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Special Issue: Nursing and Healthcare: Current Scenario and Future Development

ISSN No: 2319-5886

International Journal of Medical Research & Health Sciences, 2016, 5, 7S:134-139

The survey of the personnel performance regarding infection control principles observation in the Jahrom training hospitals surgery rooms

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ABSTRACT

The wound infections are among the most common infectious diseases in hospitals. The surgery team members who are in contact with the tissue sections under surgery when doing surgical operations play a significant and substantial role in preventing and controlling the infections through observing the rules and regulations of the infection control in the surgery rooms. The current study has been undertaken for the purpose of determining the surgery room personnel performance regarding the observation of the infection control principles in Jahrom's training hospital surgery rooms. the current is a descriptive-analytical study of the cross-sectional type which has been conducted in 2011 in Jahrom's medical sciences university. The total number of 80 individuals from the surgery room personnel participated in the current study. The data collection tool was a checklist which recorded the surgery room personnel's performance regarding the observation of the infection control in three times in a day through invisible supervision and then according to the scores obtained for each of the personnel their performances were classified in four levels of weak, medium, good and very good. The data gathered through this method was analyzed by SPSS and the statistical tests such as CH-Square tests and Fischer's exact test. the results of the study indicated that some of the principles of controlling infection in Jahrom's treatment and training centers surgery rooms are not practiced by the study population and that it has also been found out that the surgery room technicians' performance is better and the surgeons' performance is weaker than the others. Besides, the surgery team performance considering the observation of the scrubbing principles is their weakest point in their overall performances. since the results obtained by the author of the current study is indicative of the idea that the study participants are not attentive to some of the infection control principles in the surgery rooms, thus it is suggested that there is a need for in-service training courses, getting the infection control-prevention committees more actively participating and exerting supervisory mechanisms in the surgery rooms and also the use of the new antiseptic materials for surgery room scrubbings, and also it is suggested that the common and traditional scrubbing methods should be replaced by new scrubbing methods.

