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Assessment of knowledge and practices regarding hand hygiene among health care workers in private hospitals, Lahore

Thesis submitted by

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DEDICATION

The Thesis is Dedicated to **Almighty Allah**, the most merciful and the most beneficent, who give me strength to fulfill my goal.

Then to my **beloved Prophet (PBUH).**

My parents **Mr. Mansab Ali Javed and Mrs Mansab Ali Javed**

Siblings, **Iqra,Uzma,Zeenat,Hafsa**, who

Devoted their lives for the fulfillment of my education

Prof Dr. Syed Amir Gilani,Supervisor Dr. Asif Hanif

Who provided me proper guidelines and were always there whenever I need.

This thesis is dedicated to my best friends and loved onesthey own I a lot and I despite of my best efforts unable to pay them back.

Marriam Mansab

2018-GCUF-077505

DECLARATION

The proposed work reported in this synopsis will be carried out by me under the supervision of Dr Sajjid Hameed institute Afro-Asian institute affiliated with GC University, Faisalabad,Pakistan.

I hereby declare that the Assessment of awareness and practice regarding hand hygiene among health care workers in private hospitals of Lahore proposed research and its contents are the product of my own proposed research and no part will be copy from any published source (except the references, standard mathematical or genetic models /equations /formulas/protocols etc). I further declare that this work has not been submitted for award of any other degree /diploma. The University may take action if the information provided is found inaccurate at any stage.

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CERTIFICATE BY SUPERVISORY COMMITTEE

We certify that the contents and form of synopsis submitted by Mr./Miss/Mr Marriam Mansab Registration No 2018-GCUF-077505 has been found satisfactory and in accordance with the prescribed format. We recommend It to be processed further.

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LIST OF ABBEREVIATIONS

S/N	Abbreviations	Full Form
1	HH	Hand hygiene
2	HCWs	Health care workers
3	HCPs	Health care practitioners
4	HAIs	Hospital Acquired infections
5	ECDC	European Centre for Illness Control
6	EU	European Union
7	HCAIs	Health care Associated infections
8	MRSA	Methicillin-resistant Staphylococcus aureus
9	KAP	Knowledge,Attitude,Practice
10	ABHR	alcohol based hand rub

ABSTRACT

Introduction:

Hand hygiene is a significant healthcare concern worldwide, which is an affordable and cost effective practice that declines the ratio of infection in health care set-up as well as decrease the risk of infections among health care providers. Furthermore the latest research studies showed these infections can lead to fatal situation and also prolonged the hospitalization of patients approximately five to ten percent during their stay in hospitals in developed countries, so it is obvious that in developing countries these infections would be increased and affects all the dimensions of health. **Objective:** To find out knowledge and practices of hand hygiene among health care workers. **Methodology:** A cross sectional study was used in this study conducted in BIHL and UOLTH. Sample size was 148. Data was collected through using convenient sampling. Data analyzed by using the SPSS version 22. Frequency percentage and mean standard deviation calculated.

Results: in this study mostly participants response to YES and 4.1% respondents response to NO. First analysis was demographic analysis. It gives us details of demographic questions. Descriptive analysis was used for 2 variables knowledge, and practice. It tells us judge the knowledge, and practices of regarding hand hygiene among health care workers in private hospitals, Lahore.

Conclusion: The purpose of this study was to assess knowledge, and practice among health care worker at BIHL and UOLH among 148 health care workers. The participants mostly have good practice about hand hygiene and perform daily before patients touch, contact with patient environment and or perform any other procedure and mostly participants have good knowledge about hand hygiene.

Key Words

Hand Hygiene, Hospital acquired infections, Health care workers

CHAPTER-1

INTRODUCTION

Hand hygiene could be a noteworthy healthcare concern around the world, which is an reasonable and fetched compelling practice that decays the proportion of infection in health care set-up as well as diminish the chance of infection among health care workers. Moreover the most recent research studies appeared these diseases can lead to deadly circumstance additionally delayed the hospitalization of patients roughly five to ten percent during their remain in hospitals in developed nations, so it is clear that in developing nations these infections would be expanded and influences all the dimensions of health. (Mathur.P, 2012)

Additionally Healthcare-associated disease is also exceptionally significant health problem, and hand hygiene may be an important procedure to control these diseases. The method of hand hygiene is usually exposed to each health care worker as a study expressed that the compliance of hand hygiene is not palatable which is connected with directly with unawareness regarding the adverse impacts of hand hygiene. Concurring to a research about which was completed in Center East among fourth year medical students, who had low level of information with respect to hand hygiene as well because it antagonistic impacts. (Z. Skodova 2020)

Healthcare related infection (HAI) may be a “systemic or localized infection due to an adverse reaction to the invasion of infection agents or their toxin that's acquired after admission to the intense health care institute or facility, Based on the infection type, HAIs can create between 1-3 days after confirmation tohospital, 3-10 days after release, or inside 1-3 months taking after a surgical procedure. (Craymah, 2016)

HAIs gravely influence treatment complexity, poor patient results and healthcare costs. Within the USA more noteworthy than 2 million people are affected and more prominent than 100,000 people die annually from HAIs, and for this reason HAI could be a driving cause of passing.HAI increments the fetched of health care administrations within the USA.Hospital-acquired diseases still speak to an issue to the health care system. HAIs result in considerable dismalness and mortality. A part of hospital diseases are due to pathogens transmitted from one person to another by way of health care workers (HCWs) who have not practiced washing of hands between patients or who don't adjust to control implies like utilize of hand disinfection, glove utilize etc.(Abduawahid & Mahmood, 2020)

Globally, due to diseases acquired by health care practices, thousands of individuals die every day. Transmission of germs occurs mainly by infected hands during health care. In the immediate environment of the patient, health care-associated pathogens can be acquired from contaminated or draining wounds, often colonized areas of the skin of intact patients, patient gowns, bed linen, bedside furniture and other items. Such species as Staphlococcus Aureus. In health care-related infections, aureus, Proteus mirabilis, Klebsiella spp., Acinetobacter spp., enterococci, or Clostridium difficile can play an important role in (HCAIs). A quick and efficient way to avoid infections is to practice hand hygiene (HH), by washing the hands with water and soap or using alcohol-based hand rubbing. Any healthcare worker who is directly or indirectly involved with patient care should be aware of the value of HH and therefore be able to conduct HH properly.

Disease anticipation and control is the clinical application of microbiology in hone. Disease or illness may be caused by diverse bunches of micro-organisms such as microbes, fungi,viruses or detainment facilities and can result in a wide assortment of contaminations that incorporate, for illustration, urinary tract, wound, respiratory, blood, bone and skin diseases.Not

all contaminations are transmissible,however a few, such as clostridium difficile(C. difficile), flu and noro-virus, have the potential to spread from one understanding to another causing disease with extra critical suggestions for health and social care facilities.Current information on the number of HCAIs is based on estimates inferred from predominance studies and surveillance inside the UK and Europe. The European Centre for Illness Control (ECDC) assess that 4.1 million patients per year create diseases inside the European Union (EU) as a result of health care, which 37,000 passings result yearly due to such diseases . The financial burden of HCAIs is critical. Yearly misfortunes related with HCAI is evaluated at 7 billion Euros and 16 million additional days in hospital for patients (WHO, 2011). A huge extent of this taken a toll is credited to extra nursing costs about from expanded patient stay .(Sunley, Gallagher, Reidy, & Dunn, 2018)

Hand hygiene is the cornerstone for prevention and control of infection. When performed optimally, hand hygiene decreases the spread of antimicrobial resistance and healthcare-associated infections. Poor compliance with hand hygiene practices remains a challenge for control and prevention all over the world

Hand washing plays an important role in controlling of the spread of respiratory infection. During 2006, several studies permitted that incidence of the severe acute respiratory syndrome (SARS) prefer the respiratory virus reduce 55 percent by performing washing hands more than 10 times a day. Washing hand with soap has been considered as one of the most cost-effective and simple interventions that avert the children from diarrheal associated disease and death

Health-care related diseases proceed to posture a genuine risk of expanding mortality and horribleness among hospitalized patients and World Health Organization reports that at any time, over 1.4 million individuals world- wide suffer from diseases acquired in health-care settings

(WHO,2005).In created nations, HCAIs have been detailed to influence 5%-15% of hospitalized patients and 9%- 37% of those conceded to seriously care units (Vincent JL,2003), whereas in creating nations where solid information on HCAIs are restricted, predominance rates have been evaluated to be between 14.8% and 19.1%((Amissah, Salia, & Craymah, 2016)

HH is hence the foremost critical measure to dodge the transmission of hurtful germs and avoid HAIs. Any individual included in coordinate or indirect patient care (HCWs,caregiver) in this manner ought to be concerned approximately HH and should be able to perform it accurately at the proper time (WHO, 2009c). Tragically, compliance with prescribed HH strategies for HCWs has been destitute, with mean standard rates as low as 5% and an by and large normal of 38.7% (WHO, 2009c). A few components are related with poor compliance of HH (WHO, 2009c). These variables are need of mindfulness and knowledge with respect to significance, procedures, methods and quality of HH, nearness of person towel/tissues,availability of HH specialist, mechanized sinks, area OF sinks,workload, or need of organization needs (WHO, 2004).However, the reasons for moo compliance with HH have not been characterized in creating nations likely due to limited studies on HH (Karabay et al., 2005).(Khanal & Thapa, 2017)

Hygiene is a highly personal matter decided by the beliefs and behaviors of individuals. Community, social, family and individual variables affect it, As well as the person's understanding of health Hygiene and. The conduct of hygiene includes general Hygiene, household hygiene, hygiene related to food, Hygiene for hands and personal hygiene. (Aiello AE, 2012)

Bad hygiene practices and poor sanitary conditions play a major role in developing countries' increased burden of communicable diseases. Communicable disorders are responsible for a significant portion of the world's sickness and death. One of the major and important

behavioral risk factors leading to the global burden of diseases is bad hygiene. (Allegranzi B et al 2017)

The World Health Organization (WHO) describes the transmission by healthcare providers (HCPs) of healthcare-related infections (HAIs) as a significant issue and concern for patient safety and treatment. In healthcare settings worldwide, WHO advises control and prevention of HAIs to be a priority.(WHO 2018)

The largest proportion of health care staff (HCW) are nurses and they are the' nucleus of the health care system.' They spend more time with patients than any other HCWs; their compliance with guidelines on hygiene practices seems to be more important and imperative in preventing patient transmission of the disease (Allegranzi B et al 2017)

Agreeing to the study conducted in Hyderabad Sindh Pakistan, 97(29.13%) out of 333 patients procured noso-comial infections. Out of which 29 (30.1%) were affected from respiratory tract infection, 38(39.1%) were from urinary tract Infection and 23(23.7%) were endured from circulatory system infections.7 other diseases were of skin, delicate tissue, wound and gastrointestinal tract. It was recommended that the correct nursing care, sterilization and disinfection of the instruments and equipment utilized additionallycautious dealing with of invasive strategies can offer assistance to control these life debilitating infections. Crowded hospitals and delayed remain are the vital reasons for the spread of nosocomial diseases. Pakistan needs in fundamental health care administrations. Concurring to a study conducted within the college hospital of the Karachi, 20.8% patients had to hold up within the crisis area of the hospital for more than 6 hours. The most calculate of the delay was inaccessibility of beds taken after by a few other reasons. (Zaidi, Javed, Naz, & Mumtaz, 2016)

In order to diminish HAIs in any clinic, information of HAIs and compliance to strategies in avoiding them like legitimate practice of aseptic and sterile safety measures by health care workers are exceptionally much fundamental. This consider was done to survey the level of knowledge, attitudes, and practices of staff medical attendants working in tertiary hospitals. (Richards, 2014)

For the following clinical indications, healthcare workers may use an alcohol-based hand rub or wash with soap and water: Immediately before touching a patient. Before performing an aseptic task (e.g., positioning an indwelling device) or treating invasive medical equipment.

