10.5005/jp-journals-10006-1433

RESEARCH ARTICLE

Medication Safety Practices: A Patient's Perspective

[1]Krutika Bhalerao, [2]Sunita Ghike, [3]Anuja V Bhalerao

ABSTRACT

Introduction: Medication administration constitutes a key element of acute care delivery, while errors in the process threaten patient safety. A foundational cornerstone upon which health care providers endeavor to base all care is the medical oath, "Never do harm to anyone" (Hippocrates). Medication use in hospitals is a complex process and depends on successful interaction among health care personnel functioning at different areas, and errors may occur at any stage of prescribing, documenting, dispensing, preparation, or administration.

The purpose of this research is to explore the safety practices employed by nurses during medication administration, specifically from the patients' perspectives. The fundamental objectives are to explore patients' perceptions, attitudes, and beliefs about the safety practices utilized by nurses when administering medications and to identify opportunities for increasing patient safety.

Materials and methods: This study was undertaken employing a quantitative survey instrument as the methodology. For collecting data, a pretested, structured questionnaire was given to the sample population after fulfilling the inclusion/exclusion criteria, and consent to enroll in study was taken. This method is convenient and affords the opportunity to generalize responses from the sample population to the population as a whole.

Results: The mean age of the respondents from Obstetrics and Gynecology was 29.08 ± 6.53. The mean age of the respondents from medicine was 33.4 ± 9.6. The mean age of the respondents from surgery was 33.68 ± 12.2; 23% respondents belonged to medicine unit, 21.5% respondents belonged to surgery unit, and 55.5% respondents belonged to Obstetrics and Gynecology unit. Of the total respondents, 62.75% were females. Moreover, 76 respondents in medicine, 72 respondents in surgery, and 172 respondents in Obstetrics and Gynecology stayed in the hospital for > 7 days. Respondents < 30 years of age responded negatively to three out of six questions compared to respondents > 30 years of age. This is statistically significant ($p = 0.008$, 0.0001, and 0.008) showing that age does not alter the perception of the quality of health care. The perception of medicine respondents was negative to four out of six questions as compared to surgery respondents. This is statistically significant ($p = 0.008$, 0.0001, and 0.008), thus unit alters the perception of the quality of health care. The medicine respondents rated care lower as compared to surgical respondents. The patients' perception varies with gender, and it has been found to be significant in five out of six cases where p value is < 0.05. Females rated the quality of care better and shared the responsibility for health care. The patients' perception varies with length of stay (LOS): 47.25% respondents feel that the nursing care of the hospital is very safe; 63% respondents feel that their care is a responsibility shared by both doctors as well as themselves more so by the female respondents from surgical units and who stayed longer.

Conclusion: According to patients' perceptions reported in this study, there were a number of inconsistencies noted in the seven rights of medication administration delivered by nurses, specifically patient identification, hand washing, allergy assessment, and patient teaching. The perception of medication safety practices do change with the unit they are in, gender, and LOS. The results identify key safety issues from a patients' perspective to focus change strategies that will improve patient care.

Keywords: Administration, Medication practices, Patient safety.

How to cite this article: Bhalerao K, Ghike S, Bhalerao AV. Medication Safety Practices: A Patient's Perspective. J South Asian Feder Obst Gynae 2016;8(4):271-281.

Source of support: Nil

Conflict of interest: None

Date of received: 09 June 2016

Date of acceptance: 19 August 2016

Date of publication: October 2016

[1]Undergraduate Student, [2]Professor, [3]Associate Professor

[1-3]Department of Obstetrics and Gynecology, NKP Salve Institute of Medical Sciences, Nagpur, Maharashtra, India

Corresponding Author: Anuja V Bhalerao, Associate Professor Department of Obstetrics and Gynecology, NKP Salve Institute of Medical Sciences, Nagpur, Maharashtra, India, Phone: +919823680572, e-mail: anuja_bhalerao@yahoo.com

INTRODUCTION

Medication administration constitutes a key element of acute care delivery, while errors in the process threaten patient safety. A foundational cornerstone on which health care providers endeavor to base all care is the medical oath, "Never do harm to anyone" (Hippocrates).[1]

Nurses and physicians do not come to work to harm patients; unfortunately, the hard reality is that errors and subsequent harm to patients do happen. To err is human! Although a rather simplistic description of human behavior, when patient safety is at risk, "to err is human" takes on a new and serious connotation that requires immediate attention and corrective action wherever possible.

