

Investigation of Patients' Awareness about Hospital Infection Symptoms at Shahid Kamyab Educational Hospital from March to September 2015

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ARTICLE INFO	ABSTRACT
<p>Article type: Research Paper</p>	<p>Introduction: Annually, more than 1.4 million of the world population suffer from nosocomial infections. The present study aimed to assess the patients' knowledge about the symptoms of hospital infections.</p> <p>Materials and Methods: This descriptive cross-sectional study was conducted through the census method on 350 patients admitted to Shahid Kamyab Hospital, Mashhad, Iran. They were asked to complete a researcher-made questionnaire covering such information as demographic characteristics and questions to evaluate awareness about the symptoms of hospital-acquired infections. The data were analyzed in SPSS software (version 22) using descriptive statistics.</p> <p>Results: The majority of the participants (65%) in this study were male, and 68.7% of the cases had a higher level of awareness regarding the symptoms of hospital infections.</p> <p>Conclusion: Considering the higher level of patients' knowledge about the symptoms of hospital infections, the patients' education process can be continued to keep and improve this trend.</p>
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Introduction

Annually, more than 1.4 million of the world population suffer from hospital infections (1). These infections occur 48-72 h post hospitalization, do not exist at the time of admission, and are not in the incubation

period. In addition, infections created in the hospital environment and involving the staff can be considered hospital infections. According to the World Health Organization, the incidence of hospital infections in developed countries is estimated from 5% to

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10%, and it has been reported more than 25% in some developing countries (1,2). Hospital infections are important regarding three aspects of the disease, mortality, and hospital costs. It also causes tension and disability, and deteriorate the quality of life of patients. The incidence of any hospital infection adds 4.5 days to the hospital stay (3); moreover, these infections will impose additional costs. A study conducted in Columbia in 2015 found that the hospital costs of people with infections were about six times higher, compared to the rest of the patients (3). According to the statistics published in Iran (2009), the mean incidence of hospital infections was estimated to be between 10% and 15%, of which 10% to 20% of the patients died. In general, 5.96% of all deaths in hospitals are caused by hospital infections (4). In total, 1% of the hospital infections are fatal, and 4% of these infections are involved in the deaths of the patients. (5) Given the widespread outbreak of hospital infections and its negative consequences, measures should be taken to control it. Therefore, the hospital care system for infections has been operating since 1970 by the US Center for Disease Management (6). In our country, the infection care system in hospital was implemented in 2007 by the Center for Disease Management (7). This system has classified the infections into four main groups, including the urinary tract, surgery, blood, and respiratory tract. Various factors affect the proper functioning of the hospital infections care system for which the low reporting of hospital infections can be mentioned. The study carried out by Moreno et al. showed that the rate of hospital infections in the intensive care units of 10 developing countries was 3 to 5 times higher than what was reported by their hospital infections care systems (8). A similar condition exists in our health care system so that the lower number of infection registrations is one of the most important problems in the hospital infection care system in the country. Moreover, the detection of hospital infections in Iran is far lower than expected. According to internal and international evidence, the actual rate of hospital infection in the country is estimated to be between 8% and 10%, and its incidence in hospitals is undeniable. The establishment

of appropriate acts and interventions to control hospital infections and assess their effectiveness is possible when the reports of the infection care system in hospitals are precise and accurate (7). Therefore, the present study aimed to determine the level of patients' knowledge about the hospital infection symptoms to identify the strengths and weaknesses of the patients' knowledge and take steps to reduce the number of hospital infections.

Materials and Methods

This cross-sectional study was conducted from March to September 2015 in the hospitalization wards of Shahid Kamyab Educational Hospital in Mashhad, Iran. The sample size was determined at 400 cases based on the volume calculation formula and similar studies with $P=0.025$, acceptable error of $d=0.043$, and confidence level of 0.95; however, regarding the potential of the researchers, 350 people were included in this study. The study population included the patients admitted to Shahid Kamyab Educational Hospital, Mashhad, Iran, from March to September 2015. The patients were selected from those who fulfilled the inclusion criteria using the census method. The inclusion criteria were: 1) the minimum level of literacy (reading and writing ability), 2) hospitalization for at least 2 days, and 3) complete alertness. The data were collected using a 16-item researcher-made questionnaire consisting of two parts, which sought such information as demographic characteristics (first part) (i.e., gender, age, type of illness, duration of hospitalization, and literacy level), and patients' knowledge of the hospital infection symptoms (second part). The original structure of this scale was designed using the literature; subsequently, it was completed and edited by survey and interview. The participants were asked to answer the questions using two responses of "I know" or "I do not know".

To evaluate the validity of the questionnaire, 10 experts in the field of infection control from hospitals in Mashhad, Iran, were requested to review the tool. Furthermore, it was given to 20 patients to assess the reliability of the questionnaire. After two weeks, those 20 patients answered the questionnaire for the second time, and the

Cronbach's alpha coefficient was calculated at 0.95. The quantitative and qualitative data were explained using mean±SD and number (percentages), respectively. The obtained data were analyzed in SPSS software (version 22), and a p-value less than 0.05 was considered statistically significant.

Results

The majority (65%) of the participants in this study were male, and 39.6% of the cases were 18-35 years old. Table 1 tabulates the demographic characteristics of the participants in this study.

