

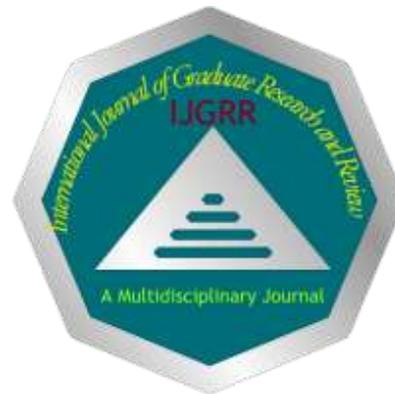


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Research Article

Assess The Knowledge, Attitude and Practice of Hand Hygiene Among the Nurses of PIMH

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Abstract

This study determines the importance of hand hygiene at workplace. Because hand hygiene is necessary and preventive measure to prevent hospital acquired infection. This study aims to assess the knowledge, attitude and practice of hand hygiene among the nurses of Punjab Institute of Mental Health.

Nurses represent a large group of workers that are in direct contact with patient care. Hand hygiene prevents cross-infection in hospitals, but fulfilment with recommended instructions often is poor among the nurses. This article reviews the importance of hand hygiene knowledge, attitude and practice. In particular, in high-demand situations, hand rub with an alcohol-based solution appears to be the only alternative that allows. The hand-hygiene level does not based on individual factors alone, and the same can be said for its promotion. Because of the complexity of the process of change, it is not surprising that alone interventions often fail, and multimodal, multidisciplinary strategies are necessary. A framework that includes parameters to be considered for hand-hygiene promotion is proposed, based on epidemiologically driven evidence and review of the current knowledge, attitude and practice.

Keywords: Nurses; Hand hygiene,

Introduction

Hand hygiene, is the act of cleaning one's hands for the purpose of removing soil, dirt, and microorganisms. This may be done with or without the use of water, other liquids, or soap. Hand hygiene is an important measure to reduce the spread of infection in hospitals. It is one of the most effective methods of infection control. But their practices are poor. Hand hygiene practices were conducted through observations. It is important to prevent and control the spread of infection at workplace by adopting the proper method of hand hygiene. Mostly nurses are the largest source of spreading infection among patients. It is important to know the proper method of hand hygiene at workplace, to reduce the spreading of infection from one patient to other (Karaaslan *et al.*, 2014).

The aim of this study was to explore the method of hand hygiene provided by WHO. I had examined attitude,

knowledge and practice of hand hygiene among nurses of PIMH by using the guidelines of WHO. Hand hygiene is a general term used to any action of hand cleaning. Hand hygiene relate to the removal of visible soil and removal or killing of microorganism from hands.

Hand hygiene is an important measure to prevent the spread of infection at workplace so, the reason of lake of hand hygiene practices include, lake of appropriate equipments, hand washing detergents, allergy to detergent, insufficient knowledge among staff about procedures (Ariyaratne *et al.*, 2013). The reason given by the professionals including, work conditions (lake of time), lake of equipment and training (Malliarou *et al.*, 2013). Proper hand hygiene is a low cost and helpful practice to prevent the spread of infection at workplace. A lake of knowledge about infection control practices among nurses decrease the practices. I conducted a study to assess the knowledge, attitude and practice of hand hygiene among the nurses of PIMH.

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The first national guidelines for hand hygiene in the health care setting were published in 2005 by the strategy for the control of Antimicrobial resistance in Ireland (SARI). In 2009, the world health organization issued evidence base guidelines on hand hygiene in health care, which introduced the 5 moments of hand hygiene which have widely internationally adopted.

Moments of Hand Hygiene

Clean hands according to the WHO moments for hand hygiene.

- Before direct contact with patient.
- Before a clean procedure.
- After contact with patient.
- After contact with equipment used on patients.

For each health care setting, a written hand hygiene policy and procedure must be developed that include the following:

- Indication for hand hygiene.
- How to perform hand hygiene?
- Selection of hand hygiene product.
- Suitable place for hand hygiene product.
- Programme related to hand hygiene.
- Issue related to nail and jewellery.
- Hand hygiene observance and feedback.

Hand Hygiene Technique

These are the WHO guidelines for hand hygiene with soap and water. Hand hygiene procedure takes 40-60 second.

- Wet hand with water.
- Apply the soap on both hands.
- Completely rub hands.
- Rinse the hand with water.
- Dry hand with towel and tissue.
- Use towel to turn off the tap.

Background

The importance of hand hygiene in patient care was conceptualized in the early 19th century. Porter provided a study report on hand hygiene that hand decontamination can reduce the incidence of puerperal fever and maternal mortality. In 1975 and 1985, the CDC published guidelines on hand hygiene practices in hospitals, primarily advocating hand washing with non-antimicrobial soaps; washing with antimicrobial soap was advised before and after performing invasive procedures or during care for high risk patients. Alcohol-based solutions were recommended only in situations where sinks were not available. In 1995, the Hospital Infection Control Practices Advisory Committee (HICPAC) advocated the use of antimicrobial soap or a waterless antiseptic agent for cleaning hands upon leaving the rooms of patients in 2002, the CDC published revised guidelines for hand hygiene. A major change in these guidelines was the recommendation to use alcohol based

hand rubs for decontamination of hands between each patient contact and the use of liquid soap and water for cleaning visibly contaminated or soiled hands. In 2005, it introduced the first Global Patient Safety Challenge "Clean Care is Safer Care" for patient safety. In 2006, provided advanced guidelines on "Hand Hygiene in Health Care" were published and a suite of implementation tools were developed and tested. The first Global Hand hygiene Day was observed on October 15, 2008. On May 5, 2009, the WHO highlighted the importance of hand hygiene and launched guidelines and tools on hand hygiene, based on the next phase of patient safety work programme "SAVE LIVES: Clean Your Hands".

Proper hand hygiene is low cost and helpful practice to prevent the spread of infection at workplace. Lack of knowledge about hand hygiene among nurses leads to lack of practice and become the reason of spreading nosocomial infection. I conducted a study on hand hygiene knowledge, attitude and practice among the nurses of Punjab institute of mental health. They all have knowledge about hand hygiene but their attitude and practices were poor toward hand washing. According to Ariyaratne *et al.* (2013) the main reason of lack of hand hygiene practices include: lack of appropriate equipments, hand washing detergents and allergy to detergent.

The aim of this study was to explore the method of hand hygiene recommended by WHO. We have examined the knowledge. Attitude and practice of hand hygiene among PIMH nurses by using the WHO guidelines. WHO issued evidence based guidelines on hand hygiene among nurses, which introduced the 5 movement of hand hygiene these are adopted internationally.

Significance of Study

It is important to know the cause of spreading infection at workplace. Nurse's hand always carries the infection from one patient to other. It is not possible to clean the hand properly due to workload, but it is possible to reduce the spread of infection by using the hand hygiene techniques, like hand rubbing and using hand sanitizers. Proper hand hygiene techniques in hospitals play a key role in improving the patient and nurses safety. And also recognize and identify the problems which become obstacles in hand hygiene practices. It is the responsibility of an organization or institute to provide the proper facility for hand hygiene.

Purpose of the Study

The main object of the study is to assess the knowledge, attitude and practice of hand hygiene among the nurses of Punjab institute of Mental Health. And also recognize and identify the problems which become obstacles in hand hygiene practices.



Justification of the Topic

We choose this topic because hand hygiene is the basic measure to prevent the spread of infection. Hand hygiene is a different way of thinking about safety and patient care and involves everyone in the hospital including patients and nurses. Hand hygiene before and after the patient contact is the simple way to prevent the spread of infection among patients.

Research Question

The research question of that study aimed to answer the importance of hand hygiene and also to know that how much knowledge have the nurses of Punjab Institute of Mental Health about the practice of hand hygiene at workplace.

Hypothesis

Alternative Hypothesis

Nurses of Punjab Institute of Mental Health may know about hand hygiene.

Null Hypothesis

Nurses of Punjab Institute of Mental Health may not know about hand hygiene.

Objective

The main objective in this research study is to assess the knowledge, attitude and practice of hand hygiene among Nurses of Punjab Institute of Mental Health.

