



Nurses knowledge related to prevention of nosocomial infections in private hospitals of Kabul, Afghanistan

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Abstract: Nosocomial infection in healthcare facilities is a major public health problem in most developing countries like Afghanistan. Nurses as a part of medical staff can play a significant role in prevention and control of nosocomial infections. Thus, it is important to identify the level of their knowledge, and identifying gaps for better intervention.

Objective: This study aims to assess the knowledge of prevention of nosocomial infections among nurses working in the private hospitals of Kabul city, Afghanistan.

Methodology: A cross-sectional descriptive study was conducted among 117 nurses in private hospitals of Kabul city, Afghanistan. A structured self-administered questionnaire was used. The score was converted to level. Data was analyzed using SPSS and the associations were tested with chi-square, with a P-value of < 0.05 .

Results: Table 1 shows demographic characteristics of the studies sample. The majority (54.7%) of nursing staff were male, Respondents with 15 grade nursing diploma and working experience (1 to 9 year) highest proportion (65% and 95%). The majority (29%) of them works in Emergency ward and the majority (62%) of them had 20 to 29 years old.

The findings indicated that the participating knowledge was weak, intermediate and good (22.2%, 70.9%, and 6.9%) at the private hospitals ($P=0.057$).

Conclusion: The outcomes of the statistics show that the level of nurses' knowledge about prevention of nosocomial infections; in private hospitals was mediocre (70.9%).

Key words: Nurses' knowledge, prevention, nosocomial infection, Hospital

Introduction

Nosocomial infection, also called hospital acquired infection occur in patient who are admitted in Hospital for a long or short period of time for some therapeutic or diagnostic purposes yet patient have no evidence of infection before admission in hospital (Jahangir et al., 2017). Nosocomial infection refers to an infection that is acquired during the process of patients' care inside the healthcare facilities (Varshney et al., 2014). It is an infection whose development is favored by a hospital environment (Sternal et al., 2014). There are many different exposure routes: through injury (cut, prick), through contact with the skin or mucous membranes, through inhalation or through ingestion (Alwabr et al., 2016). Nosocomial infection poses a real and serious threat to both patients and health care workers. The NIs cause mental stresses, disability, paralysis, and decrease the quality of patients' live (Otani K, Kurz

2004). Nosocomial infection have a great impact on the health of hundreds of millions people and it is considered a major global issue today by all the stakeholders.

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), with a prevalence of 7.7 and 9.0% respectively in the European and Western Pacific Regions (Sorte, 2015).

Data estimate that among the 35 million health care workers worldwide, approximately 3 million experience percutaneous exposures to blood borne viruses each year 2 million HBV; 900,000 HCV and 300,000 HIV) (Ahmed, Hassan, and Abd-Allah, 2008). These injuries are estimated to result in 66,000 hepatitis BV; 16,000 hepatitis CV and 2000 to 5000 HIV infection. More than 90% of these infections are occurring in low-income countries, and most are preventable.¹⁹ The prevalence of nosocomial infection in developed countries is much lower than developing countries, studies shows it is 15.5 per 100 patients in Europe and USA In Intensive care units prevalence rate was 47.9 per 1000 patients. The most common infection was surgical site infection that was 5.6 per 100 surgical procedures (Allegranzi et al., 2011).

Despite the attempts to prevent such infections, the problem continues to cause death and increase the costs of sanitary treatments. Many factors promote infection among hospitalized patients: decreased immunity among patients; the increasing variety of medical procedures and invasive techniques creating potential routes of infection; and the transmission of drug-resistant bacteria among crowded hospital populations, where poor infection control practices may facilitate transmission. Hospital personnel, especially the nurses play an important role in spreading the infection and they are considered as key members of managing and controlling the hospital infections; therefore, nurses must have correct, up-to patients, death toll and increased hospital costs, recognition of people at risk and also the criteria to prevent and control. Nurses are the largest therapeutic team in hospitals. On the other hand, nurses' knowledge and practice regarding sanitary conditions play an essential role to guarantee the individual and ultimately social health, increased level of nurses knowledge positively affects their performance (Ehsani et al., 2013).

