

Knowledge, Attitude and Practice of Nurses Regarding Nosocomial Infections Control in Teaching Hospitals of Kermanshah University of Medical Sciences, Iran (2015)

Farid Najafi^a, Zeinab Jafari Motlagh^{b*}, Abdollah Dargahi^c, Soheila Reshadat^d, Mehdi Moradi Nazar^a

^aResearch Center for Environmental Determination of Health (RCEDH), Faculty of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran.

^bStudents Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran.

^cEnvironmental Health Engineering, School of Public Health, Hamadan University of Medical Sciences, Hamadan, Iran.

^dSocial Development & Health Promotion Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

*Correspondence should be addressed to Mrs. Zeinab jafari motlagh, Email: z.jafari1389@gmail.com

A-R-T-I-C-L-E-I-N-F-O

Article Notes:

Received: Dec 31, 2016

Received in revised form:

Apr 7, 2017

Accepted: Jun 29, 2017

Available Online: Jul 15, 2017

Keywords:

Knowledge
Attitude
Practice of Nurse
Nosocomial infections
Kermanshah
Iran.

A-B-S-T-R-A-C-T

Background & Aims of the Study: About a third of mortality in hospitals devoted to nosocomial infections. Nosocomial infection is an infection after the exposure of health-treatment services in unit's treatment. Lack of knowledge or ignorance of personnel to transmission methods and prevention of nosocomial infections are caused transmission of infectious diseases to staffs and patients. The aim of this research was the investigation of knowledge, attitude and practice of nurses from control methods of nosocomial infections.

Materials & Methods: This research is a cross-sectional study. 200 person of the nurses of working in teaching hospitals of Kermanshah university of Medical sciences were investigated, using questionnaire. The validity of questionnaire as context evaluated by expert individuals and their reliability evaluated by Cronbach's alpha 75%. Data analysis was carried out, using SPSS 16, chi-square test and exact fisher test.

Results: Investigation results showed that 69.5% nurses had good knowledge, 61.5% mean attitude and 80% good practice have into nosocomial infections control. Access to disinfectant was caused practice better than knowledge and attitude. There was a significant difference between knowledge, attitude and practice. Also, a significant difference was observed between education and attitude.

Conclusion: Most of nurses have good knowledge and practice into nosocomial infections control. As regards to the important role of nurses in prevention of nosocomial infections, education of them is need for increase of prevention behaviors.

Please cite this article as: Najafi F, Jafari Motlagh Z, Dargahi A, Reshadat S, Moradi Nazara M. Knowledge, Attitude and Practice of Nurses Regarding Nosocomial Infections Control In Teaching Hospitals of Kermanshah University of Medical Sciences (2015). Arch Hyg Sci 2017;6(4):314-319.

Background

Nosocomial infection is one of the infections that caused in patients during the care in healthcare services. The prevalence of nosocomial was estimated 7.6% in developed countries and 10.1% in developing countries

(1). It is estimated that 1.7×10^6 of nosocomial infections happen annually in the US and 99,000 deaths were reported due to these infections (2). So, nosocomial infections in Iran were reported 1.9% to 25% (3).

The potential sources of nosocomial infection are contaminated environmental surfaces,

intravenous solutions, drugs and foodstuffs. The most important way of spread of nosocomial infection is due to the contact of the contaminated hands of healthcare workers (4). The causative pathogens of nosocomial infections are viruses, bacteria and fungi (5). Bacteria are the most usual pathogens of nosocomial infections. In addition to the bacteria, viruses are also caused 5% of all nosocomial infections. Also, fungal parasites are causing healthcare infections in immune-compromised individuals (6).

The most usual nosocomial infections are urinary tract, respiratory, surgical, gastroenteritis, pneumonia and meningitis (7). Catheter associated urinary tract infections is the most usual type of healthcare infections, globally. Endogenous native microflora of the patients is responsible for these infections. Surgical site infections are caused by staphylococcus aureus that causing in prolonged hospitalization and death. Ventilator associated pneumonia is occurred in 9–27% of patients mechanically assisted ventilator (6).