Conceptual Definitions

Nurse

She is trained to look after those who need medical and nursing care either in hospital or at home. Some are super specialists who have trained in special branches i.e. heart, dental and Operation Theatre and intensive care units. (Gupta, 2004)

Hand Hygiene

The killing and removal of microorganism from hands by using soap and water.

Operational Definition

Nurse

Nurse is a person who is trained and educated to look after sick and ill patients either in home, hospitals or in community center. Some are trained in special units like cardiac care units, intensive care units and operation theatres.

Hand Hygiene

It is an important way to prevent the spread of germs from one patient to other.

Literature Review

Nurse hands come into close contact with patients and are often contaminated during routine patient care e.g. physical examination or while touching contaminated surfaces, and dressing of patient (Kampf & Loffer, 2010).

According to Nazarko, hand hygiene is an important, cheap and most effective means of preventing cross infection. Hand hygiene is deliberate to save lives and provide a safe treatment atmosphere for all patients and nurses (Nazarko, 2009).

Use different term for hand hygiene, such as hand antiseptis, disinfection, decontamination and also refer to as hand washing with antimicrobial soap. Proper hand hygiene prevents the patient to getting infection. (Sahin *et al.*, 2007)

Furthermore, Nazarko (2009) describe that nurses often fail to practice hand hygiene because they are busy and they feel hand washing takes up their precious time. In addition, nurses often perceive that gloves can be used as an alternative to hand washing. They usually tend to remove gloves without washing their hands and use the same gloves to deliver care to multiple patients.

According to Collins hand hygiene should be considered before all procedures, after contact with contaminated devices, material and with high risk infectious patients.

Hand drying after washing hand is very important to prevent infection because wet surfaces transfer microorganism in environment. Griffiths says that drying hand with paper towels are effective technique to prevent from infection because the friction helps to remove transient organism from the skin surface (Clayton and Griffith, 2008).

Failure to perform appropriate hand hygiene is considered to be the leading cause health care associated infection and the spread of multi resistant organism and has been recognized as a significant contributor to outbreak of disease (Pittet, 2009).

Theoretical Framework

The theory of planned behavior is a good decision making model that has been applied to hand hygiene in hospital (Al-Tawafiq & Pittet, 2013).

The TPB (Theory of planned behavior) proposes that the best determinant of behavior is intention which is influenced by three factors, knowledge, attitude and behavior. Attitude refer to positive and negative evaluation of the behavior (e.g. performing hand hygiene is good). Behavior refer to perception of pressure from other to perform hand hygiene (e.g. important other would want me to perform hand hygiene). Knowledge refer to as how much a person knows the importance about hand hygiene (e.g. contaminated hands are a source of spreading infection it is necessary to wash hand). The identification of beliefs can inform interventions designed to encourage behavioral performance by altering existing beliefs or exposure to new beliefs (Ajzan, 2011).



Material and Method

Instrument and Apparatus

For this study, questionnaire was distributed among nurses of Punjab institute of Mental Health. Data was analyzed on SPSS. Laptop and internet was used. Validity was checked by pilot study.

Procedure

A cross sectional descriptive study, convenient sampling technique was used. Questionnaire was distributed among nurses of Punjab institute of Mental Health Lahore according to inclusive criteria. Questionnaire was to be filled by them.

Target Population

This study was conducted on nurses working in Punjab institute of Mental Health Lahore.

Inclusion Criteria

All staff nurses who are working in Punjab institute of Mental Health Lahore.

Exclusive Criteria

Trainee and student nurses are not involved. Nurses who refused to give consent for the research study.

Sample size

Sample size is 92 according to slovin's formula (Ellen, 2012)

Formula: $n = N / \{1 + N(E)^2\}$

Total population = 120

95% Confidence

5% Error

If N=120, n=sample size, E=Margin of error

$n = N / \{1 + (N)(E)^2\}$

$n = 120 / \{1 + 120(0.05)^2\}$

$n = 120 / \{1 + 120(0.0025)\}$

$n = 120 / \{1 + 0.3\}$

$n = 120 / 1.3$

$n = 92$ (approx)

Sampling Technique

Convenient sampling technique was used.

Study Design

Cross sectional descriptive study was used to achieve the objectives.

Data was collected by questionnaire. The tool was likert type with 5 points namely; strongly agree, agree satisfied, disagree, and strongly disagree.

Data Gathering Plan

The entire questionnaires were distributed among nurses. Data was collected from them in one week. Any queries or doubts about questionnaire were answered promptly.

Data Analysis

Data was entered, and analyzed using the statistical package of the social sciences software (SPSS). Frequency and percentage was identified. Mean, Maiden, Mode relationship among different variables were calculated and graphically portrayed in tables and graphs.

Ethical Considerations

Participants were provided information regarding research and its nature in order to gain the full consents. Letter of consent was attached with each questionnaire. That stated the basis of research, duration of participating confidentially and benefits as well. Ethical consent was taken from MS of Punjab Institute of Mental Health Lahore. There was no risk and hazard for participants. In addition permission letter of research from ethical review committee of the University of Lahore was also taken.

Results

Data Analysis

Ninety-Two Nurses of Punjab Institute of Mental Health Lahore were selected for this research study. The study sample consisted of 92 female nurses. The age range of the nurses was from

20-50 years. Research data was collected and entered in SPSS software for analysis. The software helped calculated the variables and the results are graphically portrayed in tables.

Gender

According to Fig. 1 All female nurses were involved in this research study the frequency of female nurses is higher in this research study.

Age

Fig. 2 shows ages of nurses in this study, which ranged from 20-50 years. 72% to 78% of them were between 20-25 years while 20 or 25% nurses had age from 26-30. Only 2 or 3% nurses had age ranging from 30-50 years.

Clinical Experience

The overall experience of the nurses varied from 1 to 7 year(s). 4.3% nurses of the total sample size have experience of 1-5 years while 29.3% nurses had 1-6 years of experience. More experienced nurses were only 26.1%, which have been working in Punjab Institute of Mental Health for more than 10 years (Fig. 3).