A consider conducted in India with respect to the knowledge, attitude and practice of distinctive gather of HCWs approximately infection control concluded that training incorporates a positive effect on the enhancement of KAP in health care personnel. They too recommended that improvement of ceaseless preparing program for all HCWs is vital. (Seifert & O'Neill, 2013)

Several obstacles to HH enforcement have been clarified, including lack of knowledge, lack of persuasion, heavy workload, working status and not being aware of the guidelines for implementation (9). Unfortunately, despite the high prevalence of HAIs in Asia, there are few studies in this part of the world that evaluate this issue. (10-12); Therefore, it seems that there is still a growing need to resolve this issue. For example, the average level of knowledge about HH was found in both residents and nurses in a cross-sectional study in India. They found that nurses had a greater positive outlook toward HH than tenants.

In another cross section study 64.9 percent of participants had a moderate to strong level of awareness in another cross-sectional analysis among 377 HCWs of Shiraz University of Medical Sciences. Training programs did not influence the awareness of the participants, based on this analysis (14). Considering that the first and most important part of the control of

nosocomial infections acquired through poor HH is increasing the level of awareness of HCWs and also because of scant attention in our area to this issue, it can be helpful to recognize the knowledge of HH practices. The goal of this study was to determine the awareness about HH practices between healthcare workers and to identify the areas of gaps in their knowledge.

In 2002, survey data from 25 acute care hospitals in eight Canadian provinces (N = 5750) estimated the overall incidence of HAI in hospitalized adults to be 10.5 percent . In a single-center analysis within a U.S. hospital, HAIs were confirmed to have led to 31 percent (55/179) of unexplained in-hospital patient deaths. Based on a systematic analysis of 30 studies, the proportion of potentially preventable HAIs was calculated to be at least 20 percent (Harbarth & Gastmeier, 20013).

Exact utilize of hand hygiene procedures can go a long way in lessening cross-transmission of microorganisms, nosocomial infections and the hazard of word related introduction to irresistible infections. Klebsiella spp, Staphylococcus aureus, Clostridium difficile, Methicillin-resistant Staphylococcus aureus (MRSA) and gram-negative microscopic organisms are a few of the living beings that are likely to be found on healthcare workers' hands. Be that as it may, direct patient contact isn't the sole strategy of pathogen trans Microscopic organisms can moreover be procured on the workers' hands by touching contaminated surfaces within the persistent environment .(Kingston, O'Connell, & Dunne, 2016)

There's a need of consideration given to the educating of hand hygiene practices within the Indian therapeutic preparing educational modules. Around 57% (n=298) of the respondents never gotten any formal training in hand hygiene all through their course of medical undergrad think about. As it were 12.2% (n=64) of the respondents had a great level of hand hygiene information. To avoid the spread of infections in healthcare settings, therapeutic students should be given appropriate training in hand cleanliness practices right from the primary year of the

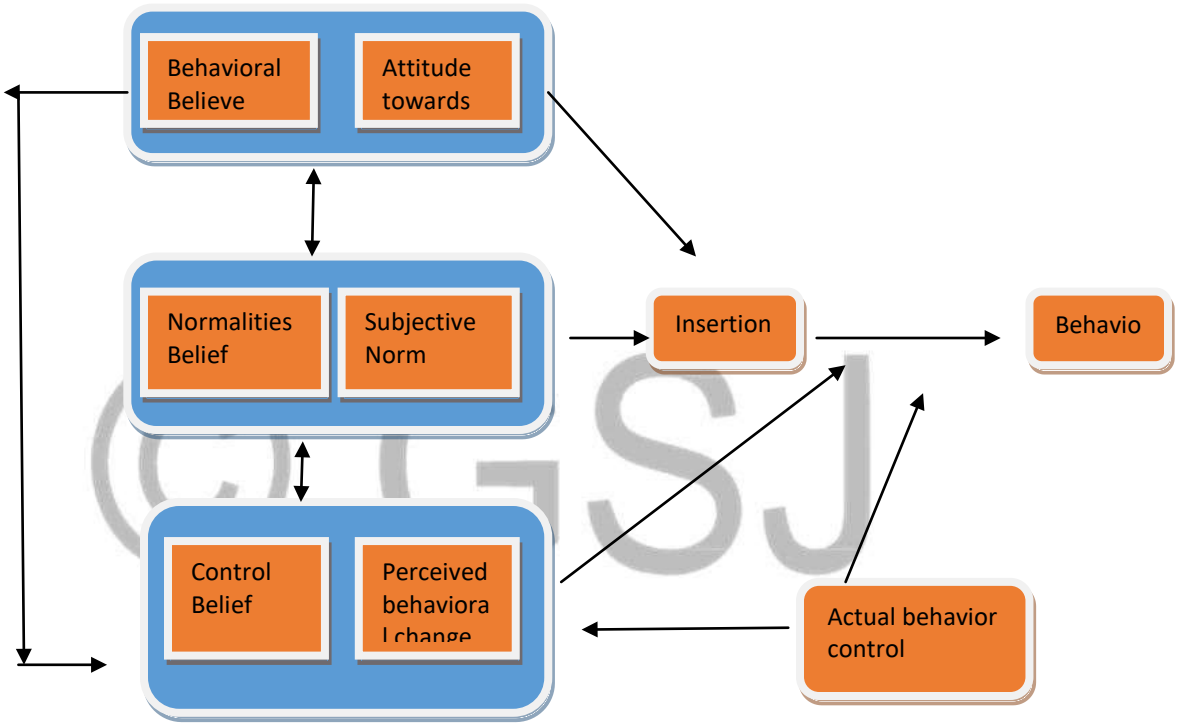
therapeutic educational programs. This may well be done by running workshops, holding yearly workshops and making it an essential for clinical aptitudes.

SIGNIFICANCE OF THE STUDY

In light of the severe lack of resources and equipments, most of healthcare providers working in difficult conditions which expose them to several occupational hazards due to unavailability and inaccessibility of basic infection control infrastructure. This condition motivate the researchers to know the extent of healthcare providers commitment to personal hygiene and occupational safety and availability of protective measures during different medical procedures and develop recommendations for their work in hospital to protect them. Also, the results of this study will be as a baseline data for both policy makers in formulation of and for further researchers. In addition, it will motivate the students who enter health professions to learn and follow state-of-the-art personal hygiene habits and improve their hygiene actions as they play a critical role in avoiding infections associated with health care (HAIs). This research also explores the awareness of nurses about the use of standard precautions and personal hygiene . The results of this research study will be helpful in developing strategies and enforcing standard precautions among health care practitioners for health care systems and health policy makers, senior hospital management and other stakeholders. The results would allow nurses and other health professionals to develop a better understanding of the successful personal hygiene and use of standard precautions in their practices and to make themselves healthy and safe for their clients.

Lack of compliance with HH guidelines in health care settings is considered to be a preventable behavior. The theory of planned behavior (TPB) developed by Icek Ajzen has been selected as the conceptual framework for this study (Ajzen,2006). Figure 1 depicts the TPB in the form of a structural diagram

Theory of Planned Behavior Model



The TPB explains how cognitive variables (attitude, subjective norms, perceived behavior behavioral control, and intention) can predict behavior and offers theoretical insights for the study of HH behavior. The TPB is an extension of the theory of reasoned action (TRA) developed (Ajzen 2006)

The TPB in the context of HH compliance. The success of HH is not only a straightforward task; it is also a dynamic action with multiple influences. The inability over several years to inspire HCPs to achieve consistently high levels of HH enforcement indicates that changing HH behavior is a difficult. An awareness of motives to conduct HH is necessary in order to increase HH compliance rates. (Whitby et al., 2006).

Explanation of TPB concepts. Intentions are thought to capture the motivational factors that affect actions; they are indicators of how hard a person is willing to try, and of how much of an effort they are intending to exert in order to execute the behavior. Purpose is known to be the immediate antecedent of the actions. As a general rule, the greater the intention to engage in action, the more likely should be its success. Intention to perform HH is explicitly predicted by three independent variables: (1) Attitude toward the behavior, is the degree to which success of the behavior is positively or negatively valued. (2) Subjective norm, which is the perception of social pressure to engage or not engage in a behavior (Ajzen, 2006). (Ajzen, 2006). For example, if a student assumes that the clinical teacher and the nurses working on the unit expect HH guidelines to be followed, this assumption can affect HH enforcement. (3) Perceived behavioral regulation is the understanding of the ability to perform a given action (Ajzen, 2006). A student can perceive that they have little control over external factors such as availability of sinks, time constraints, patient condition, or a heavy workload (Lankford et al., 2003) which may lead them to believe that they have little control over their HH practice. These three factors are in turn, predicted by three antecedents: Behavioral beliefs are an individual's evaluation about the likelihood that the action will produce a given outcome. Normative beliefs, are an individual's opinion about the specific activity, which is affected by the assessment of significant others (e.g., clinical teacher and registered nurses working on the unit); and regulation beliefs, an individual's

expectations about the factors that could encourage or hinder their performance of the behavior (Ajzen, 2006). (Ajzen, 2006). Actual behavioral control is the degree to which a person has the required skills and resources needed to conduct the behavior (Ajzen, 2006)

OPERATIONAL DEFINITION

Hand hygiene

Hand hygiene is a way of cleaning one's hands that substantially reduces potential pathogens (harmful microorganisms) on the hands. Hand hygiene is considered a primary measure for reducing the risk of transmitting infection among patients and health care personnel. (CDC 2014)

Health care workers

Health workers to be all people engaged in actions whose primary intent is to enhance health. This meaning extends from WHO definition of the health system as comprising activities whose primary goal is to improve health. (World Health Organization 2014)

Knowledge

Knowledge means awareness or expertise of person gained by experience of a fact or state of affairs. In this study the knowledge of participants regarding hand washing practice and awareness about hygiene prevention and management of infection and also assess that how care workers reduce hospital infection. (Kennedy AM)

Practice

Perform (an activity) or exercise (a skill) repeatedly or regularly in order to acquire, improve or maintain proficiency in it. In this study the practice of participants regarding prevention and management of infection by awareness of hand hygiene and practice of hand hygiene. WHO (2009)

Objectives

Objective of the study is:

To find out knowledge and practices of hand hygiene among health care workers.