Table 1: Demographic characteristics of the patients referring to Shahid Kamyab Educational, Research, and Therapeutic Center in the study period

Variable	Frequency	Percentage
Age (year)		
Less than 18	44	12.6
18-35	139	39.6
35-55	117	33.5
Higher than 55	50	14.3
Gender		
Female	123	35
Male	227	65
Education level		
Less than diploma	175	50
Diploma	105	30
Bachelor of Science (BS)	75	20
Higher than BS	35	10
Hospitalization period (day)		
1	100	28.6
1-5	125	35.7
5-10	50	14.3
More than 10	75	21.4
Hospitalization ward		
Neurology department for females	20	5.7
Neurology department for males	30	8.5
Orthopedic department for females	50	14.3
Accident ward	75	21.5
Orthopedic department for males	175	50

All patients (100%) in the females' orthopedic ward and accident ward received education about hand hygiene and post-discharge risk signs, respectively. Moreover, 68.7% of the patients had a higher level of

awareness regarding the symptoms of hospital infections.

Table 2 summarizes the relative frequency of patients' awareness about the symptoms of hospital infections.

Table 2: Relative frequency of patients' awareness (percentage) about the symptoms of hospital infection

Item	I Know (%)				
	Neurology for females	Neurology for males	Orthopedic foe females	Orthopedic for males	Accident ward
Does the patient have any knowledge in the field of hospital infections?	66	55	77	55	66
Has the patient been trained in the field of hand wash?	72	66	100	66	77
Does the patient know the symptoms of urinary tract infections caused by hospital infections?	66	44	77	55	44
Does the patient know that if he/she has frequent urination, he/she should make the care providers informed?	66	44	66	33	55
Does the patient know that if he/she has burning urine, he/she should make the care providers informed?	44	33	55	44	44
Does the patient know that if he/she see changes in the color of urine, he/she should make the care providers informed?	44	33	55	33	77
Does the patient know that in the case of a transplant to radiology, the Foley catheter should be closed and on the bed?	66	33	77	66	55
Does the patient know about urinary catheter care methods?	88	44	55	44	77
Does the patient know that the urine bag should never be on the ground?	66	33	77	44	77
Does the patient know that if he or she has an implant (an operating device), the hospital infection will be counted up to one year later?	77	33	55	66	77
Does the patient or his/her companion know that in case of fever, they should immediately make the relevant nurse informed?	66	33	77	66	55
Does the patient or his/her companion know about the care of the chest tube place?	44	33	33	33	55
Does the patient know any change in color in the chest tube and the connective area should be reported?	44	55	44	33	55
Does the patient know the symptoms of wound infection?	77	66	66	66	77
Does the patient know s/he must make the doctor informed when observing symptoms, such as pain and burning at urinating or pus in urine catheter or fever after discharge?	77	55	66	55	88
Does the patient know if s/he is admitted to the hospital, s/he should see a doctor if s/he has symptoms of respiratory and coughing and fever higher than 38 and purulent sputum?	88	55	88	66	100

Discussion

This study investigated the knowledge of patients about hospital infection symptoms. The results indicated that 68.7% of the cases had a higher level of knowledge about these infections. In other words, the majority of the patients had relatively high information about infection control, and only 31.25% of the individuals had poor knowledge in this regard. To justify the awareness of the patients about infection control, it can be said that patients' education is one of the main tasks of the nurses. Moreover, the hospitalization period is one of the best opportunities to train patients due to their feeling of need which lead them to learn easier followed by longer amount of information retention in the memory. The process of patients' education is implemented more seriously at educational hospitals in Mashhad, Iran. Therefore, given the implementation of patients' education by nurses, hospitalized patients in this center receive more useful information about infection control.

The results of this study are in line with the findings of a study conducted by Taghdisi et al. (2011), which showed that pregnant women had a moderate awareness about urinary tract infections (9); however, the level of patients' awareness in the present study was higher than that in the aforementioned study. In justifying this conclusion, one of the reasons for the higher awareness level of patients about the symptoms of infections is the repetition of information in shifts at different times (the time of changing the dressing and administering medications to patients). Since these patients have a longer hospital stay, information is often repeated by different nurses, which leads to longer retention in the patient's memory.

Furthermore, giving information and repeating treatment activities at the same time is effective, such as attention not to rest the urine bag on the floor, which nurses usually care about it at the time of shift delivery. This causes the patient to be sensitive to this issue and considers its importance.

Similarly, Taghdisi et al. (2012) showed that education contributes to the promotion of health behaviors (10) which is consistent with the findings of the present study. One of the important points in this study was the higher awareness level of the patients about hand hygiene which was higher than average in all wards. This noticeable level of knowledge can be due to frequent training and patients' education in terms of the need for hand hygiene that was carried out through banners, pamphlets, and direct training.

Conclusion

Hospital infections have a high prevalence among hospitals in Iran; therefore, there is a need to take action to reduce these infections. The evaluations carried out in this study indicated a higher and significant awareness level of the patients about the symptoms of hospital infections. According to the experiences of the researchers, the most important causes of higher levels of patients' awareness are the training received by the patient during the hospitalization period. Patients' education and training are regarded as a significant part of the time when nurses and patients interact with each other. Therefore, it is suggested to extend the training to reduce the prevalence of hospital infections significantly.

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