To have a positive impact upon the health of the every patient in hospital, it is very important for all nurses to have enough knowledge of hospital acquired infection, and to observe standard practices so that the spread of the nosocomial infection in any health care setting can be prevented. Nurses are at risk of acquiring and transmitting hospital acquired infections while delivering nursing care; therefore, they should have sufficient knowledge and practice to control and prevent spread of nosocomial infection. Use of standard precautions to prevent patients from nosocomial infection is important part of nursing care. It has been suggested that health care workers should have satisfactory knowledge level regarding spread of transmissible diseases (Gawad, (2017). This study aimed to assess knowledge of prevention and nosocomial infection among nurses working in the private hospitals in Kabul city, Afghanistan.

Methodology

A cross-sectional descriptive study was conducted to assess the knowledge about prevention of nosocomial infection among 117 nurses working in the departments of Emergency, surgery, internal and obstetric in private hospitals of City, Ferdows, Watan, Mawla Ali, Atiqull amarkhil, Darman and Millat in Kabul city, Afghanistan. during the period from December 2018 to March 2019. In total, from the 146 questionnaires distributed, 117 were returned fully completed, giving a response rate 89.64% The inclusion criteria are nursing staff working in departments of Emergency, Internal, surgery and obstetric in City, Ferdows, Watan, Mawla ali, Atiqull amarkhil, Darman and Millat hospitals. Data was collected using a structured self administered questionnaire, which had been designed after an extensive literature search. The questionnaire was divided into two main components. The first part included sociodemographic characteristics such as (age, sex, level of education, job of experience, and place of work), the second part included twelve multiple choice questions reflecting the knowledge of the nurses towards the prevention of nosocomial infection. The participants were requested to respond to questions according to their own awareness about the subject. The questionnaire was validated by experts at Ministry of Public Health and Kabul University of Medical Science, Afghanistan and the reliability of the questionnaire was determined through a test-retest method using 15 copies of the questionnaire at Hospital of Wazir Akbarkhan, Kabul. The Pearson's coefficient was calculated. The coefficient of 0.85 was determined which indicated the reliability of the questionnaire. The score was converted to level. The knowledge score's levels were considered weak knowledge with a score of ≤ 4 ; intermediate knowledge with score of between 5-8; and good knowledge with score of ≥ 9 . Data were coded and analyzed using Statistical Package for Social Science (SPSS) software Chi-square test was used to determine association and a statistical significance was assessed at $P < 0.05$.

Results

Table 1 shows demographic characteristics of the studies sample. The majority (54.7%) of nursing staff were male, Respondents with 15 grade nursing diploma and working experience (1 to 9 year) highest proportion (65% and 95%). The majority (29%) of them works in Emergency ward and the majority (62%) of them had 20 to 29 years old.

Table1: Socio-demographic characteristics of respondents at private hospitals in Kabul city, Afghanistan. (N=117)

Variables	Frequency	. %
Sex		
Male	64	54.7
Female	53	45.3
Ward		
Surgery	30	26
Internal	27	23
Obstetric	26	22
Emergency	34	29
	33	28.2

Level of education

12 grade diploma		
15 grade diploma	76	65
Bachelor	8	6.8

Job experience

1 – 9 (year)	111	95
10 -19 (year)	6	5
20 – 29 (year)	0	0
30 – above	0	0

Age group

20 – 29 (year)	73	62
30 – 39 (year)	35	30
40 – above (year)	9	8

Table 2: Knowledge levels about prevention of nosocomial infection at private hospitals in kabul city, Afghanistan. (N=117)

Type of hospital	Level of Knowledge			Total	(%)
	Weak	Intermediate	Good		
Private					
Count	26	83	8	117	117
Percent	22.2%	70.9%	6.9%	100%	100%

The knowledge was significantly associated with the Age group ($P < 0.001$), Job experience ($P < 0.001$), Level of education ($P = 0.005$), Ward ($P = 0.017$) and Sex ($P = 0.050$), (Table 3).