Medication use in hospitals is a complex process and depends on successful interaction among health care professionals functioning at different areas, and errors may occur at any stage of prescribing, documenting, dispensing, preparation, or administration.[2] Medication errors may contribute to morbidity, mortality, and increased health care costs. In 2007, National Patient Safety Agency (NPSA) statistics shows that 59.3% of medication errors occur during the administration stage.[3]

Medication administration errors are defined as any deviation from the physician's medication order as written on patient's treatment chart during medication

administration to patient. The plan for administering a medication begins with identifying the patient, the drug, the dose, the route, and the time. In 1995, the National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP) classified administration errors into wrong drug, wrong route, wrong dose, wrong patient, wrong timing of drug administration, contra-indicated drug, wrong site, wrong dosage form, wrong infusion rate, and expired medication. Such errors may occur intentionally or unintentionally.[4]

Medication errors threaten patient safety. Medication administration has become more complex as a result of the increasing number of medications available and new routes of administration.

Nurse is considered as vital in medication administration process. The literature review states that poor calculation competency of nurses, poor adherence to protocols, and poor knowledge of medications are the important reasons leading to medication administration errors in a country like India.

Baker et al[5] estimated the prevalence of adverse events to be approximately 7.5% in Canadian acute care hospitals. Among patients with adverse events, 36.9% were judged to be preventable. Inoue and Koizumi[6] reported on adverse events specifically related to nursing practices in Japan, and identified three major factors contributing to the errors: Violation of rules, failure of labor management, and defects in the standardization of nursing practices. The findings of an Indian study by Arun Kumar et al[7] reveal that the frequency of medication administration errors is 15.34%, omission errors (33.02%), improper dose (17.43%), and wrong time (12.84%) errors. Frequent interruptions and distractions, lack of communication between health care professionals, performance deficit, and work stress on duty nurses are identified as major factors responsible for administration errors.

The landmark report of Institute of Medicine (IOM, 2000)[8] entitled, "To Err Is Human: Building a Safer Health System" cites medication errors as the largest subset of medical errors that occur. Medication administration constitutes a key element of acute care delivery. Physicians are responsible for ordering medications, while nurses are charged with their safe administration, the outcome of which is significant to patients.

There has been little research focusing on patients' perceptions of safety in the health care setting. Both the Health Quality Council of Alberta (HQCA)[9] and the Health Quality Council of Saskatchewan (HQCS)[10] have taken lead roles in their respective provinces in an attempt to understand this issue better.

The respondent's perception and their participation play a very important role in health care.

Safe administration of medication is significant to nurses, doctors, administrators, educators, patients, the public at large, and the entire health care system. In essence, each stakeholder is potentially impacted when errors occur. Involving patients would be one way of gaining a better understanding of their perceptions of safety practices, providing valuable insights.

The findings from this research are of interest to both professionals and the public, for different reasons. Nurses should particularly benefit from understanding how patients perceive the processes of medication administration, gaining opportunities for improvements.

AIMS AND OBJECTIVES

A plethora of research has been published about medical error and patient safety, yet there is a gap in the literature addressing medication safety practices in nursing and virtually no research is available addressing any of these topics from the patients' perspective.

The purpose of this research is to explore the safety practices employed by nurses during medication administration, specifically from the patients' perspectives.

The fundamental objectives are to explore patients' perceptions, attitudes, and beliefs about the safety practices utilized by nurses when administering medications, and to identify opportunities for increasing patient safety.

RESEARCH QUESTIONS

The primary research question underlying this study is as follows:

- What are medical and surgical in-patients' perceptions, attitudes, and beliefs regarding medication administration safety practices utilized by nursing staff?

The other questions are:

- Do patients' perceptions and behaviors vary according to the nursing unit they are on?
- Do patients' perceptions and behaviors vary according to age?
- Do patients' perceptions and behaviors vary according to gender?
- Do patients' perceptions and behaviors vary according to their length of stay (LOS)?

MATERIALS AND METHODS

Study Design

This study was undertaken employing a quantitative survey instrument as the methodology, in an attempt to better understand patients' perceptions, attitudes, and beliefs regarding safety practices utilized by nursing staff during medication administration.