CHAPTER-2

REVIEW OF LITERATURE

A consider by Kingston et al. (2017) overviewed nurses' HH attitudes and practices between 2007 and 2015. The creators found that self-reported alcohol based hand rub (ABHR) was imperfect, as less medical attendants detailed compliance with ABHR in 2015 compared to 2007 (42% and 55%, individually). The World Wellbeing Organization estimates that on normal, HCWs wash their hands less than half the time they ought to. Numerous quantitative inquire about considers have inspected the boundaries to HH compliance, but few have brought about within the usage of compelling mediations. A few subjective studies have too been conducted on this topic.(Kingston et al. 2017)

Chatfield et al. (2017) moreover checked on 36 subjective thinks about on HH among HCWs around the world in a Meta rundown utilizing the Review CERQual prepare of quality assessment.Findings from the think about appeared that in spite of the fact that satisfactory HH preparing was accessible, substance and reach might be progressed. Moreover, in spite of the fact that administration back prove through arrangement of human and cleanliness assets was considered fundamental, it was regularly missing. The creators too distinguished that HCWs' subjective chance appraisal too impacted HH behaviors.(chatfield et al. 2017)

This graphic cross-sectional think about was done among nurses having two years' encounter from two tertiary level healing centers in Dhaka city amid January to June 2017. Self-administered survey containing diverse set of questions with respect to information, state of mind and practice on HAI were utilized as a device for information collection. Survey was provided to all staff nurses accessible at diverse in-patient wards of these two hospitals. As it were 234 staff nurses who completed and returned the survey were included in this ponder. Information were analyzed utilizing Microsoft exceed expectations 2013 computer program. Staff nurses were found to have great information, decently positive state of mind but destitute practice in anticipation of hospital acquired diseases. Around 95% of the members considered that prevention of HAIs were a profitable portion of their part. Almost 65% of the staff nurses had gotten formal preparing with respect to hand hygiene (Erasmus, V., et. al 2010).The 100 % of members felt that they would be less likely to transmit disease to the patients in case they performed hand-hygiene. Almost 64% of them contended that hand hygiene agents were not promptly accessible in current settings. With respect to practice, as it were 6% performed hand hygiene some time recently patients contact and 27% of the staff nurses detailed that they frequently overlooked to perform hand hygiene. The finding of this think about uncovered a great information of disease avoidance among the majority of members with generally negligible level of practice. For fortifying the information, attitude and practice towards HAIs, there's in require of creating regular preparing program and checking on execution input with respect to hand hygiene is recommended.(Erasmus v et al.2010)

The finding of this consider uncovered a great information of disease avoidance among the majority of members with moderately negligible level of practice. In any case there's the require of standard preparing and execution criticism with respect to hand hygiene and the clinic environment ought to be hand-hygiene friendly with effectively available to sinks and other

facilities. It is additionally fundamental for a successful infection prevention group for upgrading of existing practices to decrease clinic acquired diseases among staff medical caretakers (Huis, A., 2012).

The practice of hand washing expanded essentially in this ponder as compare to ponder conducted by Grimes The practice of hand washing some time recently supper and after defecation expanded altogether ($p<0.05$). There was alter in behavior of utilizing cleanser to wash hand some time recently dinner and after defecation which was measurably noteworthy ($p<0.05$). Our discoveries were upheld by Grimes consider that understudy was washing their hand at different times: 50% after defecation, 19% after urination, 88% some time recently eating, and when hands were discernibly grimy by 78% (Grimes, Tadesse et al. 2017)

Smiddy et al. (2015) conducted a precise audit of 11 subjective considers on HCWs' compliance with HH. The authors' topical examination distinguished two wide categories of variables that impacted adherence to HH rules: motivational components (i.e., social impacts, keenness of quiet care, self-protection, and utilize of prompts) and recognitions of the work environment (i.e., assets, information, data, and organizational culture). For individual cleanliness instruction another think about was conducted in 2015 to advance hand washing information of medical caretakers. The comes about of the sessions appeared hand hygiene cruel information score was 53.86 sometime recently conducting these sessions after health instruction sessions which expanded to 77.54, so it summarized that conduct changes of was achievable on the off chance that the educational intercessions is appropriately executed for progressing the abilities of medical attendants around hand hygiene (Shrestha and Angolkar 2015).

A cross-sectional consider was conducted in Eminent 2011. Basic random sampling was utilized to choose 500 HCPs (250 specialists and 250 medical caretakers). Information collection was done with self-administered organized surveys. Information gotten were analyzed with SPSS

version 11.5. A add up to of 430 HCPs (230 specialists and 200 medical caretakers) taken an interest in this think about giving a reaction rate of 86%. Eighty-three percent had great information; 97.6% had great demeanor and 69.9% had great hand washing practices. Hand washing after contact with quiet (97.7%) was superior to sometime recently contact (61.4%).

Nurses had superior hand washing practices than specialists (Fisher's correct $p<0.001$) and were more likely to wash their hands some time recently quiet contact than specialists ($p<0.001$). Preparing on disease control had a noteworthy positive impact on HCPs information and hand washing practices (Fisher's correct $p<0.001$ and Fisher's correct $p<0.001$ individually). The commonly utilized hand-drying strategies were individual handkerchief (28.8%), common cloth towel (22.6%) and characteristic discuss drying (29.5%). The major inspiration for hand washing was fear of contracting infection whereas the major limitation was active work plan in-between quiet care. HCPs in LUTH have great hand washing information but imperfect practices particularly with hand-drying. Healing center management ought to give proper hand drying offices, decrease work stack and organize preparing on contamination control on a normal premise (WHO, 2009).

In our research, all study groups had a moderate understanding of HH as a result of previous studies. The mean level of research awareness compared to some related studies in developing countries). But a lower HAI rate was not observed. It seems like it might be helpful to assess the mindset and practice of certain hospital personnel. The study findings showed that the average level of expertise of HCWs who had undergone formal HH training was lower compared to those who had not.

A research conducted a qualitative study framed by the expected behavior theory; results found that doctors felt that hand hygiene was necessary for self-protection, but that there was no evidence that hand washing was successful in preventing cross-infection. Residents/medical

students have claimed that they mimic their superiors' actions, which sometimes contributes to their failure to comply.

However, adherence to hand hygiene is unacceptably poor. In particular, doctors are repeatedly regarded as being bad compilers. A complex topic is the promotion of hand hygiene. Awareness of the behavioral determinants of hand hygiene is needed to establish strategies with more pronounced and lasting results. Although factors related to the non-compliance of nurses have been widely studied, explanations for low physician compliance are less well known.

A variety of barriers, including environmental (e.g. lack of access to sinks, difficulty finding item s, empty or broken dispensers, and time constraints) and personal (e.g. attitudinal values, skin dis comfort from frequent hand washing) barriers, have been identified by studies studying healthcar e workers in general (which often involve a limited sample of doctors)

Major inaccuracies have been found to be given to the physical tracking of hand washing opportunities and hand washing events on the sector. Employees who realize that they are being tracked take the opportunity to sanitize their hands more frequently, if they had not done so without the awareness that they were being monitored. In addition, critics have been shown to occasionally exhibit prejudice against staff or classes of health care personnel. Consequently, it has been noticed that physical findings appear to distort the amount of hand washing tasks actually conducted by the workers. Moreover, personal observations have usually been found to be threatening and insulting inside a healthcare or other work facility.

Another research results indicate that most participants in the study had adequate knowledge of infection, proper hand washing, use of gloves, and needle stick technique or sharp injuries. On the other hand, information about the application of gell and the use of disinfectants was found to be limited. The low level of information was seen as the result of job pressure, lack of time and lack of facilities. (Sarani H, 2015)

Another research on hospital infection control among 130 nurses was performed. The results of the study indicate that the majority of nurses had poor awareness about personal hygiene and control of infection prevention. The findings of another study showed that the level of knowledge was not up to par and 43 percent of nurses had a low level of hand hygiene and hospital infection knowledge. Both men and women, the level of awareness was found to be substantially different (r = 00.8 p = 0.02) (Abdulraheem I 2012)

A survey among nursing students found that about 90 percent of students have strong knowledge of standard precautions in hospitals. Another Nigerian study showed that over 90% of respondents had a clear understanding of standard precautions. Among the study participants, the awareness of secure injection was found to be poor. Awareness was considered poor among junior nurses and other lower health care workers as opposed to experienced individuals.

In another study, knowledge of personal hygiene was high among health professionals. According to this research, among the participants, knowledge of personal protective equipment was high. The shortage of personal protection equipment such as gowns, gloves etc. was deemed to be caused by inadequate quality precautions. (Darawad MW, Al-Hussami M.2012)

An important study conducted to assess the knowledge of nurses about personal hygiene. A very good percentage (86.3%) of the participants had awareness about personal hygiene. More than 50% participants were aware of the personal protective equipment and the role of hand hygiene in the prevention of hospital acquired infection. About 80% of the participants every patient admitted at the hospital could be the source of infectious blood and body fluid . Results of another research conducted among health professionals showed that 80% of participants in the research had strong knowledge of personal hygiene. It has also been proposed that sufficient education and training should be given to enhance awareness and adherence to personal hygiene. (Punia S, Nair S 2014)

The findings of the current study were found to show that 42.29 percent of participants had low knowledge of personal hygiene, providing less than 14 correct answers out of 27 questions. 40.3% had average knowledge that offered 14-17 correct answers and only 17.41% had excellent knowledge and 18 or more correct answers out of 27 questions that were asked. The level of education of nurses and nursing students was very poor in terms of personal hygiene and standard precautions in clinical practice, according to a previous survey. It was found, according to previous studies, that only 24 percent had good knowledge of standard PH precautions, which was even lower than this current report. (Punia S, Nair S 2014)

In Pakistan, a study conducted in 2009 revealed that only 4.7% of the physicians decontaminated their hands before having direct contact with their patients. Only 17% claimed to be aware of the WHO recommendations on hand hygiene. The majority of subjects considered the lack of sinks, soap, water and disposable towel as a major barrier towards hand hygiene adherence. Overall compliance of hand hygiene was found to be 38.8% but it widely varied as a function of patient care activity (Anwar, Rabbi et al. 2016).

Another survey was conducted in 2015, in Gulbarg, which was based on the hand hygiene knowledge questionnaire for health-care workers by the WHO. The study showed overall moderate knowledge among the students(Modi, Kumar et al. 2017).

A study carried out in a group of 414 students of Jagiellonian University Medical College in Poland revealed that professional practice of 22.9% of students was not preceded by any training in the field of hospital hygiene and in 28% of cases, training prior to internship did not cover hand hygiene (Rozanska, Wojkowska-Mach et al. 2016).

A study to assess hand hygiene knowledge and practices among health-care workers in a teaching hospital in Ghana showed knowledge in hand hygiene practices to be fair. Heavy patient load, forgetfulness, and unavailability of water and detergent were major contributing

factors hampering proper hand hygiene practices. Also, there was low patronage for alcohol-based hand rubs and only 5.3% had access to warm running water (Amissah, Salia et al. 2016).

