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THE EVALUATION OF THE MEDIATION ERRORS FROM NURSES' POINT OF VIEW

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Abstract:

Introduction: one of the most sensitive responsibilities on the shoulder of the nurses is drug administration, but, unfortunately, it is sometimes ignored by them. Therefore, according to the importance of the subject we thought it would be necessary to perform a study with the objective of surveying the medication error reasons from the nurses' perspective.

Implementation method: the present study is a descriptive research performed on 87 nursing students who have been selected based on a random method in 2016. To gather the information required for the study a two-part questionnaire was used the first part of which was used to the demographic characteristics and the second part was related to the evaluation of the medication errors antecedents. Finally, after data gathering phase they were analyzed by the use of SPSS 19 and descriptive statistics.

Findings: the individuals average age was 21.09 ± 2.48 , 51 individuals were women. 24 individuals were studying in term 4, 31 individuals were studying in term 6 and 32 individuals in term 8. The highest mean score was obtained in the dimension of factors relating to the nursing management. Also, the highest mean score was obtained in the items "the lack of adequate number of patients respective to the number of patients" and "tiredness resulting from overworking" and the lowest mean score was related to the item "despondency and disinterestedness to the nursing occupation".

Conclusion: the results obtained by the present study indicated that the highest mean score was obtained in the nursing management dimension. Medication errors are among the most important factors in nursing students' apprenticeship stage. The lack of pharmacological information, wrong medication computations and the illegibility of the Kardex

instructions known as medication card are among the most significant factors behind medication errors occurrence in nursing students.

Keywords: medication errors, nursing students, Zahedan

Introduction:

Fast changes in the treatment and health systems, exposes the treatment and health care personnel to ethical issues [1, 2]. The patient care process is the integral part of the nurses' profession and medication instructions and orders are a main part of the patients' treatment and care [3]. Medical errors cause mortality every year to the extent more than the driving accidents, cancers and AIDS and the health care and treatment officials acknowledge that medical errors are among the fundamental problems in treatment and clinical sector [4]. In general, in third-world and developing countries it is difficult to provide a clear-cut and exact statistical estimation of the medication errors due to the absence of a correct and suitable reporting and recording system and the lack of scholarly information, but the specialists and experts reckon that the rate of medication errors is very high and the increase in the number of the complaints and lawsuits against physicians and nurses in the courts by the people can be regarded as an evidence to this saying [5]. Medication errors occur in different clinical personnel professions including physicians, pharmacologists and so on, but nurses account for a great deal of such errors than the other health and medical occupations [6]. According to the fact that the nurses have sufficient information regarding the medication absorption and excretion processes in the body, growth and development, nutrition and mathematics [7] and in line with this idea one of their critical responsibilities is administering medication to the patients, but, unfortunately, the issue of medication is underestimated by some of the nurses [8]. They may ignore dosage and the right time for medication or they may use an inappropriate medication method. Taylor et al believe that a conscientious nurse tries not to make any mistakes in administering drugs to the patients and, quite contrarily, every one may make a mistake [9]. Medication errors have been defined as the inappropriate use or application of drugs which is at the same time preventable. The common medication errors committed by the nurses include omission, administering drugs without the physicians order, wrong dosage, wrong method, wrong timing, and false method, making mistakes in preparing a specific dosage, and wrong prescription technique which can potentially or actively cause injuries to the patients [10-12]. Patients' safety is one of the most important dimensions of providing health care services [13]. Medication error is a preventable incident which can jeopardize such a safety and result in improper use of the drug and

finally injuries to the patients and this is while the drugs are controlled by the patients' health care providers [14]. The primary and natural result stemming from such errors is the hospital stay duration lengthening and the increase in the costs, as well, and in some cases this can lead to the severe injuries and even patient's death [15]. Studies have shown that cases such as the lack of pharmacological knowledge, incorrect drug computation, lack of observing the predetermined medication protocols, physicians' handwritings illegibility, the existence of similarities in the shapes and packaging, name similarities are among the cases that play roles in medication error occurrence. Of course, cases such as time constraints, tiredness, inadequate number of personnel, the absence or the lack of tools and instruments can be also enumerated as the hidden factors which indirectly cause the medication error to happen [5].

