Barriers that Preventing the Nursing StafffromReportingMedication Errors in Kirkuk City Hospitals

المعوقات التي تمنع الملاك التمريضي من الابلاغ عن الاخطاء الدوائية في مستشفيات مدينة كركوك

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الخلاصة

خلفية البحث:الإبلاغ عن الأخطاء أثناء إعطاء الأدوية بين الملاك التمريضي ممكن أن يحسن من سلامة المريض ويحسن جودة العناية التمريضية.
الهدف: تهدف الدراسة التقييم الأسباب التي تؤدي الى الأخطاء الدوائية بالإضافة إلى معرفة المعوقات التي تمنع الملاك التمريضي من الإبلاغ عن الأخطاء الدوائية.
المنهجية:أجريت دراسة وصفية في مستشفيات مدينة كركوك للفترة من الأول من آب 2016 الى الأول من شباط 2017،أختيرت عينة غير عشوائية(ملائمة)ل(150)ممرض وممرضة يعملون في مستشفيات مدينة كركوك.ولغرض جمع المعلومات تم استخدام إستمارة الإستبانةالمتطورة(أخطاء إعطاء الادوية) صممت من قبل (.Wakefield et.al)،وتتكون الاستبانة من ثلاثة أجزاء وقد جمعت العينة عن طريق توزيعالإستبانةعلى الممرضين.تم تحليل النتائج بإستخدام الإحصاء الوصفي والإحصاء الاستدلالي.
النتائج : من خلال تحليل البياناتتبين أن (37.3%) من الممرضين كانوا ضمن الفئة العمرية (24-29) سنة، و(51.3%) منهم كانوا من الاناث، (38%) منهم خريجين من إعدادية التمريض، (44%)من الممرضين لديهم 1-5 سنوات من الخبرة في مهنة التمريض، (73.3%) من الممرضين ليس لديهم مهام إدارية في المستشفى.
الاستنتاج : أستنتجت الدراسة ان السبب الذي يؤدي الى الأخطاء الدوائية لدى معظم الممرضين هو أسباب تتعلق بالصيدلاني وأسباب تتعلق بتغليف و تعبئة الادوية.أيضا أستنتجت الدراسة ان اكثر المعوقات التي تمنع الممرضين من الإبلاغ عن الاخطاء كانت أسباب تتعلق بالخوف و أسباب إدارية.
التوصيات: يجب ان يكون هناك نظام إداري يساند الممرضين والصيادلة والاطباء للإبلاغ عند حدوث الاخطاء الدوائية.

ABSTRACT

Background: reporting medication administering errors (MAEs) among nursing staff can improve patient's safety and quality of nursing care.

Objectives: to assess the causes of medication errors as well as barriers to report (MAEs).

Methodology:A descriptive study was carried out at Kirkuk city hospitals. From the period August 1st 2016 until of February 1st, 2017.A non-probability (convenience) sample of (150) nurses working at Kirkuk city hospitals was used. The tool used in the study called Medication Administration Errors (MAEs) Reporting Questionnaire was developed by **Wakefield et al**. It consisted of three parts. The data was collected by self-reporting technique. Data was analyzed by using descriptiveand inferential statistical data analysis.

Results: The findings of the study revealed that (37.3%) of the samples were in the age group (24-29) years, (51.3%) of study sample were female, (38%) of the sample were graduate from secondary nursing school, (44%) of them having 1-5 years of experience in the nursing profession, (73.3%) of the sample having no administrative task in the hospital.

Conclusions: the study concluded that most of nurses report that pharmacy reasons and medicationpackaging reasonsleading to medication errors. Also the result of the study revealed that the most common barriers to report medication errors were fear reason and administrative reason**.**

Recommendation: Administrative systems should support nurses,pharmacists, or physicians to report medication errors the when errors occurs

Keyword; barriers, report, medication errors, nursing staff.

