing Scholarship*, 49(2), pp.143-152.

**Comment [Ma13]:** Replace all the "and" in the author list with the ampersand (&). Read APA 6<sup>th</sup> and 7<sup>th</sup> editions and incorporate them into your manuscript.

**Comment [Ma14]:** Put all years into brackets (2018) and remove the commas before them,

**Comment [Ma15]:** Please, italicize the journal and the volume number.

**Comment [Ma16]:** In-text citation made does not match with what you have at the reference. Not only this, others have similar inconsistencies too.

- Vermeil, T., Peters, A., Kilpatrick, C., Pires, D., Allegranzi, B. and Pittet, D., 2019. Hand hygiene in hospitals: anatomy of a revolution. *Journal of Hospital Infection*, 101(4), pp.383-392.
- Yang, C., 2020. Does hand hygiene reduce SARS-CoV-2 transmission?. *Graefe's Archive for Clinical and Experimental Ophthalmology*, 258(5), pp.1133-1134.

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