Therefore, the nurses should be completely familiar with the importance of the recognition and prescription of the drugs to prevent from risks and possible side effects resulting from the medication errors [16]. The study performed by Braddy in 2009 signified that medication errors happen due to five substantial factors: the lack of correct investigation of the disease history, nurses' inadequate knowledge and skill, deficient drug distribution system, not reporting the medication errors and finally deviation from the drugs guidelines and correct methods of use [17]. Therefore, according to the importance of the discussions regarding medication errors we thought it is necessary to perform a study aiming at the factors leading to medication errors from the perspective of the nursing students.

Implementation method:

The present study is a descriptive research which has been conducted on 87 nursing students selected based on a random method in 2016. To gather the required information for the current study a two-part questionnaire was applied the first part of which pertained to the demographic characteristics (age, gender and curriculum term) and the second part dealt with the medication errors factors evaluation. The medication errors factors questionnaire was comprised of 21 items which evaluated the medication errors in three fields including nurse-related factors (7 items), department-related factors (6 items) and factors related to nursing management (8 items). The items scoring was based on Likert's 5-point scale ranging from "completely agree" (score 5) to completely disagree (score 1). In the next stage, the scores for each item and each field were computed. The questionnaire content validity was approved in the study performed by Hussein Zadeh et al [18] and the questionnaire reliability was obtained 0.91 by taking advantage of Cronbach's alpha method.

To collect the necessary data, after acquiring a confirmation letter from Zahedan medical sciences university research vice chancellorship and obtaining a letter of recommendation the researcher referred to the nursing and obstetrician faculty and after doing the coordination with the faculty education vice chancellorship the objective of the study was firstly explained to the students and after obtaining an oral content from the students the questionnaire was distributed in sufficient number. Of course students from term 8 received the questionnaires in the hospital because they did not have to attend theoretical classes at the university. At the beginning of the questionnaire in order to inform the students of their consent for participating in the research plan there was inserted a text which read “your cooperation with the current study means that you are completely aware of your cooperation and that the information you provide here is confidential and you are not exposed to any risk by any means.” After the questionnaires were completed they were collected and reviewed by the researcher and the incomplete questionnaires were returned to the respondents again to be completed. In the end, after the questionnaires were gathered the data was analyzed by SPSS 19 and descriptive statistics.

Findings:

The participants average age was 21.09 ± 2.48 , 51 individuals (58.6%) were women. 24 individuals (27.6%) were studying in term 4, 31 individuals (35.6%) were studying in term 6 and 32 individuals (36.8%) were in passing term 8. The highest mean score was belonged to nursing management factors. Also, the highest mean score was obtained in items related to “the inadequate number of nurses in respect to the patients” and “tiredness of overworking” and the lowest mean score was obtained for the item “despondency and disinterestedness to the nursing profession”.

Frequency, mean and standard deviation for the medication error factors questionnaire items from the perspective of the nursing students have been embedded in table 1.

Table 1: Frequency, mean and standard deviation for the medication error factors questionnaire items from the perspective of the nursing students.

	Medication error factors questionnaire from your perspective	Completely disagree (%)	Disagree (%)	No idea (%)	Agree (%)	Completely agree (%)	Mean and Std. Deviation
Nurse-related factors	Being despondent and disinterested in	14.9	28.7	27.6	23	5.7	2.76±1.14

	nursing occupation						
	Nurses' unfamiliarity with the drugs	12.6	21.8	24.1	31	10.3	3.05±1.21
	Nurses' economical problems	6.9	14.9	26.4	33.3	18.4	3.41±1.15
	Nurses' familial problems	8	16.1	17.2	49.4	9.2	3.36±1.11
	Nurses' mental and psychological problems	6.9	8	19.5	48.3	17.2	3.61±1.08
	Not having enough time	2.3	13.8	16.1	48.3	19.5	3.69±1.01
	Tiredness due to overworking	2.3	4.6	13.8	48.3	31	4.01±0.92
All of the nurse-related factors total mean score 3.41±0.62							
Department-related factors	Department environment noise	8	14.9	24.1	43.7	9.2	3.31±1.09
	Drug room space (lighting, physical space)	12.6	10.3	29.9	43.7	3.4	3.15±1.08
	Department type	3.4	14.9	34.5	37.9	9.1	3.33±0.95
	Intensive work volume	2.3	4.6	14.9	49.4	28.7	3.98±0.91
	The way drugs are arranged on the shelves	3.4	20.7	28.7	39.1	8	3.28±0.99