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Introduction:

Medication administration errors are one of the most common types of medication errors, the word "medication administration errors" (MAEs) refers to medication errors that happen during the process of administering a drug [1]. Safe administration of medication is significant to nurses, doctors, administrators, educators, patients, the public at large, and the entire healthcare system. In essence, each stakeholder is potentially impacted when errors happen[2]. It is important to identify that actual administration of a drug is the last step in a long and complicated process involving a number of different physicians, pharmacists, nurses, and technical staff. Preventing MAE represents a central focus of hospital's quality improvement and risk management initiatives. Because the identification and reporting of MAEs is a non-automated and voluntary process, it is important to understand the extent to which errors may not be reported [2]. Because nurses giving most medications to patients in hospitals, medication errors can be directly affected by nursing care. In the critical care setting of a hospital, the medication process is complex and time-consuming, occupying up to one-third of the nurses time. Medication administration is often carried out under confused and stressful circumstances and is probably the highest risk activity a nurse performs[3]. Nurses play a key role in medication errors by recognizing, intercepting, committing, and reporting drug errors [4], thus, studies regarding nurses' perceptions of medication administration error occurrence are needed to understand how to decrease medication errors in the future. Reporting medication errors cause to improve patient safety and providing valuable information for prevention of medication errors in the future[5].

Objective of the study:

1. To assess the causes of medication errors.
2. To assess the barriers that prevents nurses to report medication errors.
3. To find out the association between nurses demographic data and causes of medication errors.
4. To find out the association between nurses demographic data and barriers to report medication errors.

Methodology:

A quantitative design (descriptive study) of the current study was carried out to assess the barriers that prevent nurses to report medication errors from the period 1st August 2016 until 1st of January, 2017.at the Kirkuk city Hospitals (Azadi Teaching Hospital, Kirkuk General Hospital, and Pediatric Hospital), A non-probability (convenience) sample of (150) nurses working at Kirkuk city hospitals was used. The tools used in the study called Medication Administration Errors (MAEs) Reporting Questionnaire was developed by [6]Wakefield, et al. It consisted of three parts. Demographic data (6), causes of medication errors (16) items, which consist of three domain (Medication packaging reasons, Nurses-Physicians Reasons, and Pharmacy Reasons) and barriers to report medication administration errors (14) items which consist of three domains (Fear Reason, Administrative Reason, Disagreement over Time and Error Definition Reason).The data was collected by self-reporting technique. The results were analyzed through the application of descriptive statistical analysis and inferential statistical data analysis. A panel of (12) experts was involved in the determination of the questionnaire content validity.These items were measured, scored and rated of 3-level Likert rating scale; Agree(3), Neutral (2), Disagree(1). The data collection process was performed from the period of 1st of September, 2016 up to the 1st

October, 2016. Consent informed was granted from nurses for participation in the present study was obtained. The data were analyzed through the application of descriptive statistical analysis which include(frequency and percentage, mean of score) and inferential analysis).

Results:

Table 1: Distribution of the samples regarding demographic data with frequency and percentage

No.	Age(years)	Frequency	Percentage
1	**18-23**	32	21.4%
2	**24-29**	**56**	**37.3%**
3	**30-35**	46	30.7%
4	**36-41**	8	5.3%
5	**42 and more**	8	5.3%
Total		150	100
	Gender	Frequency	Percentage
1	Male	**73**	**48.7**
2	Female	77	51.3
Total		150	100
No.	**Level of Education**	Frequency	Percentage
1	Secondary School Graduate	**57**	**38%**
2	High Institute Graduate	40	26.7%
3	College and post Graduate	53	35.3%
Total		150	100
No.	**Years of experience**	Frequency	Percentage
1	Less than 1 years	32	21.3%
2	1-5 years	**66**	**44%**
3	6-10 years	36	24%
4	11-15 years	8	5.3%
5	16 and more	8	5.3%
Total		150	100
No.	**Administrative work**	**F**	**%**
1	**yes**	40	26.7%
2	**No**	**110**	**73.3%**
total		150	100

Table (1) shows that the highest percentage (37.3%)of study sample were at age group (24-29 years), (51.3%) of the study sample were female, (38%) of study sample were Secondary School Graduate, (44%) of study sample have 1-5 years' experience, and (18.7%) of study sample were working in Pediatric wards, (73.3%) of the study sample were no administrative task.