The hand is normally colonized by resident and transient bacterial flora, depending on the part of the skin where they colonized. Resident flora, the harmless bacteria is more difficult to destroy. (For example Staphylococcus epidermidis and Staphylococcus aureus coagulase-negative). Transient flora more often at risk of incurring diseases and more easily destroyed. (For example Staphylococcus aureus, Bacillus subtillis). Nurses' hands could be contaminated with both types of flora at the time of contact with patients. Moreover, it may be contaminated from the patient's environment. The amount of flora also increased along with the length of the duration of the activity(Abaza, Amine et al. 2014).

Using hand rub recommended by WHO due to practical use and education promoted on the function of hygiene in replacing soap. The content on the hand rub used in this research is 70% ethyl alcohol and soap used is 0.175% chloroxylenol and 0.3% salicylic acid. The alcohol effect was bactericidal against gram-positive and gram-negative bacteria, M. tuberculosis, some types of fungus and non-enveloped viruses. Alcohol works on the bacteria by protein and cytoplasm membranes denaturation. Finally, alcohol destroys the work by denaturation on the cell membrane(Organization 2006).

The results showed that washing hands with soap (59.55%) or using hand rub (47.2%) had a significant difference between before and after doing hand hygiene ($p = 0.001$). These results are by research by (Isnaw, Anggraini et al. 2016). Whom found the significant difference after hand washing using soap ($p = 0.002$) and after using hand rub ($p = 0.001$). The same result also found by Mona. Whom found the significant difference after washing 30 hands using soap ($p = 0.01$-0.03) and after using hand rub ($p = 0.002$) (Isnaw, Anggraini et al. 2016).

Each infection needs a medium, nurses, for its transmission; patient caregivers can be self-impacted and can also serve as a source of spread, particularly when treating patients without the use of standard antiseptic protocol. The probability of hospital acquired infections is greater when standard hygienic guidelines established to reduce the risk of spread of the infection are prevented. It is very important for all nurses to have adequate knowledge of hospital-acquired infection and to follow best procedures in order to avoid the spread of nosocomial infection in any health care environment in order to have a positive effect on the health of each patient in the hospital. Prolonged hospitalization is the final result of hospital-acquired infection. This is the primary duty of the health care provider to guarantee patients a healthy atmosphere, so all health care personnel involved in delivering patient care should be well trained in the management and prevention of hospital-acquired infection. (Moyo GM.2013.)

There is a risk of nurses gaining and transmitting Infections acquired by the hospital during nursing delivery Care; they should therefore have adequate information, Regulation and avoidance of infection spread and practice with infection. Application of standard precautions to avoid infection is an important part of Treatment in nursing. Health insurance has been recommended to Jobs should have a satisfactory standard of expertise. Proliferation of transmissible diseases. (Eskander HG 2015)

A study from Kenya revealed that 100% of respondents Hand hygiene practice; 87.8 percent by using water 12.2 percent of the participants indicated the soap and soap Alcohol-based hand rub was used during hand rubbing Sanitation. When observed for practice, however, the lower percentage (16.7 percent) of respondents performed prior to doing an operation, hand hygiene. A bigger one the proportion (100 percent) of hand hygiene carried out after Communication with

some contaminated products, for instance, after emptying a bag with a catheter. This shows that nurses are more worried about their lives than those of patients.(Mehta Y 2014)

The basic principle of cleaning and grooming is personal hygiene, and it is the initial step to good health. In addition, it is seen as one of the most essential components of our everyday lives at home and at work that helps us protect ourselves and keep us safe (Hassan, 2012). In order to preserve health and to manage many diseases, in particular infectious diseases, personal cleanliness is of great importance for personal comfort and psychological reasons, such as maintaining trust and self-esteem (Hutt, 2003). Aiello et al. (2008) added that personal cleanliness refers to activities or circumstances under which people safeguard or improve good health by keeping themselves and their environment clean.

Of the 35 million healthcare providers (HCPs) worldwide, almost 3 million are vulnerable to percutaneous blood-borne virus exposure every year; 0.2 million are susceptible to hepatitis B virus, 0.9 million to hepatitis C virus, and 170,000 to HIV. 15000 HCV, 70000 HBV and 500 HIV can result from these lesions. As estimated by the (WHO, 2003), over ninety percent of these infections occur in developing countries, nurses are the most vulnerable health care workers (HCWs) at extremely high risk of occupational hazards exposure by fifty percent due to needle prick injuries (Mohammad et al. 2011)

In 1988, the Center for Disease Control (CDC) advised the use of standard precautions to avoid occupational hazards from both known and unrecognized sources from these hand hygiene measures before/after touching each patient, the use of protective barrier equipment in compliance with the Standard Precautionary Policy (SPs) and the proper handling of infected equipment or surface treatment (CDC1988). In the same way, the WHO stressed primary steps to avoid workplace hazards, in particular because, relative to other occupational hazards, the

highest rate of fatal occupational injuries occurs in health care institutions. (Occupational Safety and Health Administration, 2013).

Several studies have been carried out worldwide on the adherence of healthcare staff (HCPs) to universal safeguards and safety measures that suggest the use of personal protective equipment (PPB) such as not recapping or bending needles, washing hands before/during medical care, or after contact with the environment of the patient, preventing the use of needles that are disjointed from a syringes (Jawaid et al., 2009, McGaw et al. 2012, Alice et al. 2013).

No research on the personal preferences and hygiene practices of students entering nursing education has been conducted in Nepal. The aim of this research was to examine the personal habits and hygiene behaviors of students entering nursing school. The purpose of this study was to evaluate the personal habits and hygiene behavior of first year students of the Bachelor of Nursing in Science (BSc) prior to their patient exposure. (Al-Rifaai JM 2018)

There remains, however, a need in the art for the provision of a methodology by which compliance with hand hygiene can be assessed and that will not interrupt or disturb the hospital or healthcare facility environment, which will be discreet and non-threatening to healthcare staff to the degree that the use of the methodology inside a hospital or similar is clear to the healthcare worries With state-of-the-art and currently existing hand sanitation dispensers working inside the hospital, it is easy to access and use. There is also a need for a methodology to track and evaluate hand hygiene enforcement that is capable of producing a performance index to allow comparisons between healthcare facilities, wards, divisions, and subdivisions of a similar nature, and that allows benchmarking to encourage the effectiveness of intervention programs to be analyzed.

A research examined healthcare professional views on the ability of technology to measure hand hygiene. It found that while current technologies are unable to detect all the WHO 5 Moments, healthcare professionals are interested in their ability to help measurement and compliance. However they raised questions about Fit for Purpose, anonymity and resistance, and over-reliance on technology and habituation. Interestingly participants indicated that hand hygiene across all WHO 5 Moments is not comparable, expecting higher levels of adherence to Moments 2 and 3 than Moments 1, 4 and 5. Study 3 discussed this, investigating the theory of Innate and Elective hand hygiene behaviour. Inherent can be related to Moments 2 and 3, by behaviors likely to stimulate an involuntary "disgust" reaction within humans. Hand hygiene was substantially lower when healthcare professionals conducted Elective rather than Intrinsic behaviors

Hand Hygiene in the health care environment has been advocated for decades and is recommended as the single most effective method for preventing the spread of infection. Therefore, Hand hygiene involves hand washing which is an act of washing hands with soap and water for 15 seconds before and after providing patient care to avoid nosocomial infection. According to WHO 5 moments of hand hygiene involves before touching a patient, before clean aseptic treatment, after body fluid exposure/risk, after touching a patient and after touching patient's surroundings.

A study conducted by Leena Kunnath Chacko(2014) on awareness and practice of personal hygiene among nursing students at Mangalore, India. 200 students were chosen by using disproportionate stratified sampling technique. In this analysis, standardized information questionnaire and self- reported practice checklist was used. Result showed that majority 151 (75.5 percent) had strong information about and majority 145 (72.5 percent) had better practice of hand hygiene. (Leena Kunnath Chacko 2014)

Health care related infections continue as a big problem in most Intensive Care Units. Hand hygiene is the most basic and efficient approach for the avoidance of these. So evaluate the reported hand hygiene activities and observing is very much important to figure out holes, prepare remedial action to reduce HAIs. From this point of view the researcher decide to measure the hand hygiene practices among HCWs. This research is performed in Cardiac Surgical ICU SCTIMST(Maharastra, 2015)

Thakker Vaishnavi conducted a cross- sectional study on knowledge of hand hygiene in Navi, Maharastra, 2015. 198 samples (84 medical, 74 dental and 40 nursing undergraduate students) were selected by purposive sampling technique. World Health Organization hand hygiene questionnaire was used and result shows that, 7.5 percent (15) had good knowledge, 69.1 percent (137) had moderate knowledge and 23.4 percent (46) had poor knowledge. (Thakker Vaishnavi 2015)

Syed Esam Mahomood, conducted a cross sectional study on hand hygiene practices and knowledge among 50 nursing students of Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India. In this study, self-structured questionnaire was used and the result shows that majority 36 (72 percent) had good knowledge of hand hygiene and 38 (75 percent) was considered to have good experience of hand hygiene. (Mahmood SE, (2017).

The analysis showed that there is a difference between the opinion and the habits of hand hygiene among health care workers. The overall observed enforcement was 67.08 percent (75 HCWs are included in observation study, 111 number of opportunities are given only 76 opportunities of hand hygiene being performed (75 HCWs are included in observation study, 111 number of opportunities are given only 76 opportunities of hand hygiene being performed). The physiotherapist shows higher enforcement rate (78 %). (78 %). The nurses and residents shows 68 percent and the technician and unit helper’s shows low rate (60 %). (60 %). The reported

hand hygiene compliance among HCWs was above 90 percent (Questionnaire provided to 50 HCWs they were may or may not be included in observation study).Nurses reported 98 percent compliance rate technician reported 81 %. (Hugonnet S 2012)

Gilbert et al (2010) conducted a study to assess the hand hygiene practices among health care workers in Atlana Vetrence Affairs Medical center, to ascertain any differences in hand hygiene compliance rates for HCW between patients in touch precaution and those not in any isolation. The research was performed in a hospital's medical (MICU) and surgical (SICU) intensive care units, a qualified observer specifically observed hand hygiene by the type of room (contact precaution or non-contact precaution) and the type of HCW (nurse or doctor) (nurse or doctor). The outcome of the analysis was that the SICU had similar enforcement rates (36/75 [50.7 %] in touch precaution rooms vs. 223/431 [51.7 %] compliance in non-contact precaution rooms, P > .5); the MICU also had similar hand hygiene compliance rates (67/132 [45.1 percent] in contact precaution rooms vs. 96/213 [50.8 %] in noncontact precaution rooms, P > .10. (Gilbert et al 2010)

Hand hygiene enforcement rates stratified by HCW were identical with 1 exception. The MICU nurses had a higher rate of hand hygiene enforcement in touch precaution rooms than in rooms with non-contact precautions (66.7 percent vs. 51.6 % , respectively) (66.7 % vs. 51.6 percent , respectively Finally the authors concluded that Compliance with hand hygiene among HCWs did not vary between touch 10 precaution rooms and rooms with non-contact precautions with the exception of the nurses in the MICU. (Ahamed 2011)

Goswami Kumaril and Baruah Rupali conducted a cross-sectional study on awareness, attitude and practice of hand hygiene among 120 (60 medical and 60 nursing students) Guwahati medical college and hospital, 2015. Structured and self-administered questionnaire was used and the result showed that majority 70 (58 percent) of medical students and 84 (70 percent) of nursing

students had strong knowledge, 50 (42 percent) of medical student and 36 (30 percent) of nursing student had bad knowledge. Majority 92 (77 percent) of medical students and 72 (60 percent) of nursing student had poor practice of hand hygiene, 28 (23 percent) of medical students and 48 (40 percent) of nursing students had good practice of hand hygiene. (Kumaril G, 2016)

Hand hygiene being one of the most simplest and basic technique is known to be one of the most successful methods to obviate infection but the compliance rates by students and health care staff are reported to be poor. Also, there is no research conducted in north-eastern region particularly in Sikkim among the nursing students on hand hygiene. So, the investigators felt a need to conduct study on assessment of knowledge and practice of hand hygiene among nursing students, this will allow them to know whether knowledge and practice is going hand in hand or knowledge has improved their practice and is it continuing or not in the course of their time.