	Department medication and drug protocols	5.7	14.9	37.9	36.8	4.6	3.20±0.95
Department-related factors total men score: 3.37±0.61							
Nursing management-related factors	The inadequate number of nurses in respect to the patients	5.7	14.9	39.1	40.2	0	4.14±0.87
	Department supervision and control method	1.1	13.8	35.6	32.2	17.2	3.51±0.97
	Drug prescription method	2.3	14.9	41.4	37.9	3.4	3.25±0.83
	Physician's illegible instructions and orders in patients' files	2.3	6.9	24.1	35.6	31	3.86±1.01
	Kardex illegibility	5.7	18.4	21.8	35.6	18.4	3.43±1.15
	The occurrence of most of the medication errors in morning shifts	5.7	25.3	46	16.1	6.9	2.93±0.96
	The occurrence of most of the medication errors in evening shifts	5.7	26.4	47.1	16.1	4.6	2.87±0.91
	The occurrence of most of the	3.4	12.6	36.8	36.8	10.3	3.38±0.95

	medication errors in night shifts						
Nursing management-related factor total mean score-related factor total mean score: 3.42±0.49							

Discussions:

The nurses are considered as one of the most important resources in medical system in which the quality of their performance has a profound impact on the quality of providing medical services and can also be effective in improving patients' health [19-23]. In the present study the highest mean score was obtained in the dimension of nursing management factors and the highest mean score in items was obtained for the items "the inadequate number of the nurses in respect to the number of the patients in the department" and "tiredness resulting from overworking". However, in the study performed by Wolf the university students stated "weak clinical performance" (51%), "following the procedure" (31.89%) and "the lack of sufficient pharmacological information" (26.52%) as the most common factors resulting in medication errors [24]. In the study conducted by Yousefi et al the findings were indicative that the medication errors increase in frequency when the shifts last a longer period of time [25]. In a study performed in Japan it became clear that the most important medication error committed by the recently graduated nurses was related to the intravenous drugs wrong prescription and the most important factor leading to such an error has been the nurses' low knowledge of pharmacology [26]. In the study performed by Cramer et al it was also shown that the intensive work loads, the lack of sufficient number of personnel and overworking were among the factors resulting in medication errors occurrence from the perspective of the nurses [27]. Low sleep, concentration problems, physical activities, heart rate variations in comparison to the morning and evening shifts undermines the nurses' efficiency and leads to medication error increase [28]. Medication errors are inevitable in such a manner that in the study performed by McCarty et al it was indicated that 48.5% of the nursing students had reported that they have committed medication error at least for one time [29]. Many of the researchers have stated that the nurses or the nurses' psychological information enhancement can be considered as an important solution to the reduction of medication error problem and they also have stated that nurses' information updating specially regarding the new drugs can be an important factor for the medication errors to be reduced [30]. Also, improving the drug computation skills in nursing students can bring about a decrease in the medication errors and the nursing instructors should pay a specific attention to their students' medication computations and especially they have to control and remind

such skills for each of their apprentice. Environmental distracters such as department environment being nonstandard from the perspective of lighting, unavailability of separate and specific rooms for preparing drugs and crowdedness and noisy environments are the factors resulting in the decrease in concentration on important occasions which finally cause medication errors. Therefore, improving the work environment conditions can reduce the medication errors occurrence before causing serious injuries to the patients. The use of a simple and less expensive tool such as drug administration checklist can cause reducing the environmental effects on the medication errors [31].

The problem of medication errors has always been accompanied with the nursing students, however, the complete one hundred percent elimination and resolution of such mistakes and errors is not possible. Trying to reduce and control such errors is in connection to the use of a systematic approach to the survey of the leading factors, resolution of such factors to the extent possible. The use of barcode system for determining the patients' identity and assuring the correctness of the prescribed drug can play a contributory role regarding the issue of medication errors.

Conclusion:

The results of the present study indicated that the highest mean score was obtained in the dimension of factors related to nursing management.

Medication errors are among the most important problems in nursing students' apprenticeship period. The insufficient pharmacological information, wrong drug and medication computations, the Kardex instructions or medication order card illegibility are among the most important factors leading to the medication errors occurrence in nursing students. It seems that some of these factors are related to the nurses' training and teaching methodologies during education.

Also, enlarging the pharmacology theoretical teaching course time, the pharmacology teaching method and materials being consistent with the students' practical needs, drug prescriptions in the departments and hospital sections based on cases rather than based on performance are among the strategies which can be taken to reduce medication errors by the nurses.

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