Study of Knowledge Attitudes and Practices among Health Workers towards Hand Hygiene in Khartoum North Teaching Hospital

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Abstract: The study was conducted in Khartoum North teaching hospital to assess the knowledge, attitude and practice among the workers towards hand hygiene. Hand hygiene formulates major health diseases to the health workers as well as patients; particularly nosocomial and infection diseases. This emphasizes the role of awareness as a crucial element in hand hygiene management program. The study aimed at conducting and assessing health workers awareness towards hand hygiene, to encourage health workers to protect themselves from the diseases and prevent patients from nosocomial diseases and infections, and to improve good quality of hand hygiene practice. A sample size of 152 targeted health workers include; Nurses, Sisters, Laboratory technicians and X-ray technicians taken according to the load of the health staff.

The methods used in this study, comprehensive questionnaire to evaluate the knowledge, attitude and practice of the health workers towards hand hygiene. In addition, to Observation of all departments of target hospital by checking the availability of hand hygiene facilities and scanning the practice of health workers on hand hygiene. Data collected was analyzed using column test and chi square test by computer using SPSS Program.

The results studies of hand hygiene, in the knowledge of the respondents, as regards Our study shows that 65.1% of the respondents attend according to the Training or seminars of hand hygiene taken in previous three years. According to the attitude of the respondents shows 100% of the target population believes that Hand hygiene is protective to health care workers. And lastly practice of the respondents shows 70.4% of health staff usually practice hand hygiene before patient contact and 82.2% usually practice after patient contact. The study recommended producing of training program for all health workers involved in health care of the target hospital and rising the knowledge of health workers towards hand hygiene; and to improve existing knowledge, attitude and practice of hand hygiene and to establish simple applicable health facilities for health workers in all departments. Further studies are needed to determine appropriate methods of hand hygiene knowledge, attitude and practice of the hospitals.

Key words: hand hygiene, health workers, teaching hospital

Introduction

Hand hygiene is a term that means a process for the removal of both dirt and germs from the hands. This can be accomplished by using soap and running water as hand washing or by using an alcohol hand rub as hand disinfection. Hand washing is the single most important method of preventing the spread of infectious diseases. Alcohol-based hand rubs have been proven to increase hand hygiene in health care settings. Most health care settings now have alcohol hand rubs readily available for use by visitors and patients, as well as staff. Since bacteria and viruses can be picked up from surfaces such as handrails, doorknobs, and elevator buttons, and can even be acquired from shaking hands, it is a good idea to have them widely available in many public settings, including workplaces.

Compliance with such hand hygiene procedures by health care workers (HCWs) continues to be poor and their adherence to hand washing practices had remained low at 20-50%. It varies between different hospitals wards, among professional categories of HCWs and according to working conditions.(1)

Unfortunately, in health care, compliance with hand hygiene Practices has been below an acceptable level. One study aimed to measure medical staff_ attitude towards hand hygiene; this showed compliance rates of hand cleaning of less than 50%.
Another study done on a similar topic showed a compliance rate of 63%. These studies demonstrate that hand hygiene practices are below an acceptable level. So failure to perform appropriate hand hygiene either by washing or disinfection by any means or technique is considered to be the leading cause of infection.

Many studies in this domain have been carried out in the West, but sparse data is available from any developing country. A study performed to assess the awareness of use of alcoholic formulation among intensive care unit (ICU) workers in 3 Sudanese tertiary hospitals show that it was low (2.8%). The majority of ICU workers reported that hand hygiene materials being not available and not accessible are the main hand hygiene barrier. Some other factors negatively influencing the compliance are lack of time and recommendations.

It is estimated that health workers and general public in Sudan have sufficient level of awareness regarding the importance of the hand hygiene practice.

However, the lack of appropriate infrastructure such as sinks, running water, soaps and the high expense of the alcohol-based hand rub makes the best hand hygiene practices difficult to achieve. In addition the high turn-over of health workers in facilities requires repeated training. The first Sudanese hand hygiene campaign was launched in 2009 with training and awareness-raising as its key components.