Table 3: Association between the nurses' demographical characteristics and their knowledge at private hospitals in kabul city, Afghanistan. (N=117)

Variables	Type of hospital	Knowledge levels			Total	P –Value
		Weak	Intermediate	Good		
Sex						
Male	Private	16	44	4	64	0.050
Female	Private	10	39	4	53	
Total	//	26	83	8	117	
Ward						
Surgery	Private	8	18	4	30	0.017
Internal	Private	6	21	0	27	
Obstetric	Private	2	23	1	26	
Emergency	Private	10	21	3	34	
Total	//	26	83	8	117	
Level of education						
12grade-D	Private	6	25	2	33	0.005
15grade-D	Private	18	52	6	76	
Bachelor	Private	2	6	0	8	
Total	//	26	83	8	117	
Job experience						
1-9 (year)	Private	26	77	8	111	< 0.001
10-19 (year)	Private	0	6	0	6	
20-29(year)	Private	0	0	0	0	
Total	//	26	83	8	117	
Age group						
20-29(year)	Private	17	49	6	73	< 0.001
30-39(year)	Private	9	24	2	35	
40-above	Private	0	9	0	9	
Total	//	26	82	8	117	

Discussion

In this study conducted in private hospital of Kabul city indicated that (22.2%) nursing staff had poor knowledge, the majority of them (70.9%) had intermediate level of knowledge and 6.8% had good knowledge toward prevention of nosocomial infection. The outcomes of the statistics show that the level of nurses' knowledge about prevention of nosocomial infections; in private hospitals was mediocre (70.9%), ($P=0.057$). the majority of nurses participating in the study had an intermediate level of knowledge about prevention of nosocomial infection. There is a need to develop a system of continuous education for all the categories of nursing staff.

This study result agreed with the results obtained from a previous study done in Poland indicated that there is a significant association between nurses' age and their knowledge toward prevention of nosocomial infection ($P=0.001$) (Sternal et al., 2014).

A study conducted in Nigeria indicated that 67.9% of the nursing staff had an average knowledge about infection control (Abubakar et al., 2015).

Based on the results of the present study, the majority of the Yemeni participating nurses were 25 years old and above (71.8%). Furthermore, the results revealed that almost above half (61.2%) of the participants were male holding nursing diploma (60%); however, our result is inconsistent with this previous study concerning the gender, reported that most of the study participants were females. Thus, why the males outnumbered the females in the current study could be explained from a cultural and religious perspective (El-Sayed et al., 2015). In other words, in many Middle East countries, cultural and Islamic perspectives still prevent female nurses from working in the night shift or working in the male's wards. Regarding years of employment in the hospital, about half of nurses (56.5%) were found to have less than 5 years of experience. This result is compatible with the result obtained who found that about (43.9%) of the participants had working experience of 5 years or less. Such result indicates that new employees seem to be more cooperative than senior ones to participate in research. The current study also revealed that most of the participants (64.7%) attended annual continuing education courses about infection control (Ehsani et al., 2013). This study result disagreed with the result obtained from a previous study done in Iraq indicated that the majority of the sample (69%) have poor knowledge toward nosocomial India infection (Al-Jubouri, 2014). A study conducted in reported that knowledge about nosocomial infection was the lowest among the nurses and healthcare workers (72.54%) (Varshney et al., 2014). A previous study conducted in Jamaica indicated that the majority (64.0%) of the health care workers had good knowledge (Vaz et al., 2010). A study conducted in Australia indicated that the participants demonstrated a considerably stronger level of good knowledge on the topic of standard precautions (88.9%) (Mitchell et al., 2014). A study conducted in Ethiopia indicated that majority of the respondents (84.2%) had good knowledge regarding infection prevention (Gulilat and Tiruneh, 2014).

A study conducted other study conducted in India reported that 41.1% and 33.03% of the participants respectively had intermediate and high level of knowledge about infection control (Kalantarzadeh et al., 2014). A study conducted in Nepal reported that only 22% had correct knowledge of universal precautions (Timilshina et al., 2011). A study conducted in Nigeria indicated that only (28.75%) of the respondents had good knowledge of the components of standard precautions (Ghadamgahi et al., 2011).

Conclusion

According to the present study findings, the researcher can conclude the following: the participating knowledge was weak, intermediate and good at private hospitals (22.2%, 70.9%, and 6.8%). The outcomes of the statistics show that the level of nurses' knowledge about prevention of nosocomial infections; in private hospitals was mediocre (70.9%), ($P = 0.057$).

The participating knowledge was weak (22.2%) and good (6.8%) in private hospitals there is a significant need to intervention programs that associated with standard precautions and nosocomial infection control to increase nurses' knowledge in order to adopt appropriate health behaviors and positive attitudes.

Recommendations

According to the results of the study, the researchers recommend to:

- Training course is necessary to increase nurses' knowledge toward prevention of nosocomial --- infection.
- Training course should be regularly done and updated in view of changing knowledge and practice.

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