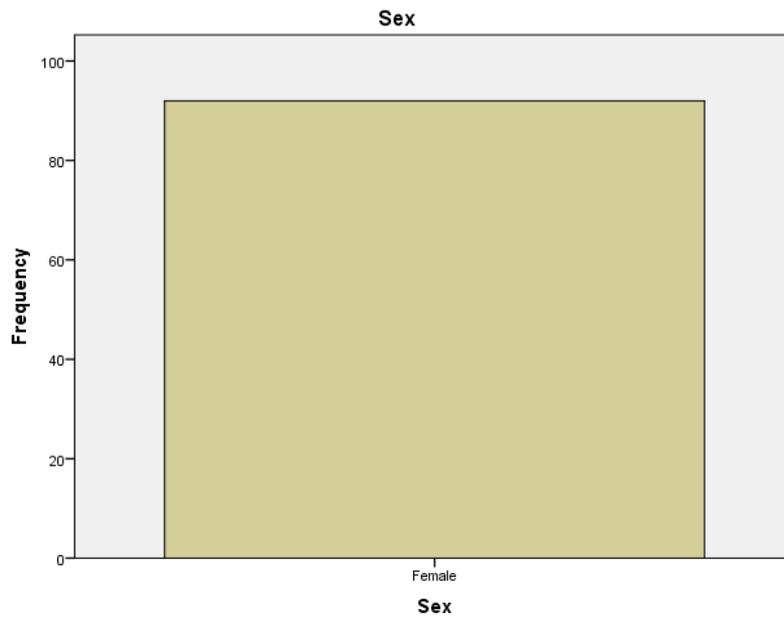


Fig. 1: Gender of the Study Participants

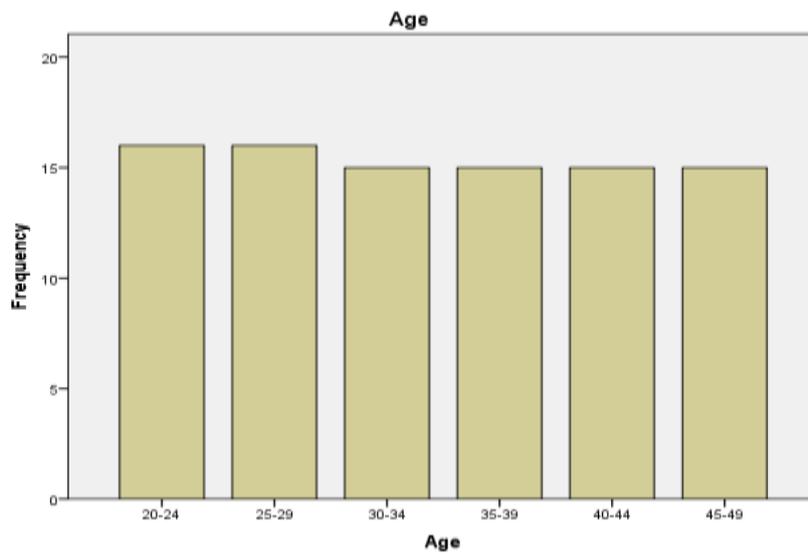


Fig. 2: Age of Study Participants

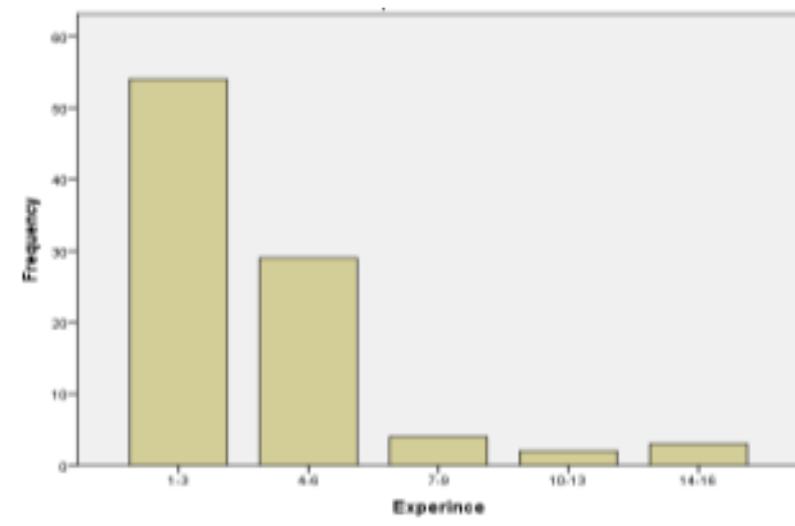
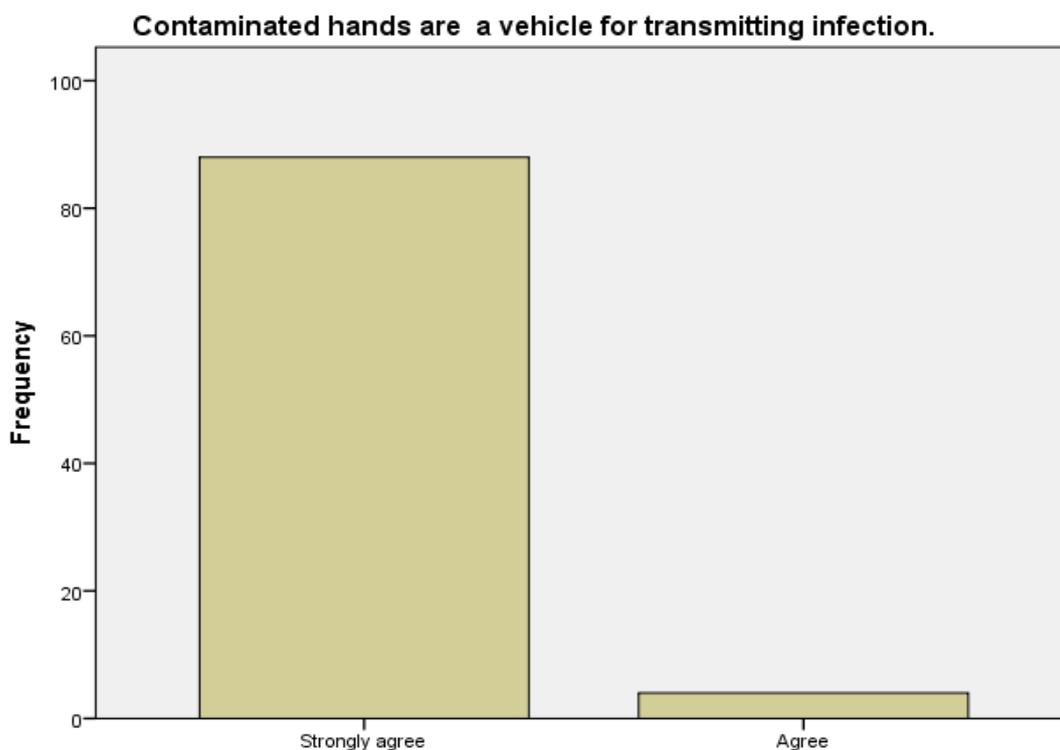


Fig. 3: Experience of Nurses

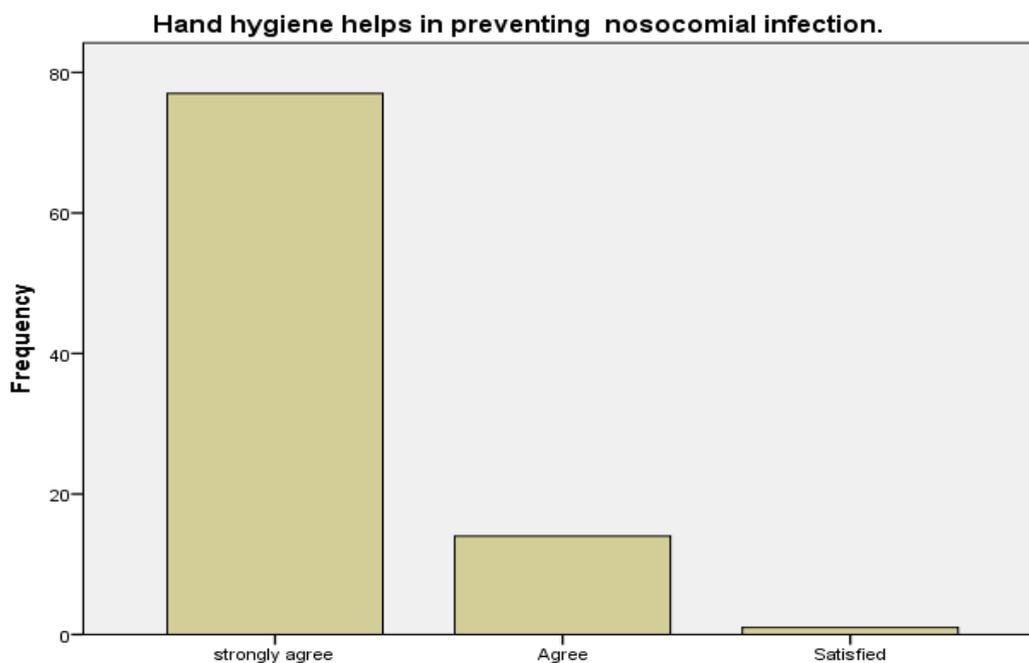
The responders who respond to that contaminated hands are a vehicle for transmitting infection were 88 and their percentage were 95%. Most of were know about that. Only 4.3% nurses were agreeing with this statement. All this describe in Fig. 4.

Fig. 5 summarize that the responder of this question were 77 and they were 83.7%. They were strongly agree that hand hygiene prevent from nosocomial infection. Only 15.1% nurses agree with that statement and only 1% satisfied that hand hygiene prevent from nosocomial infection.



Contaminated hands are a vehicle for transmitting infection.

Fig. 4: Contaminated hands are a vehicle for transmitting infection.



Hand hygiene helps in preventing nosocomial infection.

Fig.5: Hand hygiene helps in preventing nosocomial infection.