Keywords: infection control, surgery room, personnel performance

INTRODUCTION

nowadays, the hospitals have been realized as the integral part of the social formations by the world health organization and it has been propose to be serving the responsibilities such as providing complete health care services and treatment services for the general public and also a center for training and educating the health and treatment sections' staff and the other groups and classes in the society. Preserving and maintaining the people's health especially the patients who are hospitalized in the state or government-associated and private hospitals is in a direct relationship with the recognition and the realization of the factors contributing to the creation and development of the hospital infections [1]. Hospital infections are considered as one of the mortality factors worldwide. According to the announcement made by the "American institute for preventable medical symptoms", the hospital infections are every year responsible for the death of 42 to 98 thousand deaths in the United States and every year they incur costs as much as 17 to 29 million dollars [2]. Such infections cause lengthening of the patients stays in the hospitals and increasing the paralysis time, creating disability, discomfort and even death and it has been estimated that the hospital infections lead to the death of 1 out of every 5000 patients hospitalized [3]. According to the definition provided for the hospital infections, it is used to refer to the infections which appear 48 hours after being hospitalized in the hospitals that means that the patients had not been diagnosed with an infection or has not been in his or her common period of the infection or disease upon being admitted to the hospital [4]. Regarding the hospital infections, there has been conducted many studies in Iran and the other countries in the world. In England, the presented statistics by the national organization for the health care services indicates that during the two recent decades the statistics showing the diagnosis for such infections have been increased by 36%. The methods and the techniques used in and by the infection control are old-fashioned and they need to be revised [5]. Even with the emergence of the various and new sorts of the antimicrobial materials and the sterilization tools the infection rates are still in a high level in the hospitals. The hospital environments which are places for the treatment and curing of the patients should not be themselves a center for creating infection and they have to be potentially the most effective factor reducing the infections [2]. There are many factors in relationship with the hospital infections. Among the interfering factors which can be reduced to a minimum through the use of methodical treatment styles are hospital stays lengthening, the improper use of the antibiotics, the improper use of the suction counters, the health care sections and wards refusal to wash their hands and lack of making use of the sterilized techniques in treatment procedures [6]. In this way, the hospital personnel play a significant role in propagating the infection and are therefore regarded as one of the key members in managing and controlling the infection in the hospitals [7]. Educated and informed personnel should be aware of the latest scientific achievements of the day, they should recognize and know the sources and the methods for controlling the infection and make a practical use of them when performing the ordinary and routine health care service provision [8]. Surgery room is one of the most complicated work environments in the health care services systems. This is the fact that is revealed in the issues and problems related to the patients and treatment protocols and also the use of the high level of technology in the surgery rooms. Surgery operations are among the most essential prognostication and treatment methods and they have also been found to play a substantial part in improving and recovering the patients' health, but despite of the abundant benefits and advantages the surgery has been found to be accompanied with symptoms such as post-surgery infections in the patients [8]. Surgical site infection is one of the common hospital infections. It has been estimated that almost 24% of the entire hospital infections are surgical site infections with 2.8% of the total number of the surgical operations in the US leading to infection [2]. To reduce the surgical wound infection, the surgeons should take the lead in improving the surgery room and surgery wards health and sanitation status and apply correct surgical methods to reduce their patients' infection rates. On the other hand, implementation of the infection control principles by the entire hospital staff particularly the nurses seem to be a vital issue and it will surely be of clear and vivid effects on enhancing the health services quality and treatment of the patients [9]. Since the post-surgery infections can bring about intensive problems including making trouble and interfering with the surgery wound rehabilitation process, blood infection, organ damages and even death, therefore, controlling for and preventing such infections is of a very great importance. Surgery room personnel play a significant and essential role in controlling the infection post surgery operations, therefore, the determination of the infection control methods and principles application rate by the surgery room personnel and the determination of their performances in controlling and preventing the surgery room infections is considerably critical. Because there has not been undertaken any studies on the surgery room infections control and prevention measures and methods by the surgery room staff and personnel in Jahrom medical sciences university, therefore, we decided to perform a study on the personnel performance regarding observing the infection control principles in Jahrom's training hospitals' surgery rooms.

MATERIALS AND METHODS

the current is a cross-sectional descriptive study. The sampling method has been conducted based on the general census of the entire surgery room personnel which are required to do scrubbing and it includes the surgery room nurses, surgery room technologists, surgeons, anesthesia technicians and anesthesiologists. The entire surgery room personnel which are estimated to be more than 80 individuals were entered to the study. To evaluate the personnel performance in preventing measures and observing the infection control principles, a checklist was designed comprising of the various sections (observing the coverage particular to the surgery rooms, scrubbing methods, preserving one's own sterility and the surgical environment's, observing the infection control after the surgery is finished and adhering to the antiseptic and preparatory standards). The above-mentioned checklist was prepared by the researcher et al by making use of the scientific sources and books and the content validity verification tests were taken advantage of to confirm the checklist's validity. This was performed in this way that the prepared checklist was made available to three of Jahrom's medical sciences university faculty members who were considered as the experts in this field. And after their ideas and notions were inquired and after the necessary amendments were carried out the final checklist was prepared and also it has to be mentioned that the simultaneous observation methodology has been taken advantage of in confirming the checklist's reliability. It was done in the way that one of the peers and the researcher carefully observed the performance balance measures belonging to the 20 of the operation room personnel and they proceeded to complete the checklists and then in the end the results obtained were compared and as it is shown in the following sections the obtained responses were found to be indicating a strong correlation equal to 76% by making use of Pierson correlation test. Through referring to the surgery room, the researcher supervised each of the operation room personnel three times from the perspective of checklist variables in an unmarked manner and the checklist related item was completed every time based on the personnel performance and every item was given a score. In case that a personnel has been found to observe the point and hint related to the infection control in the entire three times, s/he is to be given the score three and for two times the score would be two and for one time the score given to the personnel would be equal to one and in case that s/he has been found not observing the infection control measure for none of the three times then the score to be given is zero. And then the individuals' performances were reported as weak, medium, good and very good based on the quarters. The standard for entering the study: the personnel were included in the study based on an invisible and intangible method (without the personnel being informed); exclusion standard: the imperfect checklists were omitted and put away from further investigation. The data were evaluated by taking advantage of SPSS software in the descriptive statistics level and they were also analyzed by making use of the Chi-Square tests and Fischer's exact test.