In order to assess the baseline compliance and evaluate the attitudes and beliefs about hand hygiene of HCWs in intensive care units (ICUs) at KCMH, Patarakul (2015) et al, conducted an observational review. Observed enforcement of HCWs in ICUs with hand hygiene prior to eight hours of patients contact. A self-administered questionnaire was used to assess attitudes and beliefs about hand hygiene for two weeks. The outcome of the analysis was that the overall enforcement of hand hygiene obtained from this retrospective study was less than 50 % and varied significantly between different professional groups of HCWs. Patient needs viewed as a priority (51.2%) were the most common explanation for non-compliance in the questionnaire-based sample, followed by forgetfulness (35.7%) and skin irritation by hand-hygiene agents (15.5 %). Subjects assumed that various interventions like low annoying hand-hygiene agents (53.4 percent), current nosocomial infection rate data (49.1 percent), and readily accessible hand-hygiene supplies enhanced their compliance (46.3 %). Nearly all subjects (99.7 %) claimed to

know the right techniques of hand-hygiene. The best method of hand decontamination was considered to be hand washing with medicated soap (37.8 %). The authors concluded that HCWs and tourists are unacceptably poor in hand-hygiene compliance. The multimodal and multidisciplinary approach needs to strengthen their awareness, behaviors, and values about hand hygiene. (Patarakul 2015)

A research to evaluate the practices of hand hygiene in a neonatal intensive care unit in Ghana was conducted by Asare A et al (2009). Unobtrusive observation by nurses and physicians attending randomly selected newborns for five hours daily for two weeks of patient touch, hand hygiene procedures, and hand washing technique. Categorized as low-risk or high-risk patient touch. Before and after patient touch, hand hygiene procedure is categorized as clean uncontaminated, clean decontaminated, fresh gloves, unchanged gloves. Compliance with evaluated use of alcohol rub. The outcome of the research was that the ratio of patients to nurses/physicians ranged from 9:1 to 12:1. 97 patient encounters were registered, of which 49 were high-9 and 48 low-risks, respectively. Most patient communications (73 %t) came from nurses. Before and after patient contact, compliance with hand hygiene guidelines was 15.4 % versus 38.5 percent for physicians and 14.1 percent versus 9.9 percent for nurses. Gloves were used for 60.8% of patient contacts (85.7 % high-risk, 35.4 percent low-risk), but only 12.2% of high-risk contacts and none of the low-risk contacts were consistent with the prescribed protocol. In 43.7 % of high-risk contacts and 88.2 % of low-risk contacts, gloves did not differ between patients. The protocol of hand washing was usually followed. Alcohol was still used for hand rubbing but was not used for hand hygiene. The investigator concluded that physicians and nurses' compliance with hand hygiene was poor. Based on recommended recommendations, gloves and alcohol rub were not used. It is recommended to integrate productive education

services that promote compliance with hand hygiene standards into the health professionals' continuing education curriculum. (Asare A et al 2009).

There are hints in the literature that the reason for HH practice is always one of self-protection. Study results suggest that HCPs have higher HH compliance rates after performing patient care procedures than before performing care procedures. This behavior indicates that HCPs are more likely to conduct HH out of fear for their own health, as opposed to concern of transmission of HAIs to patients. These results are consistent with the understanding that driving factors for HH practice are HCPs' assessments of risk-to-self and considerations for self security (Erasmus et al., 2010)

CHAPTER-3

MATERIALS AND METHODS

STUDY DESIGN

Assessment of knowledge and practices regarding hand hygiene among health care workers is a Quantitative Cross-Sectional Descriptive Study b. A cross-sectional study was conducted to analyze the collected data from the study population (health care workers) at specific time.

STUDY DURATION:

Study was conducted in the time period of 6 months after approval of synopsis.

Research site:

This Study was carried out at Bahria international Hospital Lahore which is located in Bahria town at Takbeer block and university of Lahore hospital located on Rewind road. Nurses Staff of these hospitals are well skilful. Both hospitals are well equipped laboratories. Patient came to

these hospitals from different areas of Lahore. In this study data was be collected from patients who were come from different area of Lahore.

SETTINGS

The study was conducted in Bahria international hospital which is well ventilated University of Lahore teaching Lahore.

Sample Size:

Sample size will be drawn by applying sloven's formula

If N=Population, n=Sample size, E= Margin of error

n=N/1+ (N) (E) 2

n=260/1+ (260) (0.05) 2

n=260/1+ (260) (0.0025)

n= 260/1+0.75

n= 260/1.75

n=148

My sample size is 148

Sampling Technique:

Convenient sampling technique was used in this research study.

Inclusion criteria:

The subject who is included in the study were:

- Those health workers specially staff nurses who were present at that time.
- Those health workers who had interest to participate were included in the study.
- Those health workers who had experience more than one year.

Exclusion criteria:

The subjects who are excluded from the study were:

- Those health workers specially staff nurses who were not present at that time.
- Those health workers who had no interest to participate were excluded from the study.
- Those health workers who had experience less than one year

RESEARCH TOOL

Closed ended and likert scale questionnaire was used for the Assessment of knowledge and practices regarding hand hygiene among health care With the response of Yes or no, the likert scale questionnaire consist of agree, strongly agree, neutral, disagree and strongly disagree. Questionnaire was used in previous study Mahadeo B Shinde, Vaishali R Mohite (2014) A Study to Assess Knowledge, Attitude and Practices of Five Moments of Hand Hygiene among Nursing Staff and Students at a Tertiary Care Hospital at Karad International Journal of Science and Research. The main instrument for Information was questionnaire adopted from the previous research. The questionnaires were divided into two sections. Section 1 comprised of demographic information of respondents; Section two variables of the study this study.

ETHICAL CONCEDRATION

Written informed consent attached was taken from all the participants. All information and data collection was kept confidential.

Participants were remaining anonymous throughout the study.

The subjects will be informed that there are no disadvantages or risk on the procedure of the study.

They were also informed that they will be free to withdraw at any time during the process of the study.

Data was kept in under key and lock while keeping keys in hand. In laptop it will be kept under password.

DATA COLLECTION PROCEDURE

After taking informed consent, data collected by the researcher with the questionnaire.

Data were collected according to the variables of the questionnaire which are as follows.

Demographics data taken from the participants

Question asked according to variables of the study

Variables of the study:

Independent variable:

Health care workers

Dependent variable:

Knowledge and practice

DATA ANALYSIS PROCEDURE

Data analysis of variables was done on SPSS 20.0. For quantitative test mean standard deviation was calculated and for qualitative data frequency percentage were calculated. Data was shown in graphs and tables.

CHAPTER 4

RESULTS

This chapter includes 3 portions of analysis. First analysis was demographic analysis. It gives us details of demographic questions. Descriptive analysis was used for 2 variables knowledge, and practice. It tells us judge the knowledge, and practices of regarding hand hygiene among health care workers in private hospitals, Lahore.

Table 1

Gender

Gender	Frequency	Percent
Male	80	54.1
Female	68	45.9
Total	148	100.0

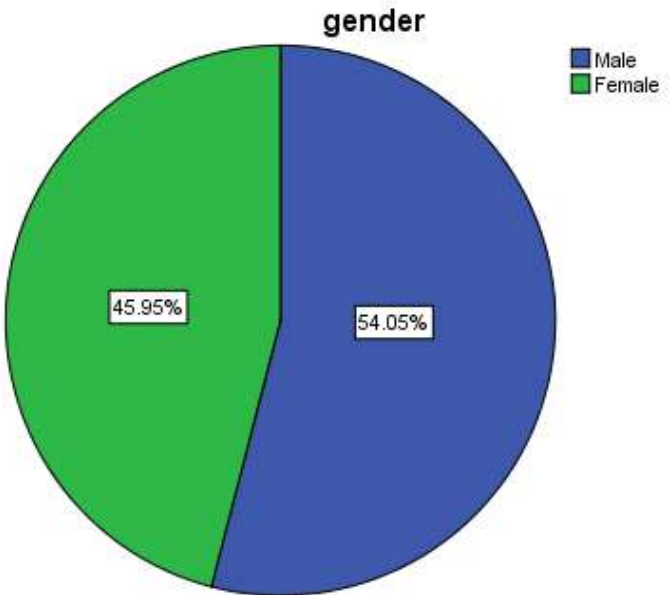


Figure 1

The above table and figure 1 show the total number of male and female, in which male were 54.05% and female were 45.95%.