Nosocomial infection causes threat of patient safety, prolonged hospitalization, excessive health care costs, long term disability and increased mortality (8). Simplest and effective method of nosocomial infection control is the application of standard precautions for decreasing exposure with infection agents (9). Standard precautions are including hand hygiene, use of personal protective equipment's, safe injection, health environment, appropriate solid waste management, respiratory health and etiquette of cough (1,10). Hand hygiene is the most important and cost-effective strategy in nosocomial infections control (11). As regards, lack of knowledge of healthcare workers from standard precautions is the most important reason for non-adherence of them.

Aims of the study:

The aim of this research was the investigation of knowledge, attitude and practice of nurses from nosocomial infections control methods in

teaching hospitals of Kermanshah University of medical sciences.

Materials & Methods

Sampling of this cross-sectional research was carried out during multistage period. 4 hospitals were selected randomly from total hospitals of Kermanshah city; then, 200 nurses were selected in order to sex relation. Knowledge, attitude and practice of nurses for nosocomial infections control were measured with the questionnaire that formed from four sections of data characteristics, knowledge, attitude and practice. The validity of questionnaire as context evaluated by experts and their reliability evaluated by Cronbach's alpha 75%. After 2 weeks, the same questionnaire completed again by nurses.

Data analysis:

After recording the data in SPSS, knowledge questions were coded to answer true number 1 and false number 0. The Likert scale in which the patient is asked to respond to written items in terms of degree of reaction was used for attitude and practice. The ratings were as follows: 4=completely agree, 3=agree, 2=no comment, 1=disagree and 0=completely disagree. This scale was reversed to adverse attitude and practice. The results were ranked in three levels of good (>70%), intermediate (50 - 70%) and weak (50%>). The results were analyzed by SPSS 16, using chi-square and fisher's tests in a significant level ($\alpha=0.05$).

Results

Characteristics of nurses showed in table 1. The knowledge of participants about healthcare infection and its control was investigated 69.5% good (male 15% and female 54%) and 3.5% poor (male 0.5% and female 3%). Attitude of nurses about health care infection was reported 36.5% good (male 7.5% and female 29%) and 2% poor (male 0.5% and female 1.5%); also, their practice was evaluated 80% good (male

19.5% and female 60.5%) and 1.5% poor (male 0.5% and female 1%) (Table 2).

Table 1) Characteristics of participants

Variables		Frequency(%)
Gender	Male	25.5
	Female	74.5
Age(years)	<25	13.5
	25-34	61.5
	35-44	19.5
	>45	5.5
	Diploma	6
Education	BSc	89
	MSc	5
	<1	12.5
Job experience (years)	1-5	36
	6-10	22
	>10	29.5

Table 2) knowledge, attitude, and practice of participants

Situations		Frequency(%)
Knowledge	Good	69.5
	Medium	27
	Weak	3.5
Attitude	Good	36.5
	Medium	61.5
	Weak	2
Practice	Good	80
	Medium	17.5
	Weak	1.5

79% of participants from the importance of hand hygiene in infection control and 88% participants from the methods of prevention of health care infection had knowledge. 65% of

Table 4) Results of the investigated items of attitude in the Likert scale

Items	Maximum Score	Attitude Level		
		(0-10)	(10-14)	(14-20)
Infection	20	(0-10)	(10-14)	(14-20)
Transmission methods of infection	12	(0-6)	(6-8.4)	(8.4-12)
Prevention methods of infection	12	(0-6)	(6-8.4)	(8.4-12)

Table 5) Attitude level for evaluated items

Items	Score	Attitude
fection	(10-14)(20)	Medium
Transmission methods of infection	(6-8.4) (12)	Medium
Prevention methods of infection	(8.4-12)(12)	Good

participants believed that touching is the most prevalent method of health care infection transmission and 88% of participants believed that education is the most effective method of health care infections control. 85% of participants have used personal protective equipment for nosocomial control and 82% of them washed their hands in every contact with patients.

Statistical tests

The statistical tests results showed that there is not a significant difference between age, gender, job experience with knowledge, attitude and practice of nurses. There is a significant difference between education and attitude ($P=0.043$), knowledge and attitude ($P=0.004$), knowledge and practice ($P< 0.001$). Also, there is a significant difference between attitude and practice ($P< 0.001$).