in studying the surgery room personnel performance in connection to the observation of the infection control principles based on their genders among the fields of study which were recognized to be statistically significant, except in the third field that was keeping the surgery room sterile by the sterile individuals in which the male personnel performances was better, in the other areas the female personnel performances outperformed the males'. Regarding the extent to which the surgery room-specific coverage and clothing is observed and the personal cleanliness as well the performances for both of the genders was good and as for the second area of the study that was the surgery room sterility by the non-sterile men the men outperformed the women. Also, in studying the surgery room personnel performances regarding the observation of the infection control principles based on their ages it was indicated that in statistically significant fields of study the performance presented by the below 30 age group was better than the above 30 age group and the same result holds for the first study field which was mentioned previously to wit the observation of surgery room-specific clothing and coverage. In the end, the survey of the surgery room personnel performances regarding the observation of the infection control principles based on the work history or record in the fields of study which were considered to be statistically significant (second, third, fifth and sixth) it was found that in the second area to wit the sterility protection of the surgery room by the non-sterile individuals the best performance was found for the group with a work history of 10-15 years and the worst performance was found to be belonging to the individuals with work history of 20-25 years. Regarding protecting the sterility of the surgery room by the sterile individuals, the best performance was obtained in the group with a work history of 20-25 years and the worst performance was found in the individuals with a work history of 15-20 years. Regarding the observation of the scrubbing principles the best performance was obtained in the individuals with a work history of 10-15 years and the worst performance was obtained in the individuals with the work history of 20-25 years. Regarding protecting the sterility of the surgery room by the sterile individuals and observing the preparation and antiseptic methods and principles adherence in the surgery site the best performance was found in the individuals with a work history of 20-25 years and the worst performance was obtained in the group with a work history of 15-20 years.

Regarding the extent to which the surgery room-specific clothing and coverage is observed and the personal cleanliness rate among the anesthesiologists, 6 individuals (100%) had a good performance. 17 individuals of the surgeons (100%) showed a good performance. 21 individuals of the anesthesia technicians (95.5%) had a good performance and 1 individual (4.5%) showed a very good performance. Among the surgery room technicians, 3 individuals (8.6%) showed a weak performance, 2 individuals (5.7%) showed a medium performance and 30 individuals (85.7%) indicated a very good performance. According to the value found for p which was equal to 48% it has to be stated that the relationship is not statistically significant.

Table 1: the survey of the surgery room personnel performance regarding the extent to which the operation room-specific clothing and personal cleanliness is observed

	Weak (frequency percentage)	Medium (frequency percentage)	Good (frequency percentage)	Very good (frequency percentage)
Anesthesiologist	0 (0%)	0 (0%)	0 (100%)	0 (0%)
Surgeon	0 (0%)	0 (0%)	17 (100%)	0 (0%)
Technician	0	0	21	1
Surgery room technician	3	2	30	0

(P<0.001)

Table 2: the survey of the surgery room personnel performance regarding the infection control principles post surgery operations

	Weak (frequency percentage)	Medium (frequency percentage)	Good (frequency percentage)	Very good (frequency percentage)
Surgeon	15 (88.2%)	2 (11.8%)	0 (0%)	0 (0%)
Surgery room technician	0 (0%)	0 (0%)	2 (5.7%)	33 (94.3%)

(P<0.001)

Table 3: the survey of the surgery room personnel performance regarding the antiseptic and preparation methodologies observation for the operation site

	Weak (frequency percentage)	Medium (frequency percentage)	Good (frequency percentage)	Very good (frequency percentage)
Surgeon	0 (0%)	0 (0%)	0 (0%)	17 (100%)
Surgery room technician	2 (5.7%)	2 (5.7%)	31 (88.6%)	0 (0%)