Assessment of existing practices in the operating theatre in the Khartoum North Teaching Hospital stated “Good practice for hand washing” was defined as washing the hands with water and soap when indicated. “Improper use of gloves” was defined as failure to remove gloves after immediate contact with a patient, or contact with the same set of gloves between a patient’s contaminated and clean body sites.

Objectives - General objectives:

To assess level of the knowledge, attitude and practice of hand hygiene towards health workers in Khartoum north teaching hospital.

Specific objectives:
# To determine knowledge of hand hygiene towards health staff.
# To evaluate the attitude of hand hygiene among target communities.

Evidence of good practice was defined as washing the hands with water and soap when indicated. "Improper use of gloves” was defined as failure to remove gloves after immediate contact with a patient, or contact with the same set of gloves between a patient’s contaminated and clean body sites.

Objectives - Specific objectives:

# To evaluate practice and the determining factors related to hand hygiene towards health care workers.

Material & Methods

3-1/ Study design:

The study was designed as a facility-based descriptive research that utilizing different dependable and undependable variables to assess the knowledge, attitude and practice towards hand hygiene among health workers in Khartoum-north teaching hospital.

3-2/ Study Area:

This study has been carried out Khartoum-north teaching hospital. It is public or governmental hospital located in Bahri-Khartoum municipality.

Khartoum North Teaching hospital was founded 1965 in area of 65000Km2. The number of the beds are about 482 beds, and provides services for each area of Khartoum North, especially east of the Nile and the northern countryside for its population density. In addition to other states and has evolved and expanded to the following fields:

A/Surgery
b/ Physical Therapy
c/ Accidents
d/Dental,
e/ Eye
f/ Obstetrics and gynecology
g/Ear Nose and Throat
h/ X-Ray and
i/ Urologists and Bones

3-3/ Study population:
The study subjects part of health workers in Khartoum north teaching hospital, they are the following:
a/ Lab. technician
b/ X-ray technician
c/ Nurses and
d/ Sisters

3-4/ Sample size:

We determine our simple size according to this formula
n = N/1+N (E2)

The total number of target group was 334

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<tr>
<th>Department</th>
<th>No. of staff</th>
<th>Sample Size</th>
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3-5/Sampling technique:

We use stratified random sample in which the population is first divided into relevant department and then, using the simple random sample method as to make sure every subject has an equal chance of being selected for the study, a sample is drawn from each strata.

3-6/Methods of data collection:

Data collection techniques allow for systematic collection of information about knowledge, attitude, and practice of health workers towards hand hygiene in Khartoum north teaching hospital. The data was collected through instructed self questionnaire.

The questionnaire formulated according to world health organization five moments of hand hygiene in health workers.

The questionnaire was prepared in English then we translated Arabic version.

3.7/Observation:

Personal observation focused on hand hygiene facilities and compliance of hand hygiene during patients contact.

3.8/ Data analysis:

The data analysis in this research has been analyzed by the statistical package by social sciences(spss).

Result and analysis

Fig.1: Distribution of respondents regarding the gender (N=152)

As shown in the above fig, the majority (94.7%) of respondents were female. while 5.3% were male.

Fig.2: Distribution of respondents regarding marital status (N=152).

As shown the above fig 65.1% of respondents were married while 34.9% not married.

Fig.3: Distribution of respondents regarding age (N=152).
As shown in the above fig. 23% of the study population were between 25-15, the majority (42%) of respondents fall their age between 26-35, and 35.5% falls between 45-36.

Fig.4: Distribution of respondents regarding educational status (N=152).

As shown in the above fig. regarding educational status of respondents 70.4% were at university level while those with secondary level by 29.6%.

Fig.5: Distribution of respondents regarding their qualification (n=152)

As shown in the above fig. The majority (72.4%) of respondents were Nurse, 15.8% were Sisters, lab technician by (6.6%) and finally x-ray technician were 5.3%.