The results of the present study in terms of knowledge, attitude in the Likert scale and attitude level are presented in tables 3, 4 and 5, respectively.

Table 3) The results of the study in terms of knowledge of participants

Items	Frequency(%)
Infection	80
Transmission methods of infection	72
Prevention methods of infection	85

Discussion

The investigation of knowledge

The most nurses of teaching hospitals of Kermanshah city had good knowledge about healthcare infections control. The knowledge of nurses is depended on parameters such as characteristics, education, presence in training

courses and their motivation (3). The costs of healthcare infections have estimated billions of dollars per year for an incidence of 2,000,000 infections and 20,000 deaths per year. Effective educational program are essential to preventing health care infections (12). Education of healthcare workers includes information about aforementioned guidelines of infection control (13). Suchitra et al state that the education of healthcare workers has a positive effect on knowledge, attitude and practice of staff (14). The same results were founded in studies of Paudyal et al (15) and Zapata et al (10) that reached the nurses had good knowledge on health care infections control.

In the present study there is not a significant difference between knowledge with characteristics of participants. The statistical tests results revealed that there is a significant difference between knowledge and attitude. In high level of knowledge, participants have better attitude from the methods of healthcare infections control. The results of present research was similar to the research results of Ogoina et al that found there is a significant difference between knowledge and attitude (1).

Also, there is a significant difference between knowledge and practice. The participants practice is under the influence of their knowledge. The results of the present study was not according to the studies of Ghadamgahi et al (3), Parmeggiani et al (16) who were found there is not a significant difference between knowledge and practice.

The investigation of attitude

The results of previous studies showed that positive attitude had high importance in healthcare infections control (3). In this study nurses had medium attitude about healthcare infections control. The statistical tests results showed that there is not a significant difference between attitude with age, gender and job experience but there is a significant difference between attitude and education. The correlation coefficient between knowledge and practice with attitude and practice was compared to the

results showed that attitude is more effective than knowledge in the improvement of nurses practice. Changing attitude is necessary in addition to increasing knowledge. The same results were also found in the study of Askarian et al who found that there is a significant difference between knowledge with attitude and attitude with practice which were related to standard precautions of surgeons and physicians (17).

The investigation of practice

In the present study, the practice of nurses was investigated good for nosocomial infections control. Slightly percent of nurses have weak practice. Weak practice depends on the lack of knowledge of persons. The results showed that there is not a significant difference between practice and characteristics of participants.

The role of health care centers in improve of nurses performance for healthcare infections control are training course as continuous and providing simple access of nurses to disinfectants and personal protective equipments. This is investigated that being too busy, dryness of skin by disinfectants, lack of access to personal protective equipments are reasons that healthcare workers do not wash their hands between patients visit (14,17). Nurses are more in contact with patients, the importance of their hands hygiene seems to be vital in the control of the hospital infections (18). In the present study, the majority of nurses washed their hands in every contact with patients.

The same results was reported by study of Karimian and Rostami Nejad in the investigation of knowledge and practice of nursing staff in order to control the nosocomial infections in Yasouj hospitals of Iran (19). Also, the study results were not according to the study results of Shinde et al (18) and Askarian et al (20).

Conclusion

The results of this research revealed that nurses of teaching hospitals of Kermanshah university of medical sciences have good knowledge, practice and moderate attitude for nosocomial infections control. As regards, a small percentage of nurses have poor knowledge and practice into nosocomial infections control; so, continuing education courses are necessary for raising knowledge and create a positive attitude in nurses.

Footnotes

Acknowledgement:

The authors wish to acknowledge the financial support of carrying out this project (Project Code: 94020) from Kermanshah University of medical sciences.

Conflict of Interest:

The authors declared no conflict of interest.