Study Setting

For collecting data, a pretested, structured questionnaire was given to the sample population after fulfilling the inclusion/exclusion criteria, and consent to enroll in study was taken. This method is convenient and affords the opportunity to generalize responses from the sample population to the population as a whole.

Inclusion Criteria

In-patient respondents from medicine, surgery, obstetrics, and gynecology who were >18 years of age were cognitively unimpaired.

Exclusion Criteria

In-patient respondents from medicine, surgery, obstetrics, and gynecology who were <18 years of age were cognitively impaired.

METHODOLOGY

The sample was obtained from medicine, surgery, and obstetrics and gynecology in-patient units at a tertiary care hospital. Convenience sampling using a single-stage procedure was done. A total of 400 respondents comprised the sample.

- Medical respondents were defined as any patients not having a surgical procedure.
- Surgical respondents were defined as any patients admitted having a surgical procedure.
- Obstetrics and gynecology respondents were those who were pregnant or had gynecological problems. All the respondents were given the pretested predesigned questionnaire after written informed consent from them to get incorporated in the study. The collected data was analyzed using appropriate tests.

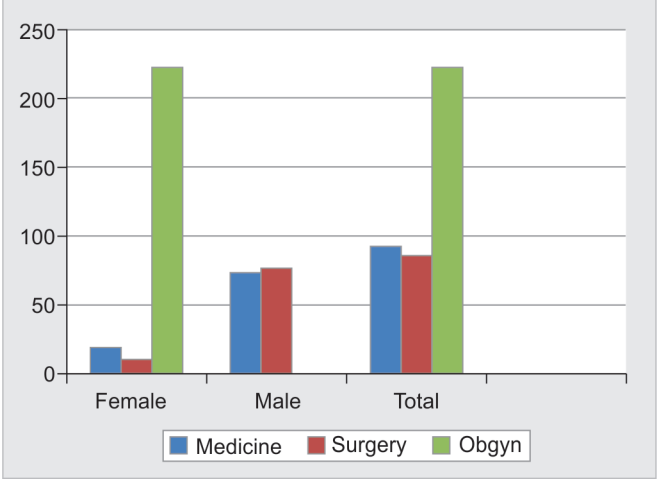
OBSERVATIONS

Medication records of 400 respondents from medicine, surgery, and obstetrics and gynecology in-patient units at a tertiary care hospital in a rural setting were studied, employing a quantitative survey instrument as the methodology, in an attempt to better understand patients' perceptions, attitudes, and beliefs regarding safety practices utilized by nursing staff during medication administration.

- The mean age of the respondents from Obstetrics and Gynecology was 29.08 ± 6.53
- The mean age of the respondents from medicine was 33.4 ± 9.6
- The mean age of the respondents from surgery was 33.68 ± 12.2.

Table 1: Gender distribution of the respondents according to unit

Gender	*Medicine number n = 92*	*Surgery number n = 86*	*Obgyn number n = 222*	*Total*
Female	19	10	222	251 (62.75%)
Male	73	76	–	149 (37.25%)
	92 (23%)	86 (21.5%)	222 (55.5%)	400 (100%)



Graph 1: Gender distribution of respondents according to unit

Table 1 and Graph 1 shows that 23% respondents belonged to medicine unit, 21.5% respondents belonged to surgery unit, and 55.5% respondents belonged to Obstetrics and Gynecology unit. Of the total respondents, 62.75% were females.

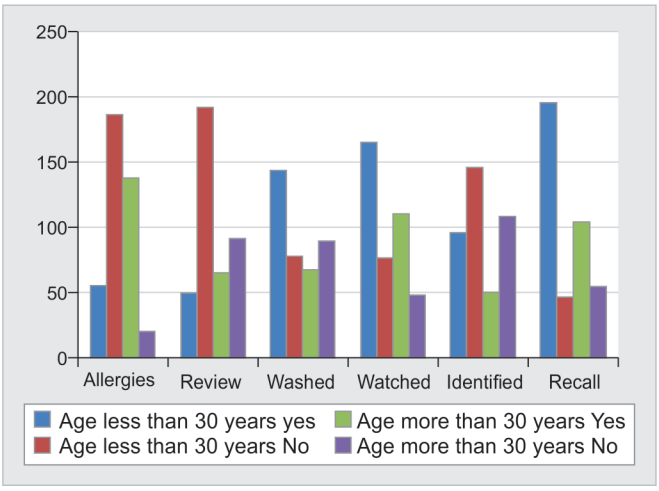
Table 2 and Graph 2 shows that 60.5% respondents were <30 years of age, but 44.25% respondents from medicine and surgery were >30 years of age.