Table 2
Qualification

Qualification	Frequency	Percent
General Nursing	41	27.7
Post RN	50	33.8
BSN	57	38.5
Total	148	100.0

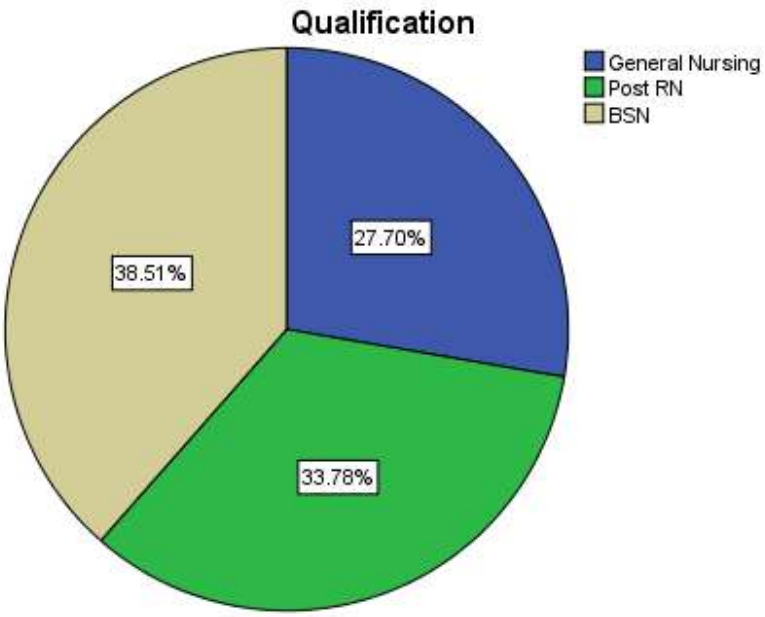


Figure 2

The above table and graph number 2 shows the qualification of the participant. In which General Nurses were 27.70%, Post RN were 33.78% and BSN were 38.51%

Table 3
Age

Age	Frequency	Percent
<20 year	12	8.1
20-25 years	46	31.1
>25 years	90	60.8
Total	148	100.0

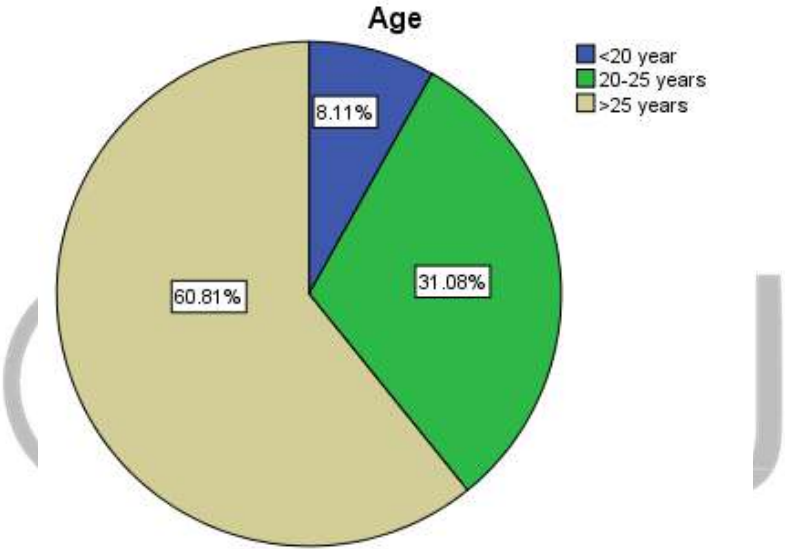


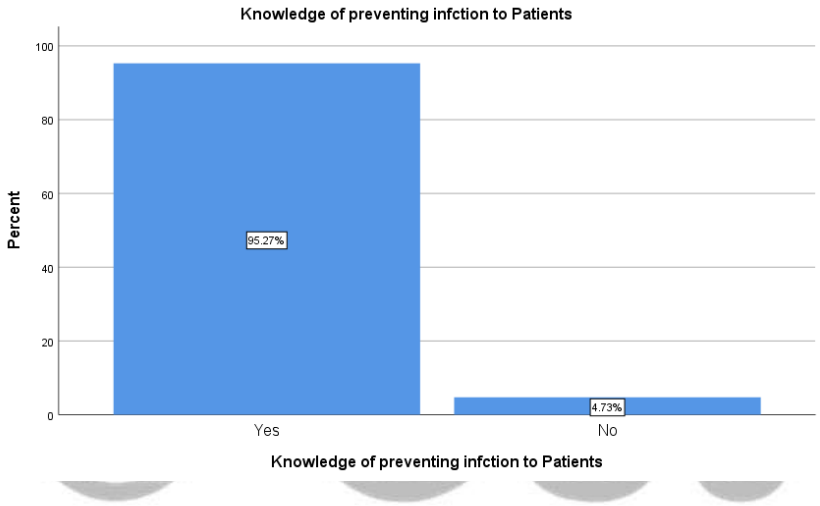
Figure 3

The above table and figure number 3 show the age of the participant in which 8.11% participants age were below 20 years, 20-25 years of participants were 31.08% and above 25 years participants were 60.81%.

Table 4

Knowledge of preventing infection to Patients

	Frequency	Percent
Yes	141	95.3
No	7	4.7
Total	148	100.0

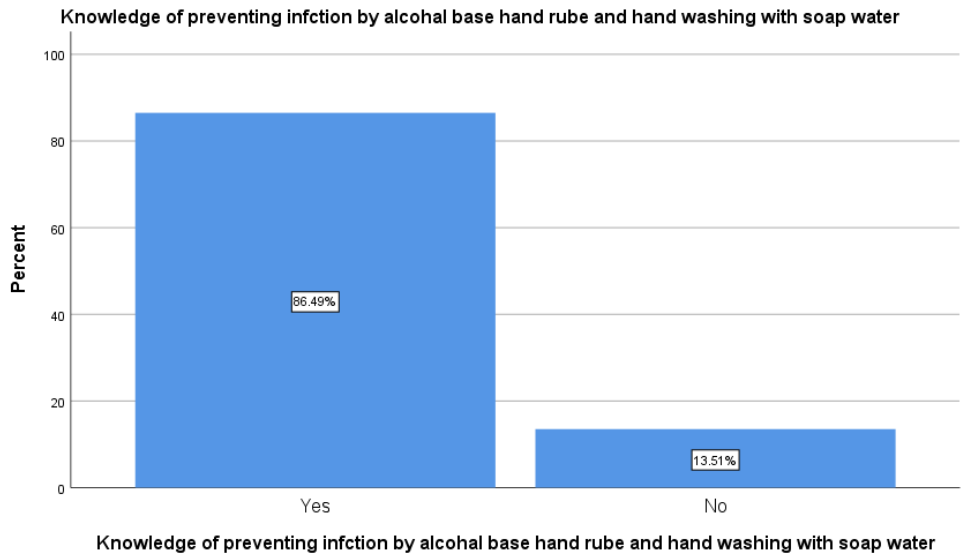


The above table and graph show the response of the participant in which 95.3% Participant response to YES and 4. 73% participants' response to NO about **Knowledge of preventing infection to Patients**

Table 4

Knowledge of preventing infection by alcohol base hand rube and hand washing with soap water

	Frequency	Percent
Yes	128	86.5
No	20	13.5
Total	148	100.0



The above table and graph show the response of the participant in which 95.49% Participant response to YES and 13. 51% participants' response to NO about **Knowledge of preventing infection by alcohol base hand rube and hand washing with soap water**

Table 5

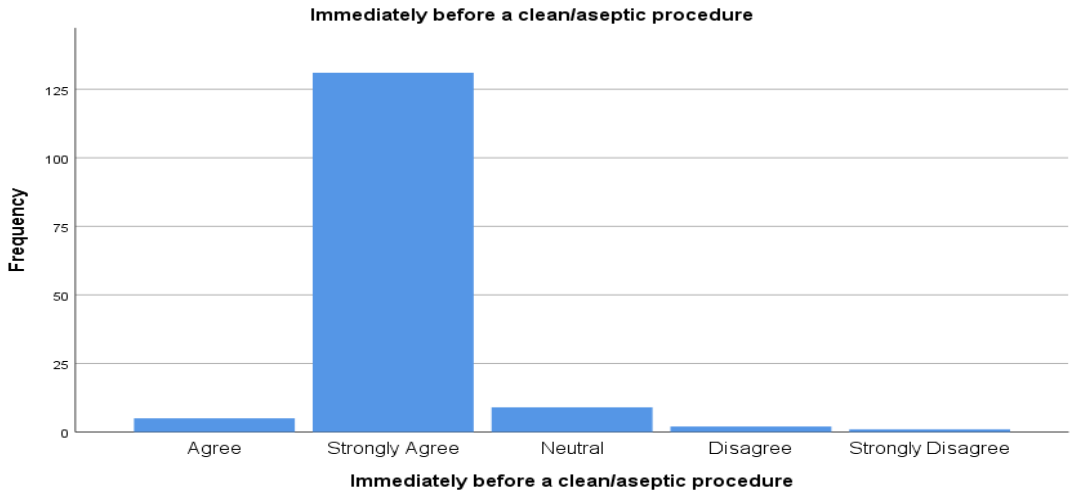
Knowledge of preventing infection to health worker		
	Frequency	Percent
Yes	141	95.3
NO	7	4.7
Total	148	100.0

The above table and graph show the response of the participant in which 95.3% Participant response to YES and 47. 51% participants' response to NO about **Knowledge of preventing infection to health worker**

Table 6

Immediately before a clean/aseptic procedure		
	Frequency	Percent
Agree	5	3.4
Strongly Agree	131	88.5
Neutral	9	6.1

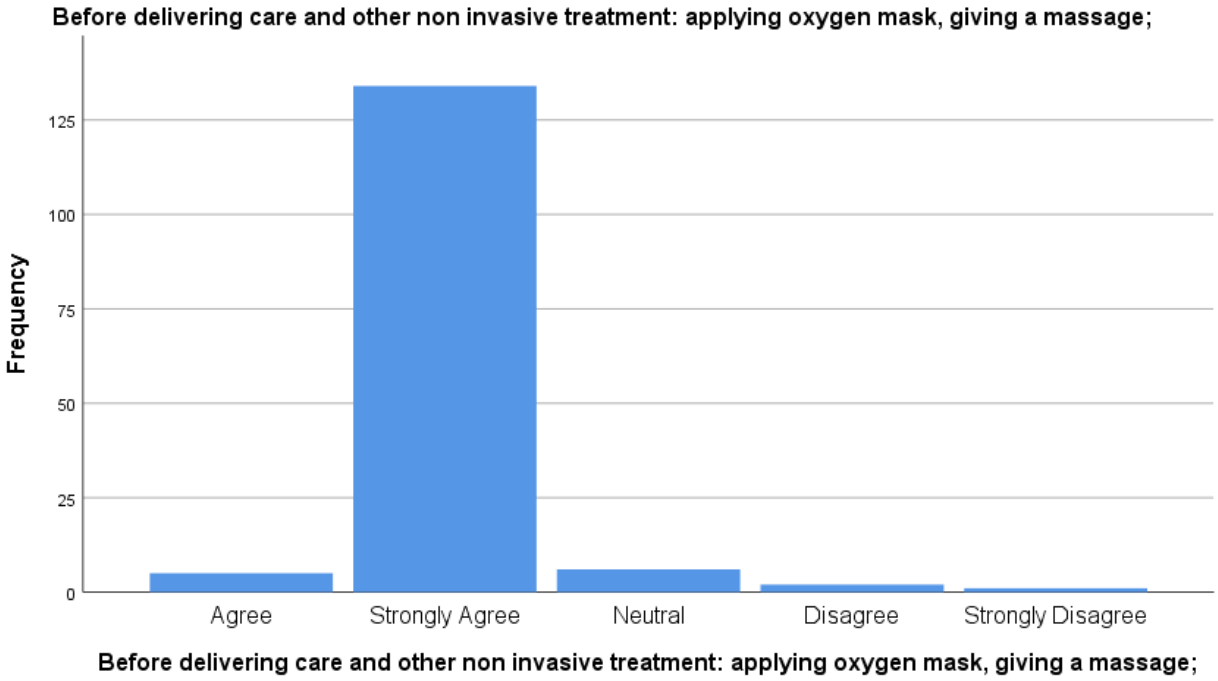
Disagree	2	1.4
Strongly Disagree	1	.7
Total	148	100.0



The above table and graph show the response of the participant in which 3.4 % Participant response to Agree, and 88.5% participants' response to Strongly Agree, 6.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **Immediately before a clean/aseptic procedure.**