Fig 6 : illustrates the level of experience by year of working.

Figure above shows job experience of target group and illustrates 57.1% have job experience between zero and 10 years, 35.8% between eleven years and twenty years and 7.1% have twenty one and thirty years job experience.

Fig(7) Practice of participants regarding hand hygiene before patient contact.
Figure NO 7 shows: 70.4% of target population usually practice hand hygiene before patient contact, 5.9% practice most of the time, 17.8% practice some times and 9.9% do not practice hand hygiene before patient contact.

Fig.8: Practice of participants regarding hand hygiene after patient contact.

Figure NO 8 shows: 82.2% of sample population usually practice, 5.9% most of the time practice, 5.9% sometimes practice and 5.9% don’t practice hand hygiene after patient contact

Figure NO (9): Reason for not using hand hygiene (n=152)

Figure NO 9 shows: 58.6% of target population mention that they are busy, 35.5% they forget and 5.9% unsure of need when they do not practice hand hygiene.

Figure NO (10) Hand hygiene facilities uses.

Figure (No. 10) shows that 17.1% of the sample size use detergents and 82.9 use water and soap as hand hygiene facilities.

Figure NO (11) Protocol of hand hygiene in the hospital
Figure (No. 11) shows that 58.6% of the target population answered “Yes” while 41.4% answered “No” regarding to availability of protocol of hand hygiene in the target hospital.

Figure NO (12) Training or seminars of hand hygiene in the previous three years

Figure (No. 12) shows that 65.1% of the sample size answered “Yes” while 34.9% answered “No” according to the Training or seminars of hand hygiene taken in previous three years.

Figure NO (13) Cleaning hands after contacts anything in the patient surroundings

Figure (No. 13) shows that 82.2% of the target population usually clean their hands, 11.8% sometimes clean their hands and 5.9% never clean their hands after contacts anything in patient’s environment.

Figure NO (14) Using gloves as hand hygiene

Figure (No. 14) Shows that 94.7% of the sample size use gloves as hand hygiene while 5.3% don’t use.

Figure NO (15) Practice of hand hygiene after removing gloves

Figure NO (14) Practice of hand hygiene after removing gloves
Figure (No. 15) shows that 88.2% of the target population usually practice hand hygiene, 5.9% most of time practice hand hygiene, 5.9% sometimes practice hand hygiene after removing gloves.

Fig NO (16) Using same pair of gloves for more than one patient

Figure (No. 16) shows that 5.9% of the sample size Usually use same pair of gloves, 11.2% most of time use same pair of gloves and 82.9% never use same pair of gloves for more than one patient care.

Fig NO (17) Wearing gloves before potential contact with body fluid, mucous membrane and non infect skin

Figure (No. 17) shows that 82.2% of the sample size Usually wear gloves before potential contact with body fluid and mucous membrane while 17.8% never wear gloves.

Fig NO (18) Practicing hand hygiene; if moving from contaminated body site to clean body site

Figure (No. 18) shows that 88.2% of the target population Usually practice hand hygiene, 5.9% most of time practice hand hygiene, 5.9% sometimes practice hand hygiene if moving from contaminated body site to clean body site.

Fig NO (19) Practice of hand hygiene before any non-surgical invasive procedures like peripheral vascular Catherine

Figure (No. 19) shows that 88.2% of the target population Usually practice hand hygiene, 5.9% most of time practice hand hygiene, 5.9% sometimes practice hand hygiene if moving from contaminated body site to clean body site.
Figure (No. 19) shows that 58.6% of the sample size usually practice hand hygiene before any non-surgical invasive procedures like peripheral vascular Catharine while 41.4% most of the time practice.

Figure NO 20 shows: 46.7% of the target population usually practice hand hygiene if their hands are visibly soiled with dirty, body fluid, excretion and bloody while 53.3% practice most of the time.

Figure NO 21 shows: 100% of the target population believes that Hand hygiene is protective to health care workers.