Fig. 6 indicated that 72.8% nurses strongly agree that hand hygiene is required after removing gloves. 21.7% nurses agreed, 3.3% nurses were satisfied and only 1% disagree that hand washing is required after removing gloves.

Fig. 7 summarize that hand hygiene is essential before and after attending the patient. The responder of that question was strongly agreed about 80.4%. About 16% agree with that statement and only 1% strongly disagreed.



Fig. 6: Hand Hygiene is required after removing gloves.

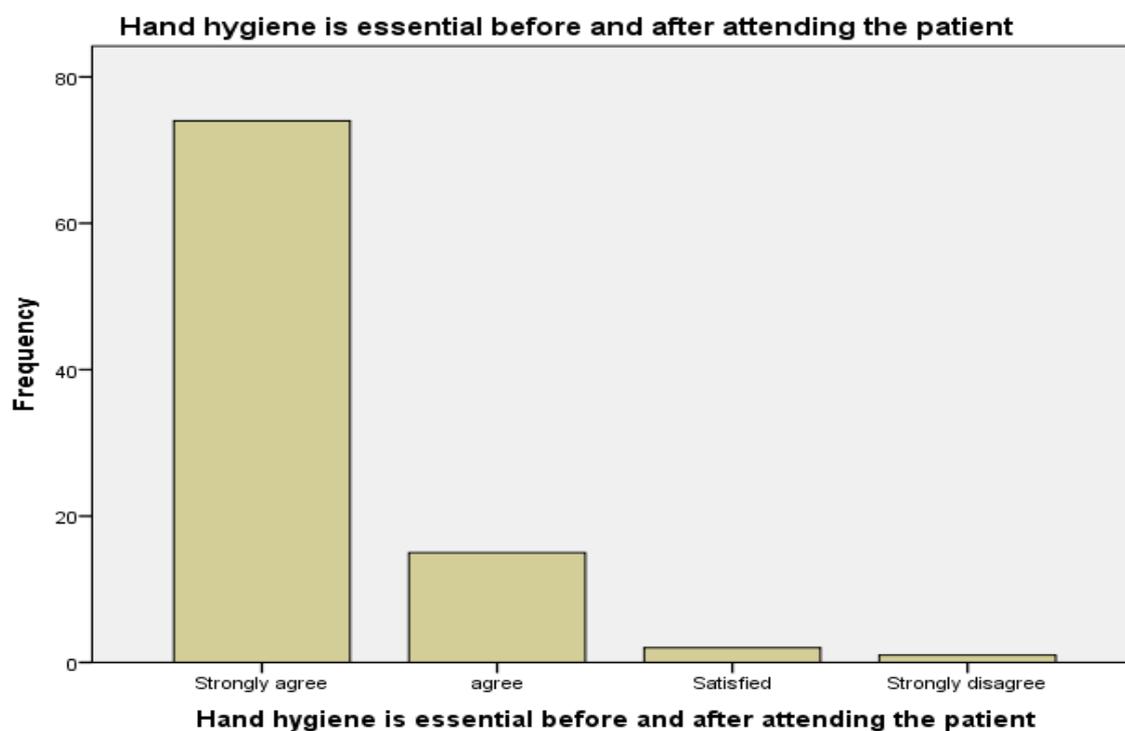


Fig. 7: Hand hygiene is essential before and after attending the patient.

Fig. 8 summarizes that Hand drying is equally important to prevent cross infection and the responder of that question who was strongly agreed were 79.3%, only 16.3% were agreed, 3% satisfied and only 1% was strongly disagreed.

Fig. 9 indicates that the responder of question hand hygiene is not properly done because of work overload were 44.6% were strongly agreed ,4% agreed ,1% satisfied,6% disagreed and 40% strongly disagreed.

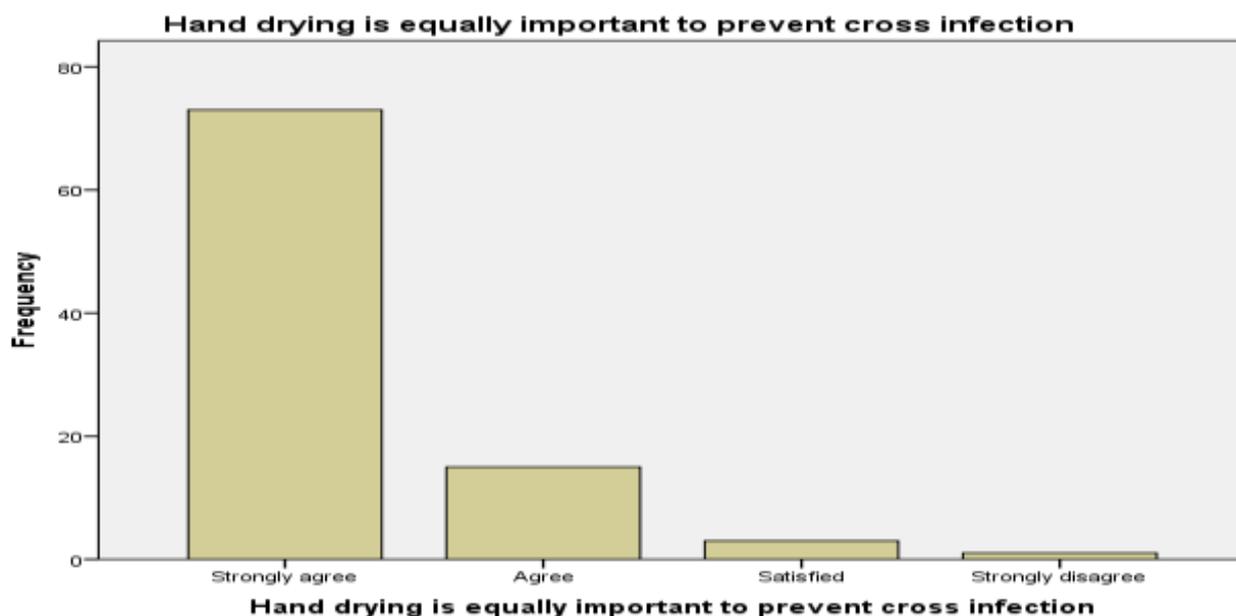


Fig. 8:

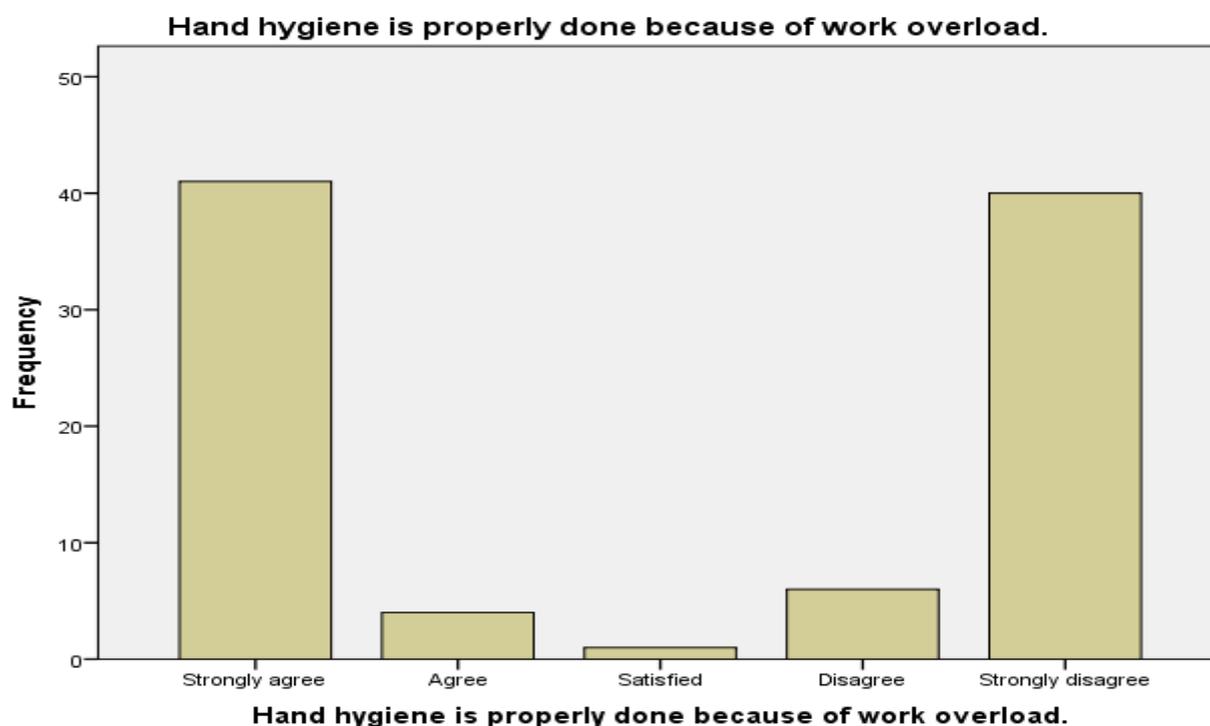


Fig. 9: Hand hygiene is not properly done because of work overload.

