Original Article

Bull Emerg Trauma 2013;1(2):69-75.

Bulletin of Emergency And Trauma

Effects of Triage Education on Knowledge, Practice and Qualitative Index of Emergency Room Staff: A Quasi-Interventional Study

***Hashem Rahmati*[1*], *Mahboobeh Azmoon*[2], *Mohammad Kalantari Meibodi*[3], *Najaf Zare*[4]**

[1]*Department of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran.*

[2]*Fasa University of Medical Sciences, Fasa, Iran.*

[3]*Trauma Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.*

[4]*Infertility Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.*

Corresponding author: Hashem Rahmati
Address:Faculty of Nursing and Midwifery, Shiraz University of Medical Sciences, Shiraz, Iran.
Tel: +98-917-3148289 Fax: +98-711-6474252
e-mail: rahmatyh@sums.ac.ir

Received: December 17, 2012
Revised: January 20, 2013
Accepted: February11, 2013

ABSTRACT

Objective: To determine the effects of triage education based on emergency severity index (ESI) on promoting the knowledge and performance of nurses and qualitative indices of emergency department.

Methods: This study was a quasi-interventional study being performed in Vali Asr Hospital of Fasa University of Medical Sciences during 2012. For this purpose, 50 members of staff including nurses and technicians of emergency medicine in the Emergency department with the inclusion criteria for participation were selected. Data collection instruments included a questionnaire consisting of two parts, (personal characteristics, and knowledge) and the performance assessment checklist was prepared. Content validity was used to determine the validity. The test-retest method and quder-Richardson 20 were applied to determine the reliability of the questionnaire. Interobserver reliability and the correlation between the two observers and imaging modalities were measured to determine the reliability of the performance checklist. The questionnaires and checklist were completed by the participants before, 2 days and 6 weeks after completion of the training. Workshop in two 9-hour sessions was provided which consisted of lectures, questions and answers.

Results: The triage scores were 10.7±3.1, 17.8± 1.6 and 16.1±2.3 before, 2 days and 6 weeks after training, respectively. Triage performance score increased from 48.9 ± 9.9 before training to 59.8 ± 7.6, two days after training and to 59.7 ± 8.1 six weeks later ($p=0.001$). In addition to triage training of the nurses the emergency department qualitative indices were impressively upgraded. Other results showed that there was no significant correlation between individual characteristics and personal knowledge of triage score 6-week after training ($r=0.018$, $p=0.126$). However, significant positive correlation was found between nursing work experience, work experience in emergency ward and type of employment and performance scores 6 weeks after training ($r=0.258$, $p=0.032$).

Conclusion: The results of the present study showed that triage education influences the practice and knowledge of nurses and improves the qualitative indices of emergency department. Therefore, it is recommended to include theoretical and practical training of triage for nurses in hospitals.

Keywords: Knowledge; Performance; Triage education; Qualitative indices.

Please cite this paper as:
Rahmati H, Azmoon M, Kalantari Meibodi M, Zare N. Effects of Triage Education on Knowledge, Practice and Qualitative Index of Emergency Room Staff: A Quasi-Interventional Study. *Bull Emerg Trauma.* 2013;1(2):69-75.

Introduction

The emergency departments are the crucial centers of hospitals that admit nearly 30 million patients across Iran each year [1]. In recent decades, hospitals have been confronted with a great number of patients due to various factors such as population growth, increased intentional and unintentional