Figure NO 22 shows: 94.1% of the sample population believes that Administrative orders could improve hand hygiene by follow up observation and 5.9% of these population do not believe.

Figure NO 23: Hand hygiene lowers hospital acquired infection rate more than any other measure.

Fig NO (20) Practice of hand hygiene; if your hands are visibly soiled with dirty, body fluid, excretion and bloody

Fig NO (21): Hand hygiene is protective to health care workers
Figure NO( 23) shows: 97.4% of the target population agree that Hand hygiene lowers hospital acquired infection rate more than any other measure. While 2.6% of that population do not agree.

Fig NO ( 24)Hand hygiene could improve in your hospital by good models of doctors

Figure no 24 shows : 94.7% of the sample population agree that Hand hygiene could improve in their hospital by good models of doctors. On the other hand, 5.3% of the same population disagree.

Fig NO (25):Cleaning hands is considered one of the preventive measures for more disease

Figure no 25 shows that: 98.7% of target population believes that cleaning hands is considered one of the preventive measures for more disease. While 1.3% of the same population believes that there is no relation of cleaning hands and prevention of disease.

Discussion Our study was designed to assess the hand hygiene’s knowledge attitude and practice towards specific health staff according to their closest to the risk of infections transmitted to the hands.

The data obtained from statistical analysis shows that the demographic variables of the respondents are varied instead of Age, Sex, Marital status, Educational Background and Category. The Majority of the target group is female 94.7% Married status and age between 25-35 years with high educational background level.

Most of the health workers are understood the meaning of hand hygiene, the main categories of target group are Nurses, Laboratory technician, X-ray technician and Sisters. According to the respondents’ capacity, Nurses represent the highest level of the target group with 72.4% this indicates that nurses are so crucial according to hand hygiene. Also there is a minor category of respondents include Sister 15.8% Lab. Technician 6.6% and X-ray technician 5.3% all of these have a capability of knowledge of hand hygiene that makes improve the target hospital.

Our study 70.4% of health staff usually practice hand hygiene before patient contact and 82.2% usually practice after patient contact. Which proves that HCWs carry out hand hygiene for their own protection rather than to protect patients from
infections. Similar study carried out in Ibn Sina hospital (2010) shows less compliance and states that HCWs were more likely to perform hand washing or hand disinfection more frequently after (68.1%) than before an activity (39.1%), which does not benefit the individual patient (17). In the literature, it has been emphasized that hygienic hand washing must be performed before and after patient contact; before invasive procedures; before taking care of patients considered to be infected; before and after contact with wounds, urinary, and similar catheters; after contact with patients’ secretions; and before and after wearing gloves.

The practice of hand hygiene during work is very low, because the statistics shows that 59% of target group do not practice hand hygiene when they are busy. Another study in Ibn Sina hospital (2010) mention that high demand for cleansing, which reflects high workload was associated with low compliance. Opportunities for hand washing were much more frequent during busier times of the day and during care of critically ill patients. These results confirm reports by health care workers that perceived busyness substantially reduces hand washing (17).

In According with hand hygiene facility use Our study shows that 17.1% of the sample size use detergents and 82.9% use water and soap as hand hygiene facilities. While another study AT MBAGATHI DISTRICT HOSPITAL (2013) states that 87.8% reported that they used water and soap and 12.2% of the participants stated that they used alcohol based hand rub when performing hand hygiene (18).

Our study shows that 65.1% of the respondents attend while 34.9% did not attend according to the Training or seminars of hand hygiene taken in previous three years. Similar study AT MBAGATHI DISTRICT HOSPITAL (2013) findings also indicate that 60% of the participants attended formal training on infection prevention and 40% were not trained (18). Another study in a tertiary hospital, South West Nigeria by Okechuku et al. (2012) in Ibadan, states that Respondents who attended training/seminar on infection control and hand washing had significantly better hand washing practices (78.6%) than those who did not attend such training (57.8%) (19).

