

Knowledge, Attitude and Practice of nursing students on Hospital Acquired Infections in Western region of Nepal

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ABSTRACT

Background & Objectives: Hospital-acquired infections (HAIs) are a common problem and challenge faced by hospitals in all countries around the world. Nurses are an important part of the healthcare team that plays a unique role in the control of HAIs. Compliance on the part of healthcare workers (HCWs) including nurses with standard precautions has been recognized as being an efficient means to prevent and control HAIs. The present study was conducted with objective of understanding the level of Knowledge, attitude and practice (KAP) regarding HAIs among nursing students in the Western Region of Nepal. **Materials & Methods:** This descriptive cross-sectional study was conducted among nursing students posted in different wards of two hospitals of Pokhara. A self administered questionnaire containing different set of questions regarding knowledge, attitude and practice on HAI were used for data collection. **Results:** Among the total participants in the study 97% of the participants considered that prevention of HAIs were a valuable part of nurses' role but only 89% had received formal training regarding hand hygiene. The results show that 74% of the participants had good knowledge regarding HAIs. 82% of the participants felt that they would be less likely to transmit infection to the patient if they performed hand-hygiene. 66% of them identified that hand hygiene agents were not readily available in current settings. Regarding practice, only 6% performed hand hygiene before patient contact. **Conclusion:** The nursing students had good knowledge regarding HAIs that was reflected in their attitude and practice on hand hygiene for the prevention of HAIs. However there is the need of regular training and performance feedback regarding hand hygiene and the hospital environment should be hand-hygiene friendly with easily accessible to sinks and other facilities.

Key words: HAIs; HCWs; KAP; Hand-hygiene; Hand-washing.

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INTRODUCTION

Nosocomial infections are infections acquired in the hospital or other health care facilities that were not present or incubating at the time of the client's admission. It is also referred to as hospital-acquired infections (HAIs). It includes those infections that become symptomatic after the client is discharged as well as infections among medical personnel. Most nosocomial infections are transmitted by health care personnel who fail to practice proper hand washing procedures or change gloves between client contacts.¹

A prevalence survey conducted under the auspices of WHO in 55 hospitals of 14 countries representing 4 WHO Regions (Europe, Eastern Mediterranean, South-East Asia and Western Pacific) showed an average of 8.7% of hospital patients had nosocomial infections. At any time, over 1.4 million people worldwide suffer from infectious complications acquired in hospital. The highest frequencies of nosocomial infections were reported from hospitals in the Eastern Mediterranean and South-East Asia Regions (11.8 and 10.0% respectively).² Identifying existing infection control knowledge,

attitudes, and practices (KAP) among health care workers (HCWs) is a key first step in developing a successful infection control program. In an effort to raise awareness and provide guidance in combating HAIs in resource limited settings (RLS), the World Health Organization (WHO) launched the Global Patient Safety Challenge: Clean Care is Safer Care campaign.³ A cornerstone of the program is to decrease HAIs through improving hand hygiene among healthcare workers. While the WHO campaign has outlined a framework, hand hygiene adherence continues to be problematic even though it is a simple and highly effective measure to reduce HAIs.^{4,5}

Among the standard precautions advocated, hand hygiene is considered, in itself, the most important one. Another important measure is the adequate use of gloves, whose purpose is to protect the HCWs, as well as the patient.⁶ While adherence with hand hygiene is poor in both developed and developing nations, barriers to implementation of a successful hand hygiene program may be different in resource limited settings.⁷ Poor compliance is associated with lack of awareness among personnel.⁸ The other factors are personnel and organizational attitude towards interventions like hand washing, cost containment and logistical barriers.⁹ The education regarding HAIs has a positive impact on retention of KAP in all categories of health workers to prevent infections.¹⁰

The purpose of our study was to understand the level of KAP among the nursing students regarding HAIs in the Western Region of Nepal. It also aims to identify the barriers in adopting proper infection prevention measures by HCWs and suggest hospital authorities for betterment of necessary facilities to adopt more pragmatic approach in helping to reduce such infections.

MATERIALS AND METHODS

Study design: Descriptive-cross-sectional study conducted among the nursing students in the Western region of Nepal.

Study site: Gandaki Medical College Teaching Hospital (GMCTH) and Fewacity Hospital (FCH), Pokhara

Study population: PCL Nursing students posted at different in-patient wards of the hospitals

Sample size: 117

Study period: May-June, 2016

Sampling procedure: All nursing students available at different wards of the hospitals during the survey were included in the study.

Instruments and Techniques: Semi structured, pre tested self administered questionnaire consisting of questions on knowledge, attitude and practices on HAIs.