injuries, drug abuse, etc. [2]. Meanwhile, the number of emergency departments has not been increased substantially in recent years [3]. The primary mission of emergency department is providing the best care possible in the shortest time [4]. But most emergency departments do not have the necessary and appropriate facilities for referrals of patients [5]. Overcrowding in emergency departments is considered as a serious problem in all parts of Iran. Sometimes patients wait more than 60 minutes and this is especially important when care is delayed, leading to patients' dissatisfaction [6]. The basic strategy to resolve this problem is usage of a triage system or prioritizing patients based on their clinical status [7]. The triage in the emergency department refers to setting time or allocating resources required by patients, searching for ways to provide care for patients in more urgent need, and keeping the patients with less severe illness waiting [8]. Currently, five-levels of emergency severity index (ESI**)** triage system is used due to the simplicity, ease of training, and a comprehensive conceptual and operational approach of the emergency departments in most hospitals in the world, particularly in Iran. In this system, patients are classified into five priorities based on the severity ranging from immediate to delay. Moreover, in regard to the severity of the disease, ESI also considers the facilities and resources of the patient in the triage area [9]. Nurses are the main anchors of triage in hospitals. The main role of the triage nurse is determining the priority of careful clinical care of patients [10]. Triage nurse must have appropriate training and experience in emergency nursing triage, decision making and emergency nursing cares [11]. Although there are a few studies regarding this subject, in 2005, Taheri et al. declared that the triage nurses' knowledge and performance were low in hospitals of Kerman University of Medical Sciences [10]. In another research, Mirhaghi et al. found that the knowledge of triage nurses in hospitals of Sistani Baluchistan was not efficient [11]. A study carried out in Australia, reported that 42% of nurses did not receive triage training and 14% said they were not yet sufficiently prepared to take up this assignment despite attending the triage classes [12]. Generally these studies have shown that, unfortunately, there are still serious concerns over triage nurses' knowledge since triage is performed by nurses in hospitals who have not acquired related sufficient knowledge [13]. In our country, triage training is indispensable to emergency personnel during and after their education because of the new triage system set up in medical centers nationwide and the lack of university culture required for this practice [14]. Iran is one of the ten countries in the world with high frequency of events and the fourth country in Asia. .In this context, accident-related traumas are very common and thus the triage time for trauma is of particular importance. Therefore employing experienced and skilled nurses for the triage in emergency department, and teaching them how to properly perform triage can prevent many deaths, disabilities, and additional costs of treatment [15]. Historical data also show that the triage and emergency nurses play most important role in research and court cases and consequently they are exposed to more risk of attack and abuse. Thus, formal training in triage improves the effectiveness of triage nurses and with improved confidence they will be prepared to perform more efficiently [16]. According to the study of Kelly *et al*. nurses should be trained in the field of triage, especially emergency education in triage and it is believed that a good emergency nurse should be adept in triage [17]. Since triage is the start of the first clinical patient care, precision, accuracy, time of triage, decision making and analyzing the results reflect the performance of each hospital's emergency department [5]. For evaluating the performance of emergency department in hospitals, we can examine the results of performance indicators in this section [18]. Five indexes such as "average time to triage patients at each level", "percentage of temporary patient's discharge with personal satisfaction", "percentage of cases handled in less than 6 hours", " percentage of successful cardiopulmonary resuscitation (CPP), and "percentage of patients leaving the emergency room within 12 hours" are considered as qualitative indexes of emergency department [19]. Many factors influence the promotion of the indexes and undoubtedly one of them is the knowledge and performance of nurses in triage [20]. The aim of this study was to determine the effects of triage education based on emergency severity index (ESI) on promoting the knowledge and performance of nurses and qualitative indices of emergency department.

Materials and Methods

Study Population

This research was a quasi-experimental study conducted in Vali Asr hospital affiliated with Fasa University of Medical Sciences during 2012 and comprised 50 members of staff in the emergency department including nurses and emergency medical technicians. The inclusion criteria were the willingness to participate in research, working in the emergency department and having an experience in the emergency department for at least 6 months.

The study protocol was approved by the institutional review board (IRB) as well as ethics committee of Fasa University of Medical Sciences and all the participants provided their informed written consents.

Questionnaire

Information was collected through a questionnaire including both the awareness and profile, along with performance evaluation form. Content validity of the questionnaire was confirmed by a number of teachers and academics specializing in emergency medicine triage nurseand familiar with the issues concerned. The test-retest method was applied to determine the reliability of the questionnaire. The correlation coefficient between the total scores of the questionnaires was 0.80 and Quder–Richardson 20 for internal consistency of questions was 0.95. For determining the reliability of the measurement technique of the form and the imaging modalities, the results were simultaneously assessed by two independent observers. The percentage of agreement between the observers proved to be at least 88.6% and at most 97.8%. The questionnaire consisted of the following three parts:

1. **Demographic characteristics** included age, sex, type of degree, marital status, nursing experience, working in the emergency department, CCU, ICU, dialysis wards, employment status, average weekly shift in the emergency department and rotations in shifts which was completed by the participants before attending the workshop. Measuring the knowledge of triage was carried out by questionnaires which consisted of 20 multiple-choice questions about nurses' knowledge such as triage and prioritizing patients, understanding of common cardiac arrhythmias and their treatment, airway management and basic and advanced cardiopulmonary resuscitation. Each question contained only one answer. The correct answer was given score 1, and wrong answer assigned as zero and there was no negative point for any question. Subjects showed a minimum score of zero and a maximum score of 20. According to the answers given, the level of nurses' knowledge was categorized into 3 distinct levels. Scores between 0 and 7 were considered as poor between 8 and 14 as moderate and from 15 to 20 as good knowledge.
2. **Performance evaluation sheet.** This was a standard form containing 20 questions. The items were in accordance with the triage nurse job description approved by the Ministry of Health and Medical Education. They were sent to the hospitals across the country for launching the triage system in the spring of 2012. The 20 questions in the form were scored as perfect (4 points), good (3 points), moderate (2 points), and poor (1 point).