In the Fig. 10 about 32.6% responder were strongly agreed, 17. % agreed, 3% satisfied, 13% disagreed and 33% strongly disagreed that hand hygiene do not prevent a patient from getting infection.

Fig. 11 represents those responders who respond to the statement that jewelry should be removed before hand washing about 72.8% nurses strongly agreed, 13% agreed 5% satisfied 7% disagreed and 1% were strongly disagreed.

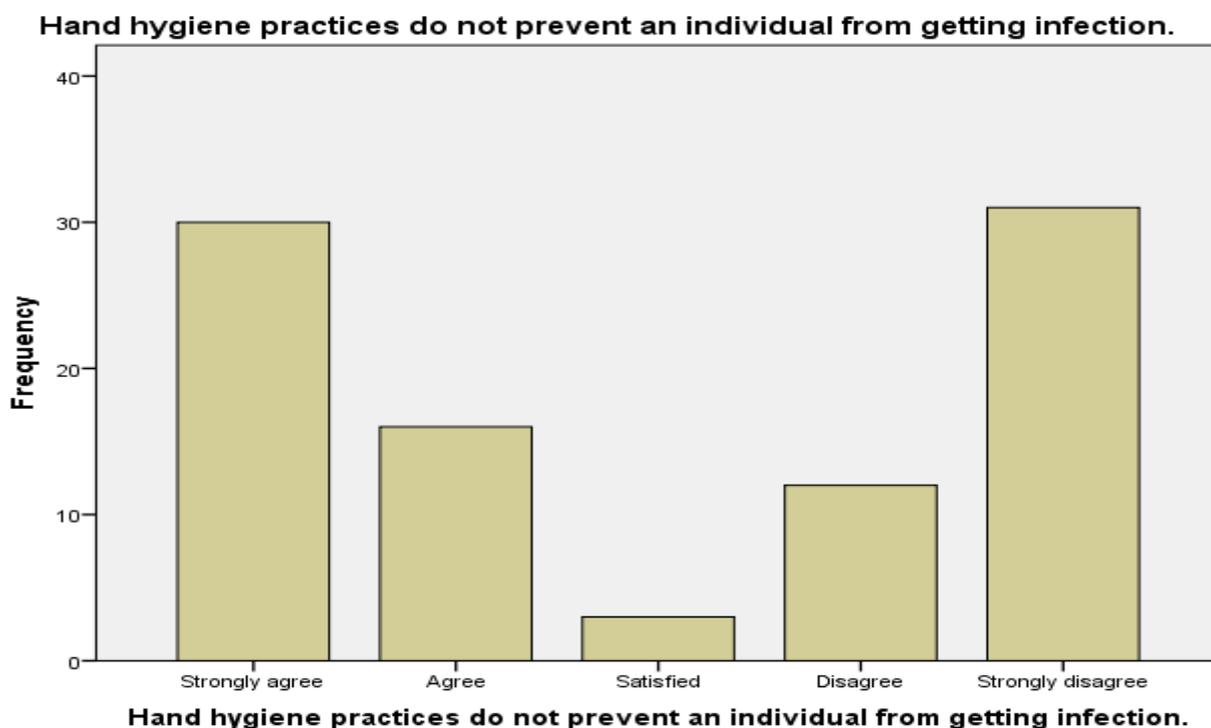


Fig. 10: Hand hygiene practices do not prevent an individual from getting infection.



Fig. 11: Jewellery should be removed before hand washing.

In Fig. 12 the responder who respond to that hand hygiene improved by proper health education were 52.2% who were strongly agreed with that statement,19.2% agreed,4.2% were satisfied,21.2% were disagreed and 4% were strongly disagreed for that statement.

Fig. 13 indicates the responder for the question that hand hygiene is needed before and after assisting a patient in personal care activity like bathing, toiling a patient, who were strongly agreed about 75%, 22% agreed, 1% satisfied and also 1% strongly disagreed.

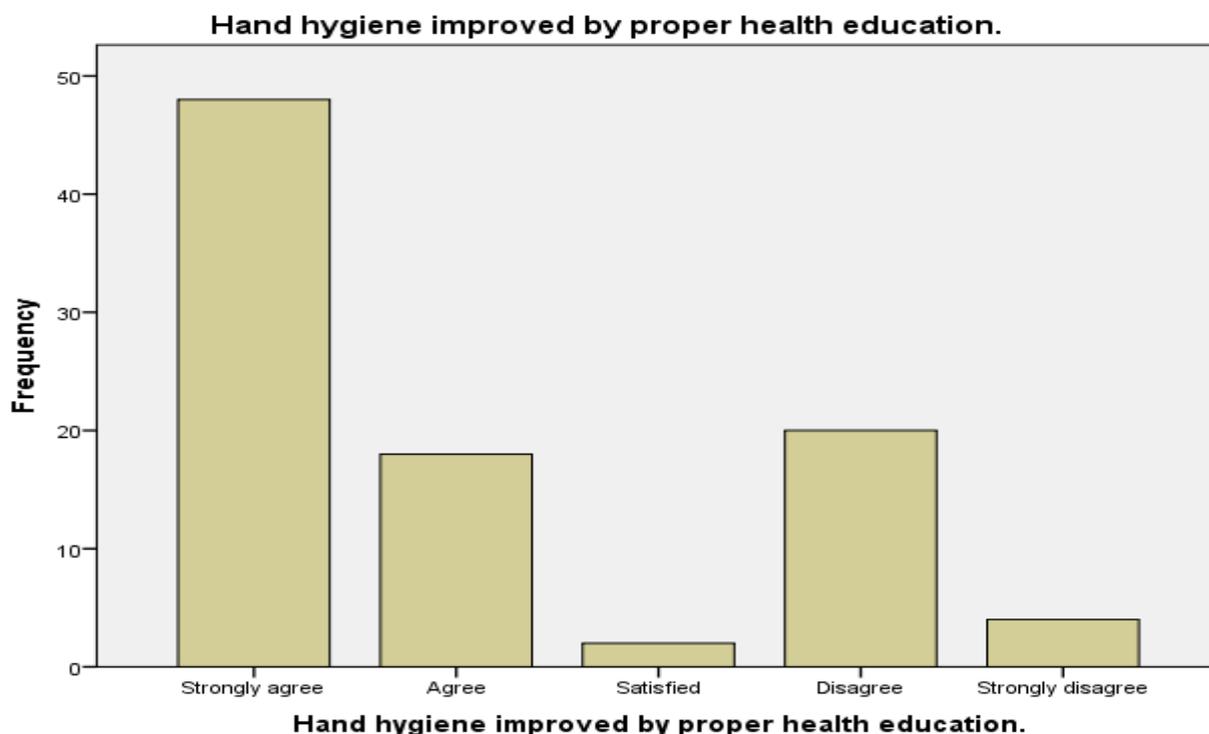


Fig.12: Hand hygiene improved by proper health education.

Hand hygiene is needed before assisting a patient in personal care activities e.g. to take a bath.