Table 7

Before delivering care and other noninvasive treatment: applying oxygen mask, giving a massage;		
	Frequency	Percent
Strongly Agree	134	90.5
Neutral	6	4.1
Disagree	2	1.4
Strongly Disagree	1	.7
Total	148	100.0

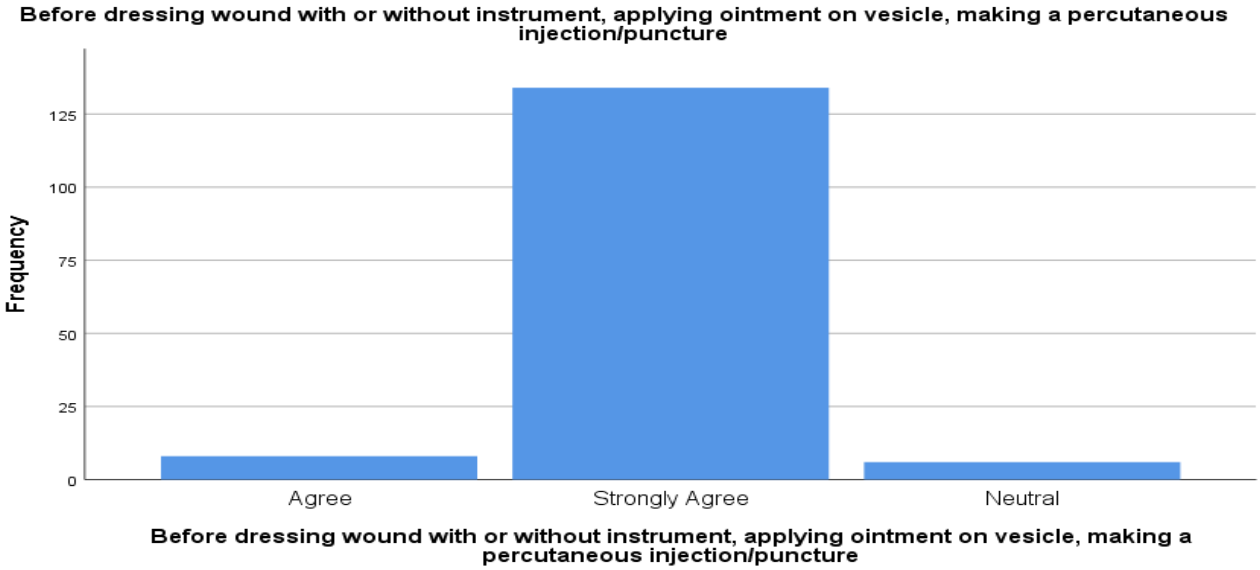


The above table and graph show the response of the participant in which 3.4 % Participant response to Agree, and 90.5% participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **before delivering care and other noninvasive treatment: applying oxygen mask, giving a massage**

Table 8

Before dressing wound with or without instrument, applying ointment on vesicle, making a percutaneous injection/puncture		
	Frequency	Percent
Agree	8	5.4
Strongly Agree	134	90.5
Neutral	6	4.1
Disagree	2	1.4
Strongly Disagree	1	.7

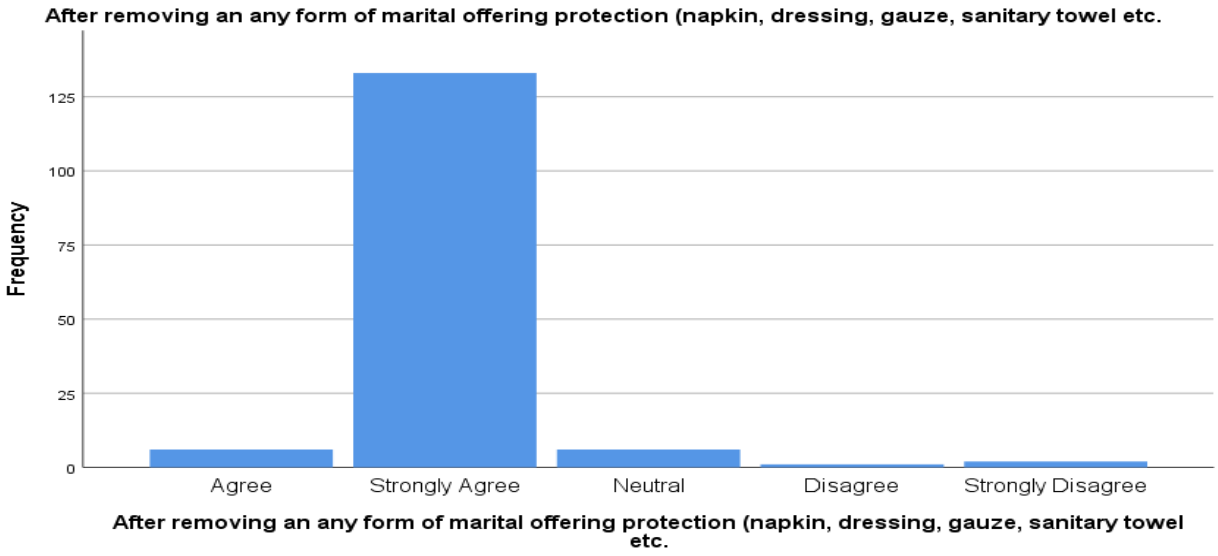
Total	148	100.0



The above table and graph show the response of the participant in which 5.4 % Participant response to Agree, and 90.5% participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **before dressing wound with or without instrument, applying ointment on vesicle, making a percutaneous injection/punctur**

Table 9

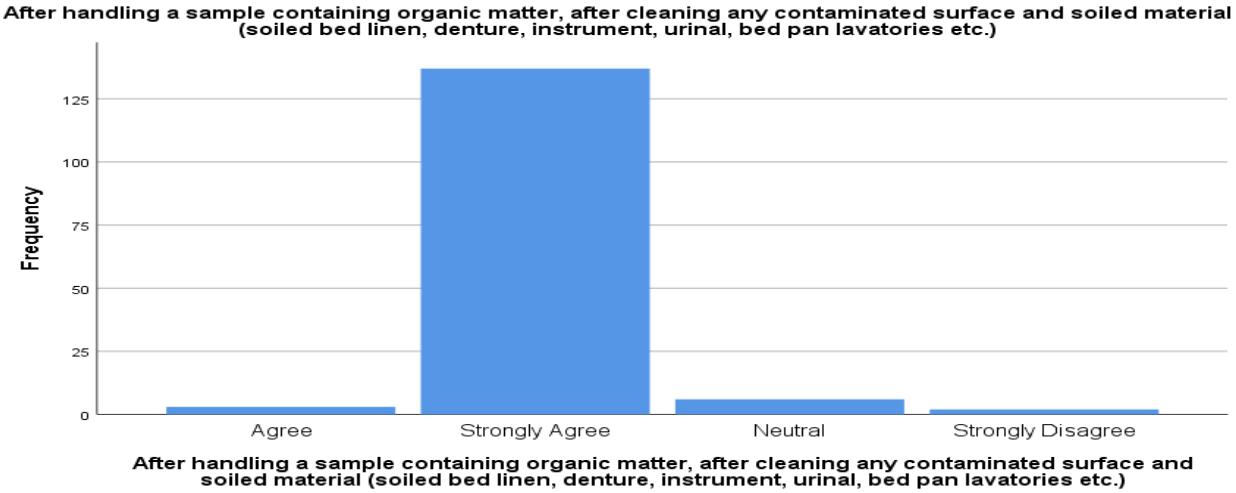
After removing an any form of marital offering protection (napkin, dressing, gauze, sanitary towel etc.		
	Frequency	Percent
Agree	6	4.1
Strongly Agree	133	89.9
Neutral	6	4.1
Disagree	1	.7
Strongly Disagree	2	1.4
Total	148	100.0



The above table and graph show the response of the participant in which 4.1 % Participant response to Agree, and89.9 % participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **after removing any form of marital offering protection (napkin, dressing, gauze, sanitary towel etc**

Table 10
After handling a sample containing organic matter, after cleaning any contaminated surface and soiled material (soiled bed linen, denture, instrument, urinal, bed pan lavatories etc.)

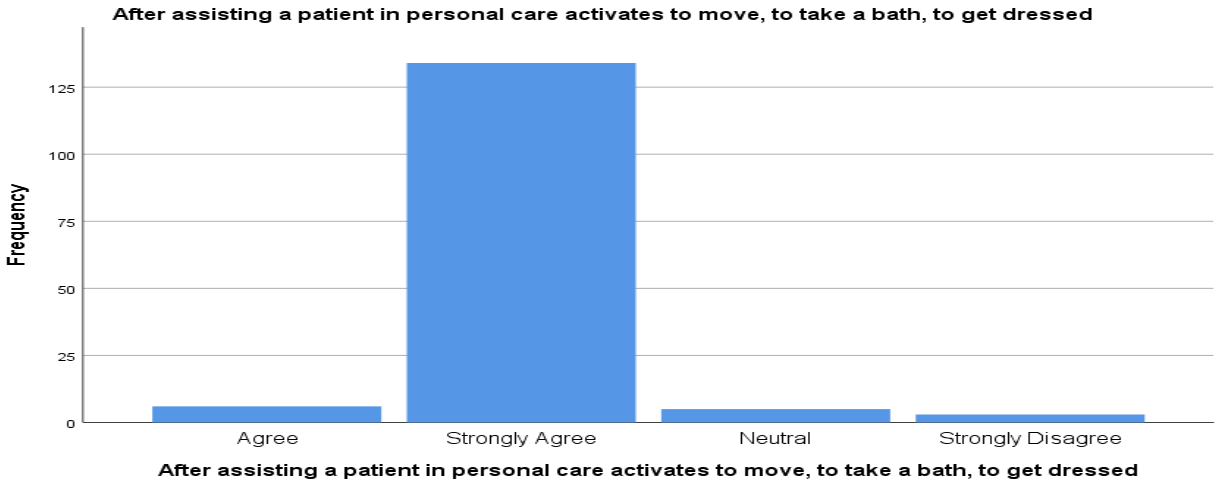
	Frequency	Percent
Agree	3	2.0
Strongly Agree	137	92.6
Neutral	6	4.1
Disagree	2	1.4
Strongly Disagree	2	1.4
Total	148	100.0



The above table and graph show the response of the participant in which 2.0 % Participant response to Agree, and 92.6 % participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and 1.4 % participant's response to Strongly Disagree. NO about **an after handling a sample containing organic matter, after cleaning any contaminated surface and soiled material (soiled bed linen, denture, instrument, urinal, bed pan lavatories etc.)**