Our study shows that 82.2% of the target population usually clean their hands, after contacts anything in patient’s environment. While another study in Ibn Sina hospita in sudan(2010) shows the lowest compliance was observed with environmental contact (17.4%) (17).

Our study shows that 94.7% of the sample size use gloves as hand hygiene. While another study in Ibn Sina hospita in sudan(2010) proves that use of glove only was constitute about (34%) of opportunities higher than opportunities observed of hand washing or hand hygiene (17). Also Another study University of Essex in London(2008) states that The glove-use compliance rate was significantly higher for nurses and similar to that found in other studies. Wilkinson (1992) observed glove-use compliance rates that averaged 80–94% overall, with the nurses’ glove compliance rate being 91.4% (20).

Our study shows that shows that 5.9% of the sample size Usually use same pair of gloves. Another study proves the proportion of glove overuse observed is consistent with the study by Girou et al. (2004), who found that 20% of all patient contacts were performed with gloves that had not been removed after previous care. In their study, cross-transmission could have occurred in about one in five staff–patient contacts due to glove misuse and in 82% of high-risk care activities, such as contact with IV lines. Thompson et al. (1997) found that gloves were appropriately changed in only 16% of instances (20).

Our study shows 100% of the target population believes that Hand hygiene is protective to health care workers. While another study in Ain Shams University hospitals in Cairo it was found that 96% of nurses believe that hand washing is protective health care personnel from infection (21).

Our study shows that 94.1% of the sample population believes that Administrative orders could improve hand hygiene by fellow up observation and. Another study in Ain Shams University hospitals(2008) shows that 97.3% of the nurses believe that administrative orders and continuous observation can improve hand washing practices (21).

Our study shows that 97.4% of the target population agree that Hand hygiene lowers hospital acquired infection rate more than any other measure. another study in Ain Shams University hospitals in Cairo shows As regards lowering of nosocomial infection rates 92% of the nurses believe that this method (Hand washing) can lower nosocomial infection rates more than any other method of infection control (21).

Conclusion and recommendation

The study was conducted among health workers in Khartoum North Teaching Hospital to assess the
knowledge, attitude and practice towards hand hygiene (2014).

The study selected sample size of 152 health workers according to their proportion, the sample size contribute Sisters, nurses, Laboratory technicians and X-ray technicians .data was obtained through observation and questionnaires to evaluate the knowledge, attitude and practice towards hand hygiene among health workers.

The knowledge of the respondents about hand hygiene 34.9% did not attend according to the Training or seminars of hand hygiene taken in previous three years. Also The practice of hand hygiene during work is very low, because the statistics shows that 59% of target group do not practice hand hygiene when they are busy.

As our study mention, the attitude of the target hospital is poor; 58.6% of target population declare that there is no protocol of hand hygiene in the hospital. Instead of this low attitude, the administration of the target hospital does not fulfill their role of bringing facilities and needs of hand hygiene to the target population to get a good environment of hand hygiene practice.

Our study shows that shows that 5.9% of the respondents Usually use same pair of gloves so that inappropriate glove use may be a component of poor hand-hygiene compliance.

The study has suggested that mispractising of hand hygiene and lack of knowledge and attitude of health workers towards the patient and the target hospital can be reduced by improved management of hand hygiene facilities, and awareness raising through training of the health worker and health education for patient, co-patient, visitors and general public.

And lastly coordination between medical departments and those involved in the management of hand hygiene and infection control, all of those are essential component in sustaining the operation of hand hygiene management system in the target hospital.

Recommendation

Based on our research we recommend the following:

- Initiating and multi-component publicity campaign (e.g. posters with photos of celebrated hospital doctors/staff members)
- Continuous education, and seminar on hand hygiene should be organize to improve the knowledge regarding the important of correct practice on hand hygiene.
- Ensuring safety practices for health care workers of hand washing.
- All facilities of hand washing should be available in the different hospital departments concerning the codes of practice followed for the hand washing.
- Monitoring and evaluation compliance of health care workers with recommended indication for hand hygiene and use of gloves.

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