Study protocol

The subjects of the study were evaluated by one of the researchers during morning and afternoon daily work shifts and the scores were calculated. Scores from 20 to 40 were considered as poor, 40 to 60 average, 60 to 80 good, and 80 as high-performances.

The questionnaire and performance evaluation form were completed before, two days, and six weeks after training by the participants and researchers. The participants were divided into two groups of 25 to attend the workshop, 9-hour lectures and a workshop on the use of educational aids held for each group.

Statistical analysis

The data were analyzed using descriptive and inferential statistical tests, ANOVA, t-independent and repeated measure ANOVA tests using SPSS software (SPSS, Chicago, IL, USA) version 16. The data on the emergency department qualitative indices for 3 months before and 3 months after the workshop provided by the hospital department were analysed along with their corresponding changes.

Results

The demographic information of the patients is summarized in Table 1. According to Tables 2 and 3, the average triage score of the participants in the study increased from 10.7±3.1 before training to 17.8±1.6, two days after training and 16.1±2.3, six weeks after training ($p=0.001$) . On the other hand, before training, 14% of the employees had a poor knowledge of triage, about 72% average and about 14% were in the good range. The knowledge in 98% of the employees was considered as good and 2% as moderate two days after the training. In 76% of the employees the knowledge was good and in 24% it was moderate after six weeks of training. Interestingly, two days and six weeks after training, the knowledge was not rated as bad in any of the employees.

Before training, the triage performance score significantly improved from 49.8 ± 9.9 to 59.8 ± 7.6 two days after training and to 59.7 ± 8.1 six weeks after training ($p=0.001$). In terms of performance 20% of emergency staff were good, 66% moderate and 14% were poor. The performance in 44% of the personnel in the emergency department triage was good and 66% were moderate two days after training. Six weeks after training, half of the teaching personnel in the emergency department triage showed good and the other half exhibited moderate performance (Tables 4 and 5). Interestingly, the performance in none of the employees was rated as bad two days and six weeks after training. However,

the findings in Tables 2 and 4 reveal that knowledge scores decreased from 17.8 to 16.1 and performance scores from 59.8 to 59.7 six weeks after compared with two days after training. The mean scores of knowledge and performance were lower over time and the difference between the mean of the two entities was significant (*p=0.001*).

In the period of 3 months before to 3 months after the intervention, the mean time of triage patients at level 2 reduced from 4.3 to 3.2 minutes and, the mean time of triage patients at level 3 increased from 5.2 to 5.6 minutes. Patients' triage at level 1 was equal to 1 minute and remained unchanged (Table 6). The percentage of temporarily hospitalized

Table 1. Demographic information of the 50 participants of the study.

Grouping	Category	Number	Percent
Sex	Male	25	50
	Female	25	50
Age (years)	≤25	21	42
	>25	29	58
Worked in the emergency department (years)	≤ 2	24	48
	>2	26	52
Education	Associate degree	15	30
	Bachelor degree	35	70
Marital Status	Married	20	40
	Single	30	60
Nursing Experience (years)	≤ 3	32	64
	> 3	18	36
Employment Type	Official	17	34
	Contract	15	36
	Planning	18	30
Experience in specific wards	Encompass	0	0
	Do not encompass	50	100
Status of rotation shift	Yes	50	100
	No	0	0
Weekly average shift (hour)	50-70	26	52
	70-100	24	48

Table 2. Comparison of knowledge scores before training, 2 days and 6 weeks after training of triage in Vali Asr Hospital of Fasa University of Medical Sciences, 2012.

Knowledge score of participants in the plan	Mean	Standard deviation	Maximum score	Minimum score	*p*-value
Knowledge score before training	10.7	3.1	15	6	0.001
Knowledge score after 2 days of training	17.8	1.6	20	15	
Knowledge score after 6 weeks of training	16.1	2.3	20	10	

Table 3. Distribution of subjects according to scores of knowledge of triage, before training, 2 days and six weeks after training of triage in Vali Asr Hospital at Fasa University of Medical Science, 2012.