Table 11

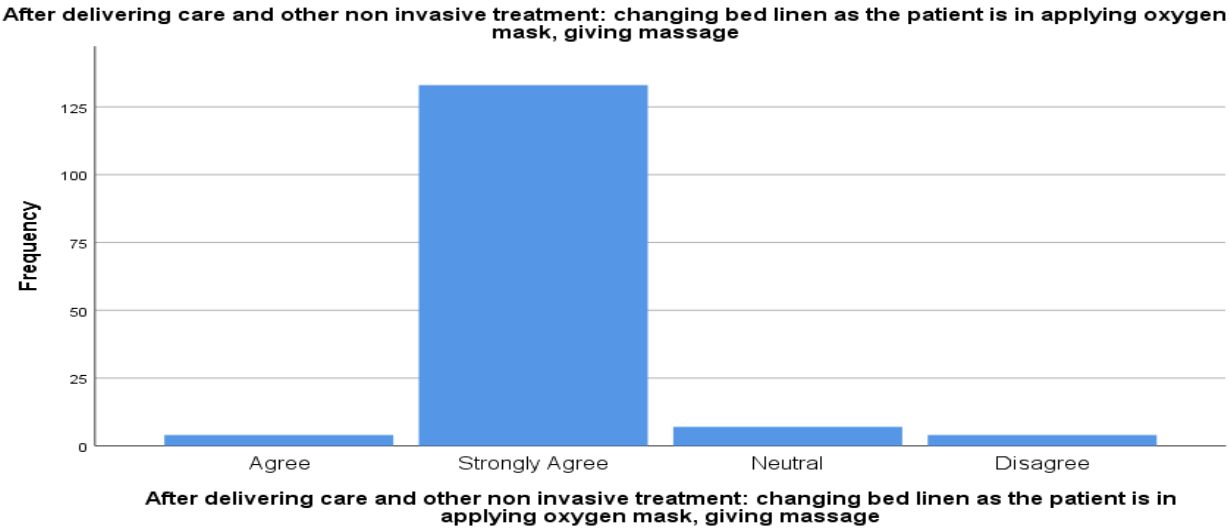
After assisting a patient in personal care activates to move, to take a bath, to get dressed		
	Frequency	Percent
Agree	6	4.1
Strongly Agree	134	90.5
Neutral	5	3.4
Disagree	2	1.4
Strongly Disagree	3	2.0
Total	148	100.0



The above table and graph show the response of the participant in which 4.1 % Participant response to Agree, and 90.5 % participants' response to Strongly Agree, 3.4% participants response to Neutral, 1.4% participant's response to disagree and 2.0 % participant's response to Strongly Disagree. NO about **after assisting a patient in personal care activates to move, to take a bath, to get dressed**

Table 12

After delivering care and other noninvasive treatment: changing bed linen as the patient is in applying oxygen mask, giving massage		
	Frequency	Percent
Agree	4	2.7
Strongly Agree	133	89.9
Neutral	7	4.7
Disagree	4	2.7
Strongly Disagree	4	2.7
Total	148	100.0



The above table and graph show the response of the participant in which 2.7 % Participant response to Agree, and 89.9 % participants' response to Strongly Agree, 4.7 % participants response to Neutral, 2.7 % participant's response to disagree and 2.7 % participant's response to Strongly Disagree. NO about **after delivering care and other noninvasive treatment: changing bed linen as the patient is in applying oxygen mask, giving massage**

`CHAPTER 5

DISCUSSION

`A cross sectional analytical study perform in Bahria International Hospital and University Of Lahore Teaching Hospital for the purpose of to assess knowledge, and practice of the health care worker towards hand hygiene among 148 health care workers. The results of this study show that 54.05% male participants and female were 45.95%.The majority participants have good practice and have good knowledge about hand hygiene and prevention of infection and some participants have no knowledge about this. This study also shows qualification of the participants In which General Nurses were 27.70%, Post RN were 33.78% and BSN were 38.51%. this study also

show the age of the participants in which 8.11% participants age were below 20 years, 20-25 years of participants were 31.08% and above 25 years participants were 60.81%.

The participant's response to Yes were 95.3%, response to no and 47.51 % participant's response to don't know. In another variable which are 'Knowledge of preventing infection by alcohol base hand rube and hand washing with soap water'. The participant's response to yes were 95.49% 13.51% response to NO. In another variable which are **Knowledge of preventing infection to Patients**. The respondent response to this variable was 95.3% participants were score to yes, 4.0%participants score to No.

A study conducted in (2012) which state that most of the health care worker which do not care of their self because of burden which affect their health. Due to overcrowded in wards health care workers do not perform proper HH. the participant in which 95.49% Participant response to YES and 13. 51% participants' response to NO about **Knowledge of preventing infection by alcohol base hand rube and hand washing with soap water**

Another study conducted a survey of physician practices, beliefs, and attitudes toward hand hygiene. They found that physician compliance with hand hygiene was largely a function of their environmental context, social pressure, perception of risk of cross-contamination, and a positive attitude toward hand hygiene itself. Our study confirmed these findings but explored each determinant in more detail to create specific beliefs around them that can be used in future intervention studies to improve compliance. In another variable response of the participant in which 95.3% Participant response to YES and 47. 51% participants' response to NO about **Knowledge of preventing infection to health worker.** Memory, attention, and decision processes were also important to hand hygiene compliance in this study. It is commonly assumed that all healthcare workers, including nurses, perceive hand hygiene as a routine procedure to carry out when providing patient care; our findings did not support this. In fact, the majority of

the physicians interviewed felt hand hygiene required a conscious decision and that reminders to practice hand hygiene were necessary. in previous studies that examined the effectiveness of reminders alone to improve physician hand hygiene compliance. However, some studies have found multimodal interventions (which included a reminder component) to be successful. In another variables the response of the participant in which 3.4 % Participant response to Agree, and 88.5% participants' response to Strongly Agree, 6.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **Immediately before a clean/aseptic procedure.**

In a similar qualitative study conducted with nurses, found that hand hygiene was largely a routine and automatic process. Social influences, particularly of patients and colleagues, were important considerations to physicians in their hand hygiene practice. We located no previous work that investigated the role of patient expectations on physician (or any healthcare providers') hand hygiene behavior.

One study examining this influence on nursing hand hygiene did not show patient expectations to be a consideration. Future exploration of the role of patients in influencing physician hand hygiene would be a fruitful avenue for research. There is evidence that supports the influence of colleagues on hand hygiene compliance. Role models are known to play a central role in changing physician behavior generally and to improve physician hand hygiene compliance specifically yet they are seldom used in interventions to change physician hand hygiene. Similar to role models is the concept of positive deviance, which refers to a social and behavioral change process based on the premise that in most organizations there are people who solve problems better than colleagues with the exact same resources. Positive deviance has been used successfully in several studies to improve healthcare providers' hand hygiene compliance rates. the response of the participant in which 3.4 % Participant response to Agree, and 90.5%

participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **before delivering care and other noninvasive treatment: applying oxygen mask, giving a massage**. A study show that 50% participants do not know perform hand hygiene before touching the patients, 30% people properly perform hand hygiene and 205 participants perform care once a day. Study also shows that some health care worker have good knowledge and had good practice. They perform hand practice daily before any procedure. (Mahamoud K., 2012).

In another variables show the response of the participant in which 5.4 % Participant response to Agree, and 90.5% participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **before dressing wound with or without instrument, applying ointment on vesicle, making a percutaneous injection/puncture.** In another study, fewer surgery than medicine physicians stated that other team members influenced their hand hygiene practice. This may be due to sample size but may also be explained by the nature of the work of the 2 specialties investigated in this study. For example, surgeons are required to work more independently than are medicine physicians (who tend to work more in teams); therefore, surgeons may look less on their colleagues for examples of how to practice. System constraints (environmental context and resources) were consistently and frequently expressed as important barriers and enablers to hand hygiene compliance. A dominant theme across almost all (98%) participants was the importance of easy access to hand hygiene resources at the point of patient contact. This is consistent with previous studies of physician hand hygiene in hospitals generally2,6 and in specialty (intensive care) units 37 indicating that there may be some behavioral determinants of physician hand hygiene compliance that are common across hospital specialties.

The above table and graph show the response of the participant in which 4.1 % Participant response to Agree, and89.9 % participants' response to Strongly Agree, 4.1 participants response to Neutral, 1.4% participant's response to disagree and .7% participant's response to Strongly Disagree. NO about **after removing any form of marital offering protection (napkin, dressing, gauze, sanitary towel etc.**

CHAPTER 6

CONCLUSION

The purpose of this study was to assess knowledge, and practice among health care worker at BIHL and UOLH among 148 health care workers. The participants mostly have good practice about hand hygiene and perform daily before patients touch, contact with patient environment and or perform any other procedure and mostly participants have good knowledge about hand hygiene.

LIMITATIONS OF THE STUDY:

Limitations of the study were following

- Lees sample size 148 due to which we cannot generalize this study on whole population.
- One of limitations of is study was lack of time
- Convenient sampling technique was used which often suffer from biasness

RECOMMENDATION

- It is necessary for a health care worker to perform hand hygiene before and after performing any procedure.

- It is compulsory for every organization to provide knowledge to their health care workers about the spread of infections and importance of hand hygiene to prevent spreading infections.
- The researcher suggest more strategies about good practice of the hand hygiene for future researchers to identify the gap and to provide more knowledge about hand hygiene.

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QUESTIONAIR

Demographics (Include your demographic statements like this)

Organization		**Occupation**	
Gender	□ Male □ Female	**Marital Status**	□ Married □ Single
Age Group	□ Less than 20 years □ 20 yrs to 25 years □ Above 25 years	**Qualification**	□ General nursing □ Post RN □ BSN MBBS

Variables of the study

S.N	Variables	Yes	No
	Which of the following hand hygiene actions prevents transmission of germs to the patient?		
1	Before touching a patient	Yes	No
2	Immediately after risk of body fluid exposure		
3	After exposure to immediate surroundings of a patient		
4	Immediately before a clean/aseptic procedure		
	Which of the following hand hygiene actions prevents transmission of germs to the health care worker?		
5	After touching a patient		
6	Immediately after a risk of body fluid exposure		
7	Immediately before a clean/aseptic procedure		

8	After exposure to the immediate surroundings of a patient		
	Which of the following statements on alcohol-based hand rub and hand washing with soap and water is true?		
9	Hand rubbing is more rapid for hand cleansing than hand washing		
10	Hand rubbing causes skin dryness more than hand washing		
11	Hand rubbing is more effective against germs than hand washing		
12	Hand washing and hand rubbing are recommended to be performed in sequence		

Variables of the study

	Variables of practice among health care workers					
13	Before delivering care and other non invasive treatment: applying oxygen mask, giving a massage;	**Agree**	**S.A**	**N**	**D.A**	**S.D.A**
14	Before dressing wound with or without instrument, applying ointment on vesicle, making a percutaneous injection/puncture					
15	After removing an any form of marital offering protection (napkin, dressing, gauze, sanitary towel etc.					
16	After handling a sample containing organic matter, after cleaning any contaminated surface and soiled material (soiled bed linen, denture, instrument, urinal, bed pan lavatories etc.)					
17	After assisting a patient in personal care activates to move, to take a bath, to get dressed					
18	After delivering care and other non invasive treatment: changing bed linen as the patient is in applying oxygen mask, giving massage					
19	After performing physical non invasive examination: taking pulse, blood pressure, chest auscultation, recording ECG					
20	After touching patient surroundings					
21	After an activity involving physical contact with patient immediate environment: changing bed linen with the patient out of the bed. Holding a bed trail, clearing a bed table					
22	After a care activity: adjusting perfusion speed, clearing a monitoring alarm					

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