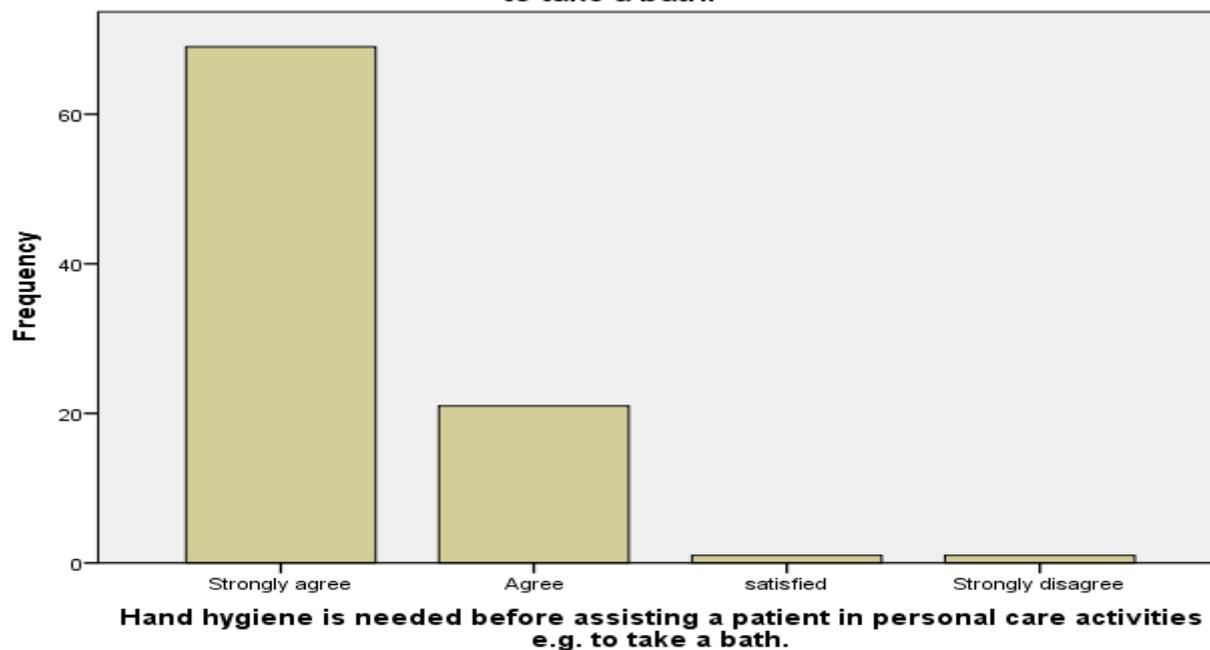


Fig. 13: Hand hygiene is needed before and after assisting a patient in personal care activities like bathing and toileting a patient.

Fig. 14 indicates that hand hygiene is compulsory before delivering care and other non invasive procedure like suction etc. About 78.3% participants were strongly agreed,14.2% agreed,2% satisfied,4.3% disagreed and only 1% strongly disagreed.

In Fig.15 it is described that hand hygiene is required before performing the physical examination of a patient. In that statement 83% participants were strongly agreed,9% agreed,4% satisfied and 1% disagreed.

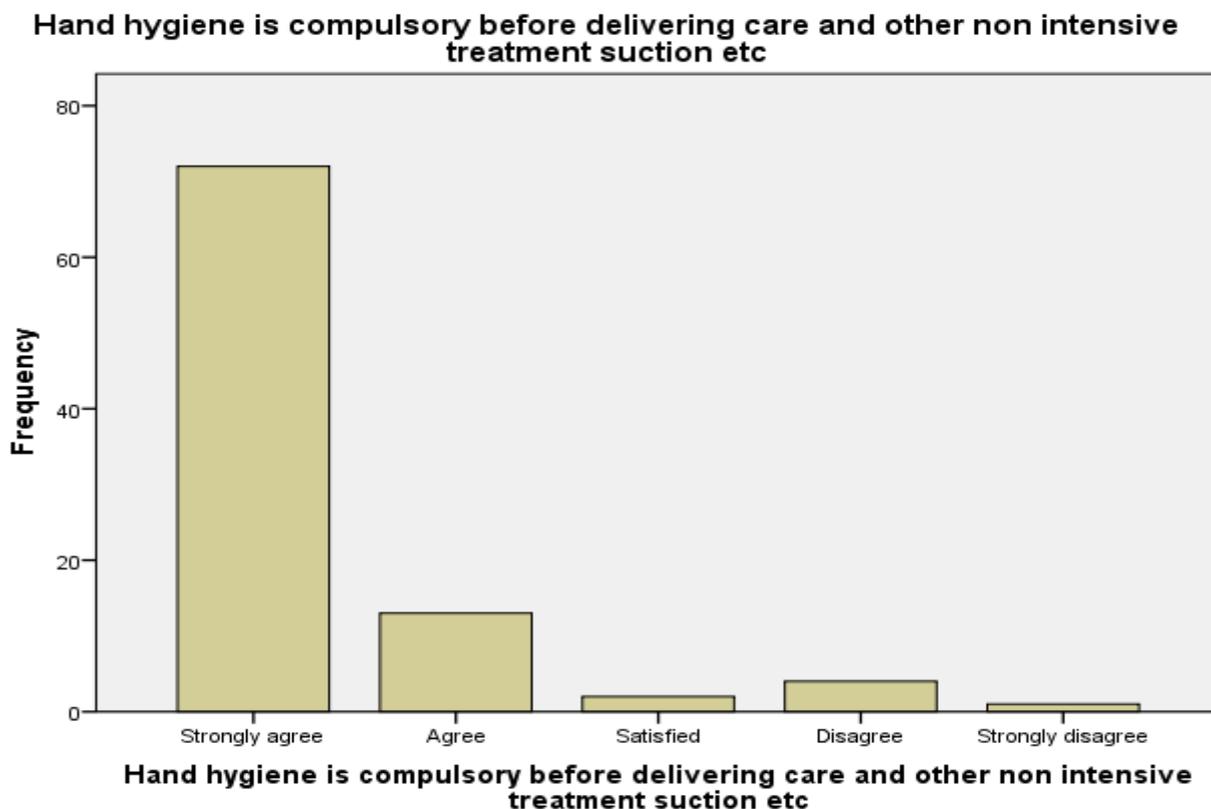


Fig. 14: Hand hygiene is compulsory before delivering care and other non intensive procedures.

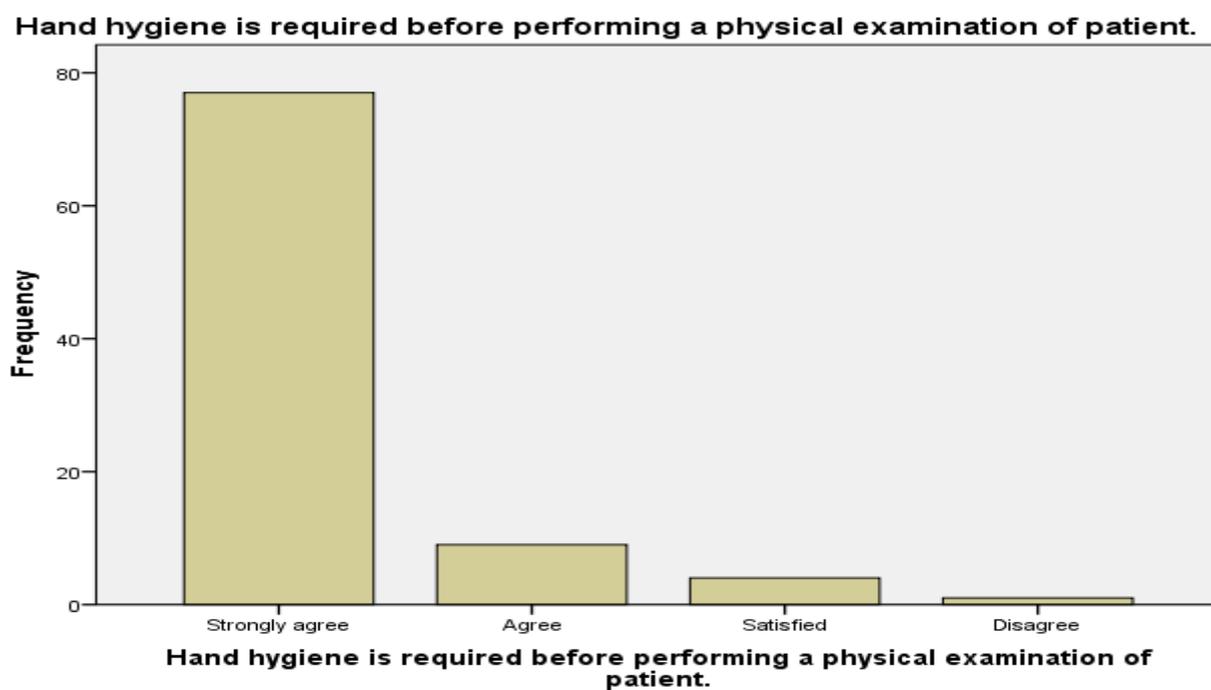


Fig. 15: Hand hygiene is required before performing a physical examination of a patient.