Emergency Staff knowledge	Before training		Two days after training		Six weeks after training	
	Abundance	Percentage	Abundance	Percentage	Abundance	Percentage
Good (15-20)	7	14%	49	98%	38	76%
Moderate (8-14)	36	72%	1	2%	12	24%
Poor (0-7)	7	14%	-	-	-	
Total	50	100%	50	100%	50	100%

Table 4. Comparison of performance scores before training, 2days and 6 weeks after it in Vali Asr Hospital of Fasa University of Medical Sciences, 2012.

Performance score of participants in the plan	Mean	Standard deviation	Maximum score	Minimum score	*p*-value
Performance score before training	49.8	9.9	71	34	0.001
Performance score after 2 days of training	59.8	7.6	75	46	
Performance score after 6 weeks of training	59.7	8.1	78	43	

Table 5. Distribution of subjects according to scores of the triage before training, two days and six weeks after it in Vali Asr Hospital of Fasa University of medical science, 2012.

Emergency Staff knowledge	Before training		Two days after training		Six weeks after training	
	Abundance	Percentage	Abundance	Percentage	Abundance	Percentage
Perfect(80)	-	-	-	-	-	-
Good(60- 80)	10	20%	23	44%	25	50%
Moderate(40-60)	33	66%	27	66%	25	50%
Poor(20-40)	7	14%	-	-	-	-
Total	50	100%	50	100%	50	100%

patients leaving with personal responsibility increased from 7.6% to 8% and the percentage of such patients leaving the emergency room within 12 hours, reduced from 19.9% to 18.8%.The average percentage of successful CPR performed in the emergency department increased from 28.6% for 62.6%, and the percentage of patient care under 6 hours was 100% at both times and remained unchanged. There was no significant relationship in the area of knowledge between individual characteristics and personal knowledge of triage score six weeks after training (*r= 0.018, p=0.126*). However, there was a significant relationship in the area of performance between the type of employment, work experience and nursing experience in emergency department triage scores six weeks after training (*r=0.258, p=0.032*).

Discussion

According to the results obtained, the level of knowledge and practice in triage after intervention was higher than before training. The pre-training knowledge of workers was moderate but was good after the training and none of them exhibited poor knowledge. The performance of most participants before and after training was moderate and good respectively and none of the participants showed poor performance after training, a finding consistent with that of Haghdust *et al.* in Rasht [20]. The comparison shows that the mean knowledge scores and performance scores decreased over time so that significant difference was observed in two areas. Several studies have examined the issues of stability of knowledge and skills over time, as reported by Corner and Wilson–Barnett's study. Although training improved the performance of new nurses,in regard to the care of cancer patients, the performance declined after 3 months [21]. Thus, the impact of training is reduced over time and there is a need for continued education [22]. In this area, Gould (1991) stated that continued education for nurses are needed, because most of them had forgotten or paid less attention to the practical aspects of what they have already learned [23].

Other findings of this study indicated that the workshops held on the promotion of "percentage of successful CPR", proved effective in regard to average time to triage patients at level 1 to 3, and three other indices, percentage of patients care followed in less than 6 hours, percentage of temporarily hospitalized patient leaving with personal responsibility, percentage of short term hospitalized patients leaving the emergency room within 12 hours. Reduction in the index of percentage relating to temporarily hospitalized

Table 6. Effect the of education triage on qualitative indices of the emergency department at intervals of three months before and three months after training in Vali Asr Hospital of Fasa University of Medical Sciences, 2012.

Index	3months before training		3months after training	
Average time in level 1,2,3 triage patients	Average time in level 1 triage	1 min	Average time in level 1 triage	1 min
	Average time in level 2 triage	3.4 min	Average time in level 2 triage	2.3min
	Average time in level 3 triage	5.2 min	Average time in level 3 triage	5.6min
Percentage of patients care following under 6 hours	100%		100%	
Percentage temporary hospital patients out of the emergency room within 12 hours	19.9%		18.8%	
Percentage temporary patient's leaving with personal responsibility	7.6%		8%	
Percentage of successful CPR	28.6%		62.6%	