Table 2: Mean of score for causes and barriers of MAEs

No	Items of Causes of MAEs	Agree		neutral		Disagree		Mean Of Score	SIG.
		F.	%	F.	%	F	%		
	Domain 1. Medication packaging reasons								
1	The similarity of the names of different drugs.	54	36	30	20	66	44	1.9	S.
2	The packaging of many medications is similar	55	36.7	31	20.7	64	42.7	1.9	S.
3	Abbreviations used instead of typing the name of the medication.	69	46	18	12	63	42	2.0	S.
4	Frequent substitution of drugs.	56	37.3	41	27.3	53	35.3	2.0	S.
5	Some medications given without cover	54	36	14	9.3	82	54.7	1.8	S.
	Domain 2. Nurses-Physicians Reasons								
6	Physicians' medication orders are not clear.	75	50	25	16.7	50	33.3	2.1	S.
7	Communication between the doctor and the nurse is weak.	66	44	29	19.3	55	36.7	2.0	S.
8	Knowledge of nurses about the limited medicines (few).	58	38.7	39	26	53	35.3	2.0	S.
9	Staff (nurses) inadequate	70	46.7	32	21.3	48	32	2.1	S.
10	Equipment used when giving medicines do not exist.	43	28.7	38	25.3	69	46	1.8	S.
11	Nurses do not have enough information about the new drug.	44	29.3	48	32	58	38.7	1.9	S.
12	Nurses do not realize the sensitivity and seriousness of medicines.	31	20.7	29	19.3	90	60	1.6	NS.
	Domain 3. Pharmacy Reasons								
13	Verbal orders are used rather than written orders.	64	42.7	34	22.7	52	34.7	2.0	S.
14	Pharmacy delivers incorrect doses to this unit.	37	24.7	37	24.7	76	50.7	1.7	S.
15	Pharmacy does not prepare the medication correctly	58	38.7	29	19.3	63	42	1.9	S.
16	Pharmacists are not available 24 hours a day.	85	56.7	23	15.3	42	28	2.2	S.
	Items of Barriers to Report MAEs								
	Domain 1. Fear Reason								
17	The patient or family might develop a negative attitude toward the nurse, the nurse has to complain if an error occurs	102	68	24	16	24	16	2.5	HS.
18	Patients may complain or the patient's family to nurse the when error occurs.	99	66	24	16	27	18	2.4	HS.
19	Nurses fear adverse consequences from reporting medication errors.	73	48.7	27	18	50	33.3	2.1	S.
20	Too much emphasis is placed on medication errors as a measure of the quality of nursing care provided	91	60.7	32	21.3	27	18	2.4	HS.
	Domain 2. Administrative Reason								
21	The response by nursing administration does not match the severity of the error.	75	50	37	24.7	38	25.3	2.2	S.

22	Nurses could be blamed if something happens to the patient as a result of the medication error.	86	57.3	30	20	34	22.7	2.3	S.
23	No positive feedback is given for passing medications correctly or when working properly.	71	47.3	28	18.7	51	34	2.1	S.
24	When medication errors occur, nursing administration focuses on the individual rather than looking at the systems as a potential cause of the error.	90	60	32	21.3	28	18.7	2.4	HS.
25	There is no support from the nurse when error occurs.	107	71.3	22	14.7	21	14	2.5	HS.
Domain 3. Disagreement over Time and Error Definition Reason									
26	The lack of an administrative system and instruction in the hospital on the definition of errors resulting from giving drugs.	93	62	30	20	27	18	2.4	HS.
27	Nurses do not recognize and do not know an error occurred.	33	22	24	16	93	62	1.6	NS.
28	Nurses do not have enough time to reporting when error occurred.	37	24.7	40	26.7	73	48.7	1.7	S.
29	Nurses may not think the error is important enough to be reported.	29	19.3	25	16.7	96	64	1.5	NS.
30	Nurses believe that other nurses will think they are incompetent if they make medication errors reporting.	49	32.7	30	20	71	47.3	1.8	S.