References

- Ogoina D, Pondei K, Adetunji B, Chima G, Isichei Ch, Gidado S. Knowledge, attitude and practice of standard precautions of infection control by hospital workers in two tertiary hospitals in Nigeria. *J Infect Prev* 2015;16(1):16-22.
- Sodhi K, Shrivastava A, Arya M, Kumar M. Knowledge of infection control practices among intensive care nurses in a tertiary care hospital. *J Infect Public Health* 2013;6(40):269-275.
- Ghadamgahi F, Zighaimat F, Ebadi A, Houshmand A. Knowledge, attitude and self-efficacy of nursing staffs in hospital infections control. *Iranian J Mil Med* 2011;13(3):167-172. [Full Text in Persian]
- Ekaete Alice T, Danny Akhere A, Ikponwonsa O, Grace E. Knowledge and practice of infection control among health workers in a tertiary hospital in Edo state, Nigeria. *Direct Res J Health Pharmacol* 2013;1(2):20-27.
- Mohammed D, Seifi O. Bacterial nosocomial infections in neonatal intensive care unit, Zagazig University Hospital, Egypt. *Egyptian Pediatric Association Gazette* 2014;62(3-4):72-79.
- Ahmed Khan H, Kanwal Baig F, Mehboob R. Nosocomial infections: Epidemiology, prevention, control and surveillance. *Asian Pac J Trop Biomed* 2017;7(5):478-2.
- Ahmed Khan H, Ahmad A, Mehboob R. Nosocomial infections and their control strategies. *Asian Pac J Trop Biomed* 2015;5(7):509-514.
- Choi JY, Kwak YG, Yoo H, Lee SO, Kim HB, Han SH, et al. Trends in the incidence rate of device-associated infections in intensive care units after the establishment of the Korean Nosocomial Infections Surveillance System. *J Hosp Infect* 2015;91(1):28-34.
- Tavolacci MP, Ladner J, Bailly L, Merle V, Pitrou I, Czernichow P. Prevention of Nosocomial Infection and Standard Precautions: Knowledge and Source of Information Among Healthcare Students. *Infect Control Hosp Epidemiol* 2008;29(7):642-647.
- Carneiro García-Zapata M, Custódia Silva e Souza A, Valadares Guimarães J, Ferreira Veiga Típpl A, Aparecida Prado M, Tulio Antonio García-Zapata M. Standard precautions: knowledge and practice among nursing and medical students in a teaching hospital in Brazil. *Int J Infect Control* 2010;6(1):1-8.
- Saffari M, Ghanizadeh Gh, Fattahipour R, Khalaji K, Pakpour AH, Koenig HG. Effect of the Intelligent Health Messenger Box on health care professionals' knowledge, attitudes, and practice related to hand hygiene and hand bacteria counts. *Am J Infect Control* 2016;44(12):283-285.
- Prabhakar Masavkar S, Mubarak Naikwadi A. Knowledge, Attitude and Practice Regarding Nosocomial Infections among General Health Practitioners and Medical College Students. *Sch J Appl Med Sci* 2016;4(5F):1852-1856.
- Daniel Rosenthal V. International Nosocomial Infection Control Consortium (INICC) resources: INICC multidimensional approach and INICC surveillance online system. *Am J Infect Control* 2016;44(6):81-90.
- Suchitra JB, Lakshmi Devi N. Impact of education on knowledge, attitudes and practices among various categories of health care workers on nosocomial infections. *Indian J Med Microbio* 2007;25(3):181-7.
- Paudyal P, Simkhada P, Bruce J. Infection control knowledge, attitude, and practice among Nepalese health care workers. *Am J Infect Control* 2008;36(8):595-597.
- Parmeggiani C, Abbate R, Marinelli P, Angelillo I. Healthcare workers and health care-associated infections: knowledge, attitudes, and behavior in emergency departments in Italy. *BMC Infect Dis* 2010;10.
- Askarian M, McLaws ML, Meylan M. Knowledge, attitude, and practices related to standard precautions of surgeons and physicians in university-affiliated hospitals of Shiraz, Iran. *Int J Infect Dis* 2007;11(3):213-219.
- Shinde MB, Mohite V. 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. *Int J Sci Res* 2014;3(2):311-321.

19. Raeis Karimian F, Rostami Nejad A. Assessment of knowledge and practice of nurses in Yasouj hospitals about nosocomial infections. *Armaghan-e-Danesh* 2003;8(31):41-50. (Full Text in Persian)
20. Askarian M, Assadian O. Infection Control Practices among Dental Professionals in Shiraz Dentistry School, Iran. *Arch Iran Med* 2009;12(1):48–51.