patients leaving the emergency room within 12 hours, and an increase in the index of percentage of temporarily hospitalized patients leaving with personal responsibility 3 months before training compared with corresponding values 3 months after intervention can be attributed to the higher number of patients admitted during this period. In addition to the knowledge and performance of emergency nurses, other important factors affecting patient's condition include the emergency services, the number of hospital admissions and special and formal processes, educational hospitals and even insurance for quantifying these parameters, especially in the last third indicators [20]. Also our study did not show any significant relationship between individual characteristics and personal knowledge of triage score six weeks after training. Furthermore, the findings of this investigation was consistent with those of Taheri and colleagues in 2005 [10] in Kerman but were in contrast with those of Haghdust *et al*. research [20]. In Haghdust and colleagues' study, there was a significant relationship between marital status and mean shift in knowledge of triage two weeks after training [20]. The present study also showed a significant relationship between the scores related to the type of employment, practical background and experience in emergency nursing experience, and triage performance six weeks after training. Performance scores of personnel with experience of more than three years were higher than those with less than three years and the difference between them was statistically significant. These results are consistent with those of Taheri *et al*., [10] study**.** They reported that triage performance scores six weeks after training was higher in personnel with experience of more than two years compared with those with less than two years experience, and the difference between them was statistically significant**.** Taheri and colleagues concluded that there was a relationship between work experience and performance in emergency department triage score [10]. Kriengsoontornkij *et al*. expressed that working experience in the emergency department was associated with more success in triage [24]. According to these findings, it is better to use experienced nurses in the emergency departments for triage of patients. In this study, the mean score of triage function in permanent and contract staff was higher than other personnel and the difference was statistically significant. This result was consistent with those of Taheri *et al*. research [10]. The improvement in the performances of the employees, contract employees and contractors of the project is required for two reasons. The first is insufficient clinical experience of unemployed nurses and a lack of skill in performing health care procedures. In a descriptive study conducted on the surgical wards novice nurses in 1999, Charmley showed that nurses cannot use the knowledge learned in the clinical care of the patient because of reasons such as stress related to a new task, worries about not having sufficient time for patient'scare, and the amount of work [25]. The second reason is organizational commitment which referred to the level of the personnel's involvement in the organization and their interest in cooperation [26]. According to Baron and Greenberg [27], the employment and performance status impact organizational commitment. Official organizational commitment is usually stronger than all other conditions of employment, because of creating a higher sense of job security. The more sense of job security according to the type of employment, the more organizational commitment and it causes individuals in the organization to function more efficiently [28]. In a study of Ashoori et al in Esfahan in 2012 it was concluded that the efficiency level of the employed nurses in the patients with feeding tube is weaker than the contract nurses and the reason for this was that having a stable employment and a high sense of job security reduced the incentive for nurses to learn and had a direct impact on their skills performed [28].

In conclusion, according to the positive impact of education on knowledge and performance of nurses and improvement in qualitative index of emergency department, continued nursing education and practical triage are suggested for all personnel engaged in the emergency departments. Another point to consider is that because of the importance of triage and its impact on clinical outcomes of patients, it is recommended not to use low experienced employees for triage in emergency departments. This study showed that there are numerous areas for research on triage. The effect of education on pediatric triage the knowledge and performance of nurses in emergency department, assessment of the knowledge and performance of emergency department nurses regarding triage for particular patients, comparison of the quality of patient triage by nurses, physicians and emergency medical technicians in the emergency department are the subjects for further studies.

Acknowledgment

The authors would like to thank and appreciate the authorities and hospital emergency department personnel of Vali-Asr of Fasa and Shiraz University of Medical Sciences for their cooperation during this investigation. Also we would like to thank Dr. Nasrin Shokrpour at Center for Development of Clinical Research of Nemazee Hospital for editorial assistance.

Conflict of Interest: None declared.