MAEs = medication administration errors, F=Frequency, %= Percentage NS= NOT significant (1-1.6) S= significant (1.7 – 2.3) HS= HIGH significant (2.4-3)

Table (2) shows that the major causes of MAEs found in items (6, 9 and 16), also this table shows that the majority of barriers to report MAEs. Found in items (17, 18, 20, 24, 25, and 26) were high significant.
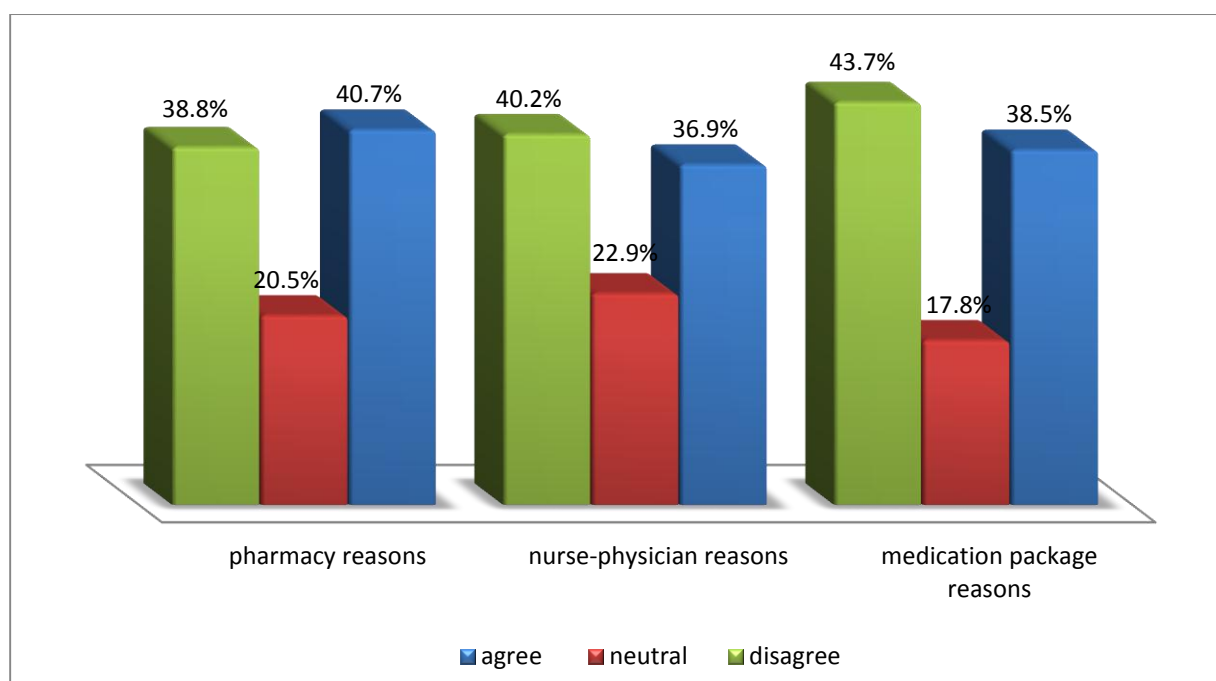