Fig. 15 summarizes that hand hygiene is necessary before doing any procedure like intravenous line insertion etc. about 83.3% participants were strongly agreed, 13% agreed and 3% were satisfied.

Fig. 16 summarizes the participants who respond the question that hand hygiene is compulsory after removing invasive procedure like Folly's catheter. About 89% nurses strongly agreed, 9.8% agreed and only 1% satisfied.

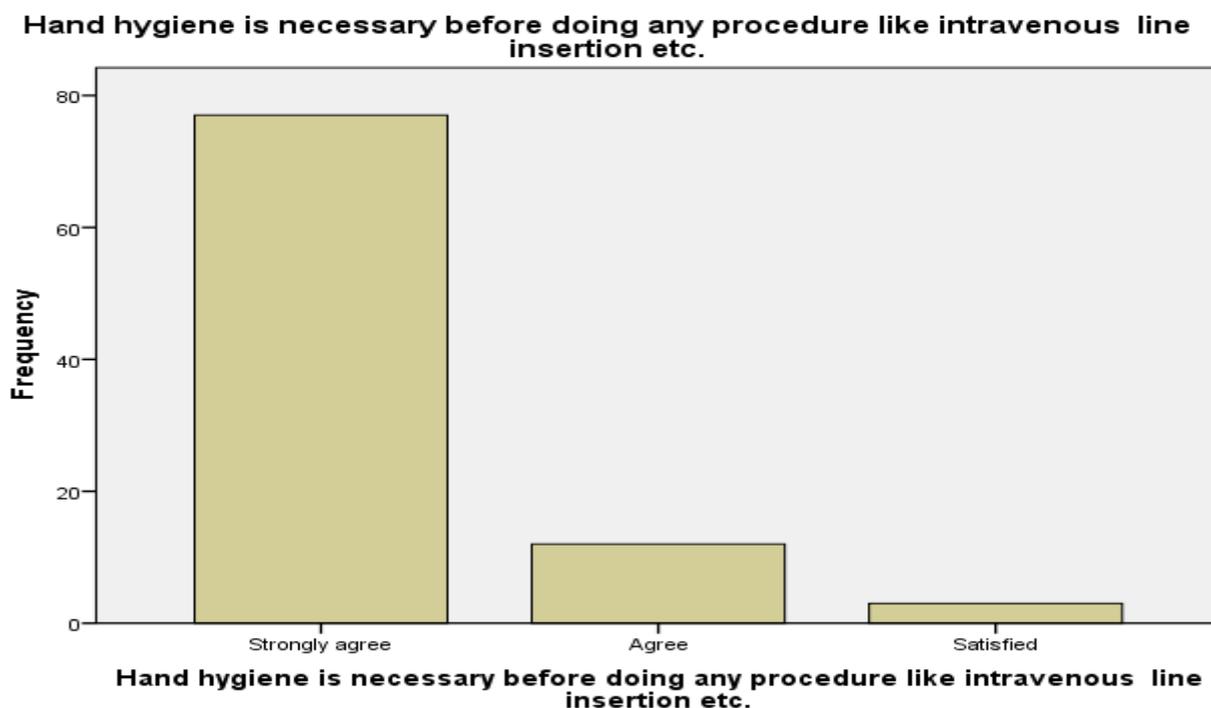


Fig. 15: Hand hygiene is necessary before doing any procedure like intravenous line insertion etc.

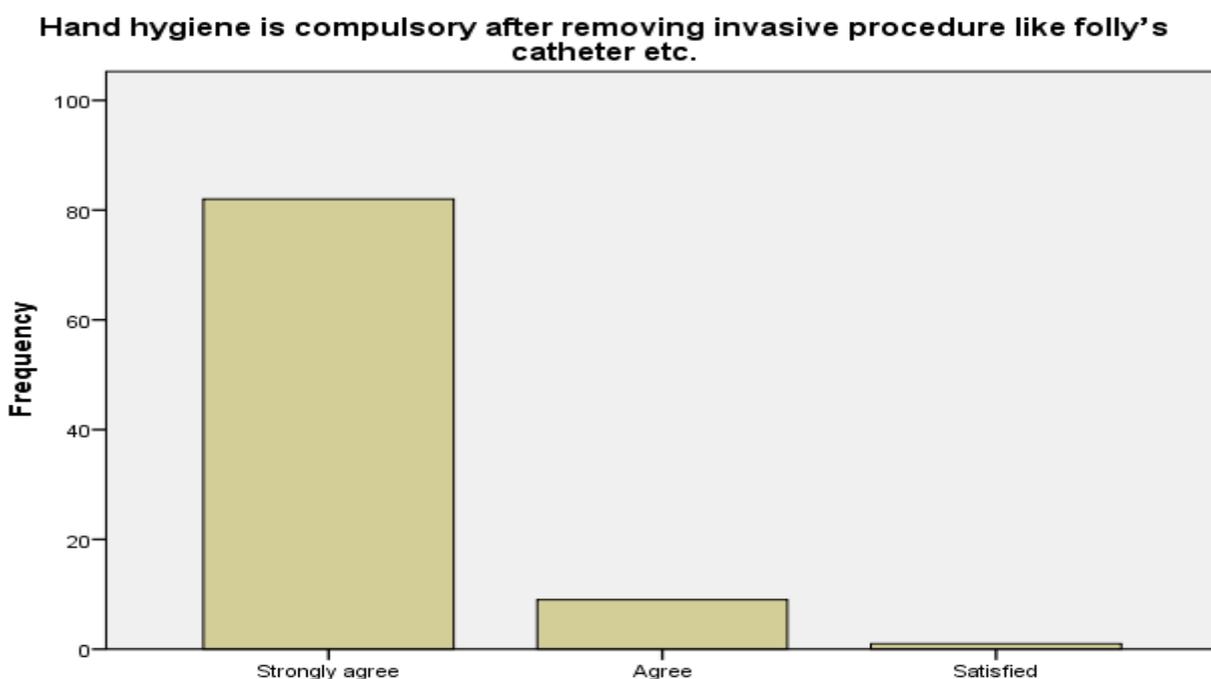


Fig. 16: Hand hygiene is compulsory after removing invasive procedure like Folly's catheter.