Knowledge was assessed using 10 questions with options either “yes” or “no”. Attitude and practice were assessed using another set of questionnaire consisting 14 and 8 questions respectively. The respondents were given “yes” or “no” options to select based on their attitude and practice regarding HAIs.

All the questions were subjected to a pre-testing prior to the study and obtained suggestions were taken into consideration.

A scoring system was used where 1 point was awarded for each correct response to knowledge, positive attitudes, and good practices. Incorrect knowledge, negative attitudes, and poor practices were given 0 points. The cut-off values to determine good, moderate, and poor levels were taken from previously published studies with some modification to suit our purpose. A score greater than 75% was considered good, 50% - 74% moderate and less than 50% poor.

Data Analysis: Data was analyzed using Microsoft excel 2010 software.

Ethical considerations: Ethical clearance was obtained from the Institutional Ethical Committee of Gandaki Medical College.

RESULTS

Knowledge on Hospital acquired infections:

74% (86 out of 117) of the correspondents had good knowledge regarding HAIs. However, 26% still lacked good knowledge regarding HAIs. Highest proportion of the correspondents (94%) were aware of the fact that washing hands with soap or an alcohol based antiseptic decreases the risk of transmission of hospital acquired pathogens. Similarly, 94% of them disagreed to the fact that hand washing is not necessary if the hand are not visibly dirty and that there is need to wash hands before doing procedures that involve bodily fluids. A larger proportion (74%) of the correspondents still considered that gloves provided complete protection against acquiring/ transmitting infections. Only 88% of them realized that same pair of gloves cannot be worn for multiple patients as long as there is no visible contamination on the gloves and it should be changed after each patient contact. The percentage of participants who considered that healthcare-associated pathogens can

Table 1: Knowledge on Hospital acquired infections (Correct responses):

	Questions	N=117	%
K1	Gloves provide complete protection against acquiring/transmitting infection (false)	31	26
K2	Healthcare-associated pathogens can be found on normal, intact patient skin (true)	91	78
K3	Washing your hands with soap or an alcohol based antiseptic decreases the risk of transmission of hospital acquired pathogens (true)	110	94
K4	If my hands are not visibly dirty, there is no need to wash my hands prior to patient contact (false)	110	94
K5	Use of an alcohol based antiseptic for hand hygiene is as effective as soap and water if hands are not visibly dirty (true)	71	61
K6	Gloves should be worn if blood or body fluid exposure is anticipated (true)	102	87
K7	When using alcohol based antiseptics, I should keep rubbing my hands until dry (true)	82	70
K8	There is no need to wash hands before doing procedures that do not involve bodily fluids (false)	110	94
K9	Hand hygiene should be performed before and after direct patient contact (true)	113	97
K10	I can wear the same pair of gloves for multiple patients as long as there is no visible contamination on the gloves (false)	103	88

be found on normal, intact patient skin was 91% whereas the rest (6%) believed that intact skin does not harbor pathogens. The knowledge that when using alcohol based antiseptics, hands should be rubbed until dry prevailed among 70% of the participants. The fact that hand hygiene act should be performed before and after direct patient contact was agreed upon by 97% of the study population.

Attitude on Hospital acquired infections:

In relation to attitude of the nursing students majority of the nursing students (82%, 96 out of 117) felt that they would be less likely to transmit infection to the patient if they performed hand-hygiene. 89% (105 out of 117) of the nursing students had received formal training regarding hand hygiene but the rest (11%) had received no formal training and 85%(100 out of 117) thought their supervisors stressed on the importance of hand hygiene. Regarding various hindrances in adoption of hand hygiene, most of the correspondents (66%, 77 out of 117) identified that hand hygiene agents (alcohol based hand sanitizer or soap & water) were not readily available, 68% (79 out of 117) identified that clean towels to dry their hands after washing are not always available, 50% identified that the sinks were inconveniently located, and 28% felt that hand hygiene agents cause irritation and dryness. Notably 47% identified hand hygiene as interference in HCW-patient interactions. 97% (113

out of 117) participants considered that prevention of HAIs is a valuable part of nurse's role. 26% of the nursing students reported that they often forgot to perform hand hygiene.

Practice on hospital acquired infections:

With respect to hand hygiene practices, only 6% performed hand hygiene before patient contact. All of them (100%) performed hand hygiene act after patient contact. If the hands felt or looked dirty, 84% of the participants performed hand hygiene. 98% of the correspondence performed hand hygiene after going to toilet, however still two percent didn't adhere to proper hand hygiene after going to toilet. 99% of the participants performed hand hygiene before caring for wound and all of them (100%) after caring for the wound. Practice of hand hygiene after removal of gloves was performed by 96% of the participants.

DISCUSSION

In this part of the world there are very few studies conducted on HAIs and measures to prevent them. Knowledge of HAIs and compliance to the preventive methods such as proper practice of aseptic precautions lead to reduction in HAIs in the hospital settings.