Figure 1: percent of (agree, neutral, and disagree) for the causes of medication administration errors.
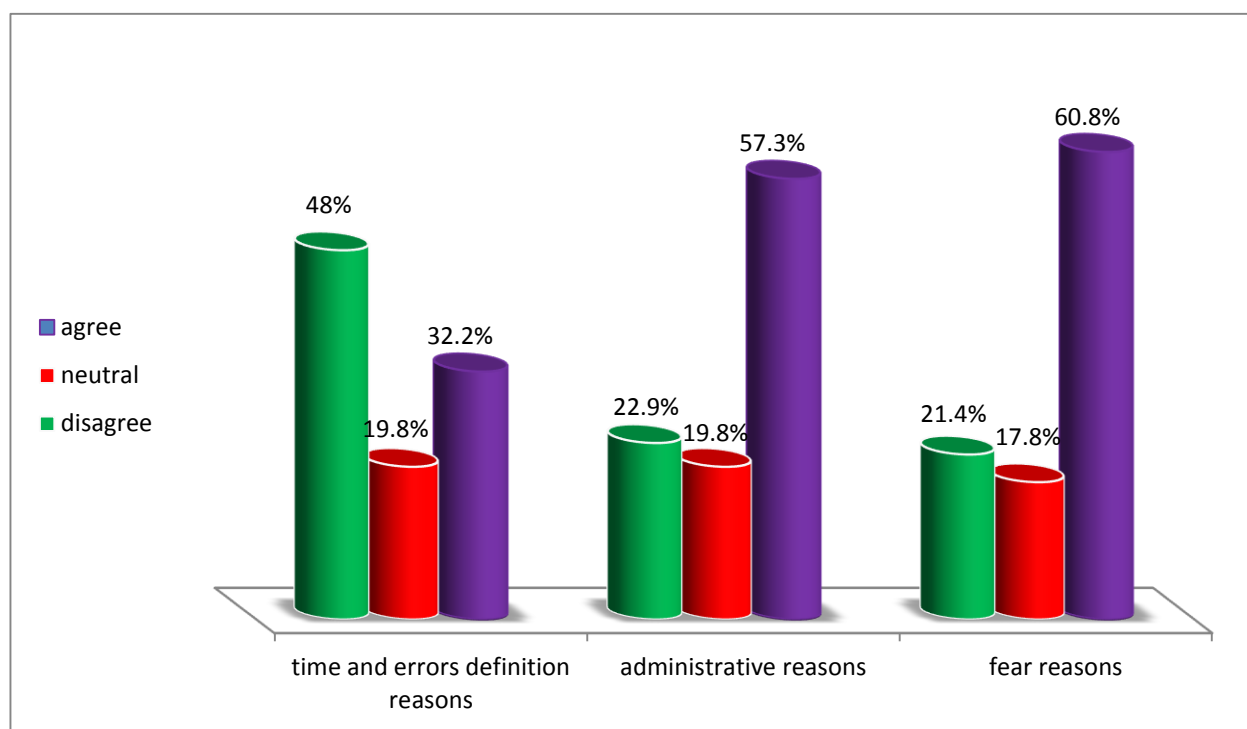
Figure 2: percent of (agree, neutral, and disagree) for the Barriers that prevent nurse to report medication Administration errors.

Table 3:Association between causes of MAEs and demographical data of nurses

No.	Variable	Total	Chi-square	Crit. χ^2	Df.	Sig.
1	Age	150	36.19	15.51	8	S.
2	Gender	150	29.68	5.99	2	S.
3	Educational level	150	28.66	9.49	4	S.
4	Years of experience	150	63.59	15.51	8	S.
5	Administrative task	150	0.43	5.99	2	NS.

MAEs = Medication Administration Errors.

This table shows that there is significantdifference between (age, gender, educational level, years of experience) and causes of medication administration errors at P-value (≤0.05),except the association between administrative task and causes of medication administration errors where not significant differences P-value (>0.05).

Table 4: Association between barriers to report of MAEs and demographical data of nurses

No.	Variable	Total	Chi-square	Crit. $\chi 2$	Df.	Sig.
1	Age	150	29.68	15.51	8	S.
2	Gender	150	38.23	5.99	2	S.
3	Educational level	150	29.72	9.49	4	S.
4	Years of experience	150	40.15	15.51	8	S.
5	Administrative task	150	3.63	5.99	2	NS.

MAEs = Medication Administration Errors.