According to this study, authors were able to know about the problem which become obstacle at workplace to performing proper hand hygiene or hand washing in Punjab Institute of Mental Health Lahore. The results summarized in Table 1 in which the nurses who were strongly agreed that contaminated hand are vehicle for transmitting infection were 95%, agreed only 4%, In second statement hand hygiene help in preventing nosocomial infection who were strongly agreed were 86%, agreed 10%, satisfied 2%. In third statement hand hygiene is required after removing gloves strongly agreed were 71%, agreed 23%, satisfied 2% and disagreed 2%. In fourth statement hand hygiene is essential before and after attending the patient strongly agreed 81%, agreed 14% satisfied 2% and disagreed also 2%. In fifth statement hand drying is equally important to prevent cross infection strongly agreed 81%, agreed 14%, satisfied 2% and disagreed also 2%. In sixth statement that hand hygiene is not properly done because of work overload strongly agreed were 44%, agreed 4%, satisfied 2%, disagreed 5% and strongly disagreed were 43%. Because they think that work overload become the obstacle for hand washing properly. In seventh statement that hand hygiene practices do not prevent an individual from getting infection. Those who were strongly agreed were 34%, agreed 11%, satisfied 3%, disagreed 15% and strongly disagreed 34%. In statement eight that hand hygiene can be improved by proper health education the nurses who were strongly agreed were 60%, agreed were 14%, satisfied 1%, disagreed 19% and strongly disagreed were 4%. In ninth statement that jewellery should be removed before hand washing is necessary strongly agreed 75%, agreed 9%, satisfied 2% disagreed 13% and strongly disagreed were 0%. In tenth statement that hand hygiene is needed before assisting a patient in personal care activities like bathing and toileting. The nurses who were strongly agreed were 73%, agreed 22%, satisfied 2%, disagreed 1%. In eleventh statement that hand hygiene is compulsory before delivering care and other non-intensive procedures like suction. The nurses who were strongly agreed were 81%, agreed 9%, satisfied 2%, disagreed 5% and strongly disagreed were 1%. In twelfth statement that hand hygiene is required before and after performing a physical examination of a patient. Strongly agreed were 85%, agreed 9%, satisfied 3%, disagreed 1%. In thirteenth statement that hand hygiene is necessary before and after giving injections and medicine to patient strongly agreed were 84%, agreed 9%, satisfied 1% and disagreed also 4%. In fourteenth statement that hand hygiene is necessary before doing any procedure like intravenous line insertion, strongly agreed were 84%, agreed 10%, satisfied 2%, disagreed 2%. In fifteenth statement that hand hygiene compulsory after removing invasive procedures like foley's catheter, strongly agreed were 86%, agreed 10%, satisfied

were 10% and disagreed 2%. From this research study it was understood that mostly had knowledge about hand hygiene but their behavior and attitude poor toward washing hand properly at workplace.

Discussion

This study assesses the knowledge, attitude and practice of hand hygiene procedure among the nurses of PIMH (Punjab Institute of Mental Health). Due to this study, I was able to understand the existing practices of hand hygiene of working in the different department of PIMH.

Nurses hand hygiene not only prevents them from getting ill, but it also reduces the spread of infection from one another. If the nurses do not wash their hand properly before coming in contact with patients, they become a source of spreading infection not only patients but also the family members.

According to my research 95% nurses know that contaminated hands are vehicle of transmitting infection. But due to lack of resources they had not washes their hands properly.

In spite of lack of resources nurses showed the positive attitude toward hand hygiene, Although these nurses had a better overall attitudes regarding hand hygiene, they did not recognize important practical aspects such as the importance of hand hygiene after giving the medicine to patients and after removing gloves.

About 86% nurses know that prevention from nosocomial infection is possible by proper hand hygiene, 71% respond strongly agree that hand hygiene is also done after removing gloves. It prevents from skin allergies.

Improved hand hygiene behaviours among nurses could have a considerable impact on infection control, nurse and patient's health and also quality of life.

In this study, effective practice to improve the hand hygiene considered. I was able to obtain a detail insight into frequently used hand hygiene improvement technique and how they work.

Conclusion

This study was take place PIMH about hand hygiene practices, knowledge and attitude among the nurses of different age and clinical experience. It is important to know that hand hygiene help in preventing from transmitting infection.

Awareness about hand hygiene among nurses was better. Attitude toward hand hygiene practices showed their social responsibility. As year advances in their work experience they turn toward greater knowledge, better attitude and good practices of hand hygiene.

**Table 1:** Frequency and percentage of items.

S.N.	Contents	Strongly Agree	Agree	Satisfied	Disagree	Strongly Disagree
1	Contaminated hands are vehicle for transmitting infection.	95%	4%	1%	0%	0%
2	Hand hygiene help in preventing nosocomial infection.	86%	10%	2%	0%	0%
3	Hand hygiene is required after removing gloves.	71%	23%	2%	2%	0%
4	Hand hygiene is essential before and after attending the patient.	81%	14%	2%	2%	0%
5	Hand drying is equally important to prevent cross infection.	81%	14%	2%	2%	0%
6	Hand hygiene is not properly done because of work overload.	44%	4%	2%	5%	43%
7	Hand hygiene practices do no prevent an individual from getting infection.	34%	11%	3%	15%	34%
8	Hand hygiene can be improved by proper health education.	60%	14%	1%	19%	4%
9	Jewelry should be removed before hand washing .	75%	9%	2%	13%	0%
10	Hand hygiene is needed before assisting a patient in personal care activities like bathing and toileting.	73%	22%	2%	1%	0%
11	Hand hygiene is compulsory before delivering care and other non-intensive procedures like suction.	81%	9%	2%	5%	1%
12	Hand hygiene is required before and after performing a physical examination of a patient.	85%	9%	3%	1%	0%
13	Hand hygiene is necessary before and after giving injections and medicine to patient.	84%	9%	1%	4%	0%
14	Hand hygiene is necessary before doing any procedure like intravenous line insertion.	84%	10%	2%	2%	0%
15	Hand hygiene compulsory after removing invasive procedures like folly's catheter.	86%	10%	2%	0%	0%

Limitation

The study was conducted on Nurses only working in PIMH.

Recommendation

A multidisciplinary, multifaceted hand hygiene program should be developed and implemented in all hospital setting, including hand hygiene agent they are available at point of care in all health care settings. In health care facility the hand hygiene program should also include:

- Senior and middle management support and commitment to make hand hygiene an organizational priority.
- Environmental changes and system support, including alcohol based hand rub at the point of care.
- Education of health care providers about when and how to clean their hands.
- Ongoing monitoring and observation of hand hygiene practices, with feedback to care providers.
- Hand Hygiene should be performed.



- Before initial contact with each or items in their environment.
- Before performing an invasive/aseptic procedure.
- After care involving risk of exposure to, or contact with body fluid.
- After contact with a patient or their environment.
- Provide hand hygiene facility for patients and visitors in all health care settings.

References

- Ajzan I (2011) The theory of planned behavior, reaction and reflection. *Psychology & health*, 26(9), 1113-1127.
- Al-Tawafiq JA & Pittet D (2013) Improving hand hygiene compliance in health care setting using behavior change theories: reflections. *Teachings and learning in medicine* 25(4): 374-382.
- Ariyaratne M, Gunasekara T, Weerasekara M, Kottahachchi J, Kudavidanage B and Fernando S (2013) Knowledge, attitude and practice of hand hygiene among final year medical and Nursing students at the university of Sri Jayewardenepura. *Sri Lankan journal of infectious Disease* 3(1): 15-25.
- Clayton DA & Griffith CJ (2018) Efficacy of an extended theory of planned behavior model for predicting caterers hand hygiene practices. *International Journal of environmental health research* 18(2): 83-98.
- Ellen S (2012) Slovin's Formula Sampling Techniques. Retrieved from: <https://sciencing.com/slovins-formula-sampling-techniques-5475547.html>
- Kampf G & Loffer H (2010) Hand disinfection in Hospital benefits and risk. *JDDG Journal der Deutschen Dermatologischen Gesellschaft* 8(12): 978-983.
- Karaaslan A, Kepenekli Kadayifci E, Atıcı S, Sili U, Soysal A, Çulha G, Pekru Y and Bakır M (2014) Compliance of healthcare workers with hand hygiene practices in neonatal and pediatric intensive care units: overt observation. *Interdisciplinary perspectives on infectious diseases* 2014
- Malliarou M, Zyga S, Constantinidis TC and Sarafis P (2013) The importance of nurses hand hygiene. *International Journal of caring sciences* 6(3): 327-331.
- Nazarko L (2009) Potential pitfalls in adherence to hand washing in the community. *British journal of community nursing* 14(2): 64-68.
- Pittet D (2003) Hand Hygiene: improved Standard and practice for Hospital care. *Current opinion in infectious disease* 16(4): 327-335.
- Sahin I, Kucukbyrak A, Ozdemir D, Tevfik Yavuz M, Oksuz S and Cakir S (2007) Hand carriage of candida species and risk factors in hospital personnel. *Mycoses* 50(3): 189-192.