References

1. McCaig, Linda F, Catharine W. Burt. National hospital ambulatory medical care survey: 2003 emergency department summary. No. 358. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, 2005.
2. Weiss SJ, Derlet R, Arndahl J, Ernst AA, Richards J, Fern6ndez-Frackelton M, et al. Estimating the degree of emergency department overcrowding in academic medical center: result of the national ED overcrowding study (NEDOCS). *Acad Emerg Med* 2004;**11**(1):38-50.
3. Gol Aghaei F, Sarmadian H, Rafiei M, Nejat N. A study on waiting time and length of stay of attendants to emergency department of vali-e-asr hospital, Arak-Iran. *Arak Medical University Journal* 2008;**11**(2):74-83.
4. Weihai Y. Principles of Emergency Management. Advances in Computer Science and Engineering. *Advances in Intelligent and Soft Computing* 2012;**141**:581-5.
5. Tanabe P, Travers D, Gilboy N, Rosenau A, Sierzega G, Rupp V, et al. Refining Emergency Severity Index triage criteria. *Acad Emerge Med* 2005;**12**(6):497-501.
6. Hoseini J, Jalalmanesh SH, Sahbaee F, Mahmoodi M. Triage nursing role in emergency department at Medical City Hospital in Share Kord, 2005. *Journal of Nursing Midwifery and Allied of Rafsanjan* 2007;**1**(4):73-7.
7. Fernands CM, Tanabe P, Gilboy N, Johnson LA, McNair RS, Rosenau AM, et al. Five-level triage: a report from the ACEP/ENA Five-level Triage Task Force. *J Emerge Nurse* 2005;**31**(1):39-50; quiz 118.
8. Domres B, Schauwecker HH, Rohrmann K, Roller G, Maier GW, Manger A. The German approach to emergency/disaster management. *Med Arh* 2000;**54**(4):201-3.
9. McCallum Pardey TG. Emergency Triage. *Australasian Emergency Nursing Journal* 2007;**10**(2):43-5.
10. Taheri N, Kohan S, Haghdust AA, Foroogh Amery G. Assessment of knowledge and activity of nurses in triage field in hospitals of Kerman University of Medical Sciences, 2005. Diss. Thesis, Kerman: Kerman University of Medical Sciences, 2005.
11. Mirhaghi A, Rudbari M. Assessment nursing knowledge of triage in hospital emergency department. *Iran Journal of Critical Care Nursing* 2011;**3**(4):165-70.
12. Fry M, Burr G. Current triage practice and influences affecting clinical decisions making in emergency departments in NSW, Australia. *Accid Emerg Nurs* 2001;**9**(4):227-34.
13. Keshavarz A, Keshavarz MA. Triage and Applications in Hospitals. Proceedings of the third international congress on health and disaster management, Tehran; 2007.
14. Dadashzade A, Abdollahzadeh F, lofty, M, Ghoojazadeh M. Experiences or the triage role in emergency Tabriz. *Journal of nursing and Midwifery* 2009;**3**(10):31-70.
15. Lynch VA. Concept and theory of forensic nursing. Elsevier Mosby, 2006: 19-29.
16. Cone KJ, Murray R. Characteristics, insights, decision making, and preparation of ED triage nurses. *J Emerg Nurs* 2002;**28**(5):401-6.
17. Kelly KJ. Administrator's forum. Performance appraisal systems for nursing staff development specialists. *J Nurs Staff Dev* 1990;**6**(5):255-7.
18. National Health Indicators. Statistics and Information Technology Office, 2009, Available at: http://it.behdasht.gov.ir/index.aspx?siteid=101&pageid=20604.
19. Sedaghat A. Topics presented in the seminars rule of Clinical Services. Hospital Management and clinical service excellence of Ministry of Health and Medical Education; 2012.
20. Haghdust Z, Safari M, Yahyavi H. Effect of training on knowledge, attitude and practice of triage nurses in emergency hospital Poursina. *Guilan Nursing and Midwifery* 2010;**20**(64):14-21.
21. Corner J, Wilson-Barnett J. The newly registered nurse and the cancer patient: an educational evaluation. *Int J Nurs Stud* 1992;**29**(2):177-90.
22. Day T, Wainwright SP, Wilson-Barnett J. An evaluation of a teaching intervention to improve the practice of endotracheal suctioning in intensive care units. *J Clin Nurs* 2001;**10**(5):682-96.
23. Gould D, Chamberlain A. Infection control as a topic for ward-based nursing education. *Journal of Advanced Nursing* 1994;**20**(2):275-82.
24. Kriengsoontornkij W, Homcheon B, Chomchai C, Neamsomboon W. Accuracy of pediatric triage at Siriraj Hospital, Bangkok, Thailand. *J Med Assoc Thai* 2010;**93**(10):1172-6.
25. Charnley E. Occupational stress in the newly qualified staff nurse. *Nursing Standard (Royal College of Nursing (Great Britain)* 1999;**13**(29):33-36.
26. Klendauer R, Deller J. Organizational justice and managerial commitment in corporate mergers. *Journal of Managerial Psychology* 2009;**24**(1):29-45.
27. Greenberg J, Robert B. A behavior in organizations. Prentice-Hall, Inc., 6th ed, 1997.
28. Ashoori E, Fatehi N. A comparison of performing tube feeding with the standard procedures at selected educational and treatment centers of Isfahan University of Medical Sciences, Iran. *Iranian Journal of Nursing and Midwifery Research* 2012;**17**(2):S80-4.