This table shows that there is significant difference between (age, gender, educational level, years of experience) and barriers to report medication administration errors at P-value (≤ 0.05), except the association between administrative task and barriers to report medication administration errors where not significant differences P-value (≤ 0.05).

Discussion:

In this study the results shows that high percent of Nurses reported (agreed) that the pharmacy reasons were the most causes that lead to medication administration errors (40.7%).This result disagree with a study conducted by Al-Youssif S. et al. (2013), which indicate pharmacy reasons the least reason of medication administration Errors[7]. Pharmacy reasons such as lack of communication between Nurses and pharmacists can lead to MAEs. Also the pharmacists not available in the units and wards where the medication dispensed for Patient this lead to MAEs. Also the result show that the causes of MAEs reported by the nursing staff where medication package reasons (38.5%), medication package can interfere with the similarity of scientific and trade name for many drugs and cannot reading the instructions lists of medications correctly. According to Al-kassar R. (2016), who conducted a study about Nurses perceptions of drug errors in Al-Najaf city hospitals, that the main cause of medications errors among nurses was the nurse did not have clear instruction about some drugs were (90%)[8].

Cohen et al. (2003) conducted a study stated five main reasons for what caused or increased the risk of medication errors; distractions and interruptions during medication administration, inadequate staffing and high nurse/patient ratios, illegible medication orders, incorrect dosage calculations and similar drug names and packaging[9].

The current study shows that there is a significant difference between (age, gender, educational level, and years of experiences) of Nurses and causes of medication administration errors. These results agree with a study conducted by Al-kassar R. (2016)[8] about Nurses perceptions of drug errors in Al-Najaf city hospitals. As there are a relation between nursing staff age and experiences will increase this can lead to decrease the errors when administering drugs and more professional to recognize the medication (trade name and scientific name of many drugs, actions, side effects, routes).

The results of the current study showed that Administrative task non-significant differences with causes of medication administration Errors, nurses as manager role cannot deal with the medication administrating as nurses who work in clinical setting also loading of administrative task work.

Also the results revealed that most nurses report fear reasons (60.8%) was the main barriers that prevent nursing staff to report medication administration errors. And (57.3%) of nurses agreed that administrative reasons was the another barriers to report medication administration errors. Researches such as (Wakefield et al 2005)[10], (Dorgham & Khamis 2012)[11] supported this results. Nurses fear from blame and complain from patients or family, for this reason the nursing staff not reported medication errors.

Other studies like (Uribe et al 2002) and, (Weiner 2008) had shown that another reason for not reporting medication errors included organizational and individual factors. These organizational or system factors were expressed as administrators attitudes and responses to medication errors such as unsupportive responses from administrators and workmates, challenges of nursing profession[12,13].

Statistically there is significant association between barriers to report medication errors and some demographic data of the nurses such as (age, gender, educational level, and years of experience). This results disagreement with Al-Youssif S. et al. (2013)[7] in which the relationship were not significant between age and years of experience with barriers to report medication errors, also this results disagree with Armutlu et al. (2008)[14]. This means that nursing staff are not similarly exposed to experience errors regardless of their age, gender, educational level, and years of experience. Age group differs in their reporting medication errors as well as for gender, educational level and years of experience.

Conclusions:

1. The most cause of medication administration errors were pharmacy reasons and medication packaging reasons
2. The most barriers that prevent nurses to report medication administration errors were fear and administrative reasons.
3. The association between the causes of MAEs and (age, gender, educational level, and years of experience) wasstatistically significant.
4. The association between the barriers to report MAEs and (age, gender, educational level, and years of experience) was statistically significant.

recommendations:

1. Nurses at all level should be enriched with adequate knowledge about medication administration errors.
2. Physician-pharmacist-nurses communication should be continuous for sharing information about new medication and for determining the correct medication administration route.
3. Appropriate programs should be available for the nurses to be highly educated in relation to drug (physician) orders, nurses' drug documentation, and drug side effects.
4. Administrative systems should support nurses, pharmacists, or physicians to report medication errors when errors occurs.

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