(P<0.001)

Table 4: the survey of the surgery room personnel performance regarding the scrubbing methodical principles observation by gender

	Weak (frequency percentage)	Medium (frequency percentage)	Good (frequency percentage)	Very good (frequency percentage)
Female	5 (10.6%)	2 (4.3%)	40 (85.1%)	0 (0%)
Male	17 (51.5%)	0 (0%)	15 (45.5%)	1 (3%)

(p=0.013)

DISCUSSION

in the current study the surgery room personnel performance was investigated in relation to the observation of the infection control principles based on their education level, job, gender, age group and work history. In a similar study conducted in 2009 in Yasooj medical sciences university, 42 surgery room team members from the city of Yasooj's treatment and training centers' surgery rooms [9] were studied out of which 21 individuals (50%) were women and 21 individuals (50%) were men. Based on the results obtained for the various age groups a significant relationship was not found (P>0.05). But, it was indicated in our study that in the areas such as protecting the sterility of the surgery room by sterile individuals, observing the infection control principles post surgical operation and observing the scrubbing principle, the performance exhibited by the below 30 age group was better than the performance displayed by the above 30 age group. Another study entitled the rate to which the infection control principles are practiced by the surgery room personnel in Rasht treatment and educational and training hospitals in 2006 [10], it was shown that the surgery room personnel performance (97.9%) was acceptable and this is the result which conforms to what has been found in the present study. In another study by Nooryan et al [11], the results showed that the observed personnel's performance has been weak regarding antiseptic and sterilization methods, personal, clothing and uniform cleanliness and it is corresponding with the results obtained in our study only as

related to the survey of the antiseptic and sterilization observation methods. Also, in the study conducted by Nooryan et al there was not found any significant difference between the personnel performance and gender and it is not consistent with the results obtained in the present study. In a study which was conducted by Nasiriani the results showed that the highest good performance frequency pertained to the women group and the highest weak performance frequency belonged to the men's group. Spearman correlation coefficient test indicated a statistically significant relationship between the performance and gender. And it is similar to what has been obtained in the present study in this regard, but there was not observed a significant difference between the various age groups and the work history in the surgery rooms studied in the mentioned study against what has been obtained by the current research. Mortel et al [12] in a study regarding the study of the relationship between the hand-washings and the gender by the intensive care units staff members found out that there is an internal difference between men and women in washing hands and this is the study which conforms to the studies performed by the primary school students and the adults. This theme was also found out in the study conducted by Nasiriani, since the study findings indicated that the women's performance in observing the infection control principles is better in respect to the men and it was also suggestive that there is a significant correlation between the gender and performance. This issue was studied in our study regarding practicing scrubbing methods and principles and it was shown that the women's performance results outperform the men's and in this regard the current study corresponds to the aforementioned studies. In another study which was conducted by Mortel et al regarding the hand-washing amount and rate in the intensive care units the results indicated that after the nurses and physicians made contact to the patients, the nurses wash their hand in 71% of the cases and the assistant physicians wash in 50% of the cases and the specialized physicians only in 25% of the cases wash their hands. In this regard, Bicshoof et al [13] state that under common circumstances and conditions governing the hospitals, the hand-washing capacity by the health care providers including the nurses, physicians and the others is in an acceptably very low level. In our study, the surgeons' performance was weak from the scrubbing point of view, but this was also found about the surgery room technicians and they are corresponding and consistent with the studies performed by Bicshoof et al.

CONCLUSION

the results of the study indicated that some of the infection control principles in the surgery room belonging to Jahrom's treatment and training centers are not attended to and observed by the study population and in the meantime the surgery room technicians' performance was found to be better than the surgeons whose performances was shown to be weaker than the others. Moreover, the surgery team performance regarding the observation of the scrubbing principles is their weakest point in their performance. Also, the findings regarding the general performances by the surgery room personnel showed that the majority of the individuals' performances have been reported to be in an intermediate level.

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