In order to reduce HAIs in any hospital, knowledge of HAI and compliance to methods in preventing

Table 2: Attitude on Hospital acquired infections (Responses on agreement):

Questions	N=117	%
A1 Hand Hygiene agents are not always available.	77	66
A2 Clean towels to dry my hands after washing are not always available.	79	68
A3 Gloves are always available when needed.	61	52
A4 Sinks are inconveniently located.	58	50
A5 Sinks are not available	42	36
A6 Hand hygiene agents cause irritation and dryness.	33	28
A7 Hand hygiene interferes with HCW-patient interactions	55	47
A8 I often forget to perform hand hygiene.	31	26
A9 I have a very low risk of acquiring infections from my patients.	42	36
A10 If I perform hand hygiene, I am less likely to transmit infections to my patients.	96	82
A11 Prevention of HAIs is a valuable part of HCWs role.	113	97
A12 I have received training about the importance of hand hygiene	105	90
A13 The importance of hand hygiene is emphasized by my clinical supervisors.	100	85
A14 I would feel uncomfortable reminding a HCW to perform hand hygiene.	56	48

Table 3: Practice on Hospital acquired infections (Always/often responses):

Questions	=117	%
P1 Before Patient Contact	7	6
P2 After Patient Contact	117	100
P3 If they look or feel dirty	98	84
P4 After going to the toilet	115	98
P5 After contact with blood or bodily fluids	117	100
P6 Before caring for a wound	116	99
P7 After caring for a wound	117	100
P8 After removing gloves	112	96

them like proper practice of aseptic and antiseptic precautions are very much essential.

In our KAP survey that was conducted among the students of two nursing institutions, we found good understanding of HAI and measures to prevent it. The knowledge regarding HAIs was good among majority of the participants. This is consistent with the study conducted among the HCW in Ethiopia in similar settings.¹¹

Our study revealed that still 11 % have not received any formal training in hand hygiene. A study conducted in India regarding the knowledge, attitude and practice of different group of HCW about infection control concluded that training has a positive impact on the improvement of KAP in

health care personnel. They also suggested that development of continuous training program for all HCW is necessary.¹⁰

Potential barriers to implementation of effective prevention of HAIs via proper hand hygiene measures include lack of infrastructure, formal training, infection control role models and unavailability of hand hygiene products as well as hand hygiene products that cause skin irritation and dryness to a significant proportion of HCWs. Majority of the participants reported that hand hygiene agents like- alcohol based hand sanitizer, soap and water are not easily available. Similarly, clean towels to dry the hands after washing are also not always available. The sinks for washing purposes are inconveniently located and inadequate at the hospital-settings. This finding is in accordance to a similar study conducted in Sri Lanka in which dissatisfaction with facilities available for hand hygiene was high among the study group and likely to omit the hand hygiene practices when facilities are not easily accessible to them. Thus increasing the supplies necessary for hand washing and institutional support is essential in combating the substandard practices in hand hygiene.¹² Limited accessibility of hand hygiene facilities has been shown to be an important risk factor for poor adherence to recommendations.¹³

Our survey responses showed that although there

are a number of limitations in current-health care settings, they have positive attitude towards limiting infection control.

Majority of the participants had received the training about the importance of hand hygiene in their respective institutions and the importance of hand hygiene is emphasized by their clinical supervisors. Overall, most of them responded that prevention of HAIs is a valuable part of nurse's role.

The result of the present study showed that nurses have a good practice in prevention of HAIs. An important finding from this study is that 94% of the participants do not adopt any measure of hand hygiene for prevention of HAI prior to patient contact despite 97% have the knowledge that hand hygiene should be performed before and after direct patient contact. A study in India reported less than desirable level of practice among the health care personnel.¹³

CONCLUSION

The nursing students had good knowledge regarding prevention of HAIs and this knowledge reflected in their attitude and practice on hand hygiene for the prevention of HAIs. However this study shows that there is need for further improvement in the need of hand hygiene training programme and the training sessions must be conducted more frequently with continuous performance feedback. As nurses are an important group of players in the health care team it is important to provide the best appropriate knowledge and proper training regarding the preventive measures of HAIs from the very early period of their training. Further there is need for an infection prevention team to get more involved with training and updating of existing practices.

Easy, immediate access to hand-hygiene agents and sinks are the key element in improving adherence to hand hygiene. This factor should be taken into consideration in the construction-design of health care infrastructure and settings in order to improve adherence to hand hygiene.

Our results can provide important baseline information about infection control practices in a resource limited countries and highlight some of the barriers to implementing effective infection control policies in Nepal and potentially other similar settings.

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