Table 3 and Graph 3 shows that out of the total respondents, about 76 respondents in medicine, 72 respondents in surgery, and 172 respondents in Obstetrics and Gynecology stayed in the hospital for >7 days.

Table 4 and Graph 4 shows that respondents <30 years of age responded negatively to three out of six questions than the respondents >30 years of age. Respondents in both the groups did not see nurses washing their hands before medication, nor did she

Table 2: Distribution of respondents according to age

	Medicine		*Surgery*		*Obstetrics and gynecology*
Age of respondents	*Male*	*Female*	*Male*	*Female*	*Female*
Less than 30 years	14	11	14	6	197
More than 30 years	59	8	62	4	25
	92 (23%)		86 (21.5%)		222 (55.5%)



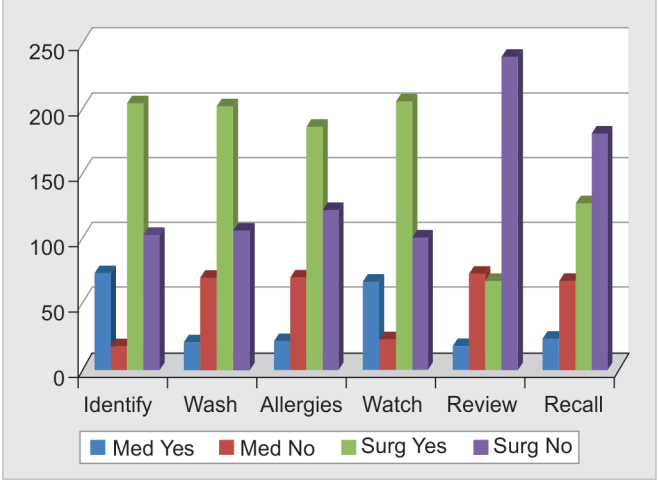
Graph 2: Do patients perceptions vary according to age?

ask for allergies. But she watched for any reaction after medication. Both groups could recall the last medicine given to them and remembered the number of medicines being two. This is statistically significant (p = 0.008, 0.0001, and 0.008).

Table 5 and Graph 5 shows that the perception of respondents of medicine unit was negative to four out of six questions compared to surgery respondents. Both the units said the nurses identified them before medication and watched for any reaction after medication. Both groups could recall the last medicine given to them and remembered the number of medicines being two. The perception was negative for washing of hands and review

Table 3: Distribution of respondents according to LOS

Length of stay	*Medicine*	*Surgery*	*Obstetrics and gynecology*
Less than 7 days	16	14	50
More than 7 days	76	72	172
	92 (23%)	86 (21.5%)	222 (55.5%)



Graph 3: Do patients perceptions vary according to unit?

of medicine by the nurses. This is statistically significant (p = 0.008, 0.0001, 0.008).

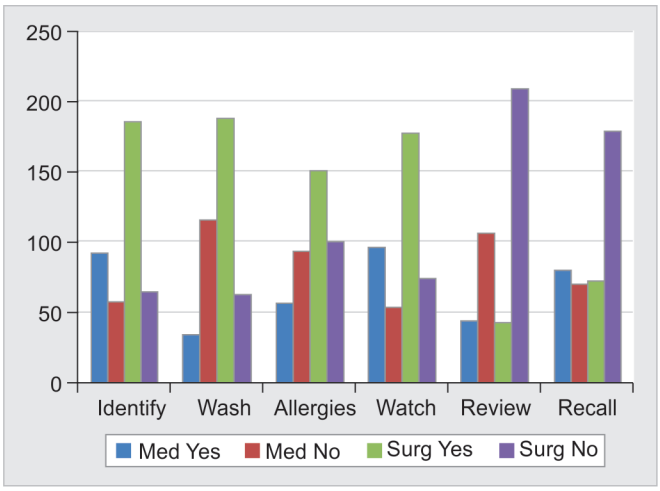
Table 6 and Graph 6 shows that the patients perception do vary with gender and it has been found to be significant in five out of six cases, where p value is < 0.05 (p = 0.002, 0.0001, 0.0001, 0.002, 0.0001). More females said

Table 4: Do patients' perceptions and behaviors vary according to age?

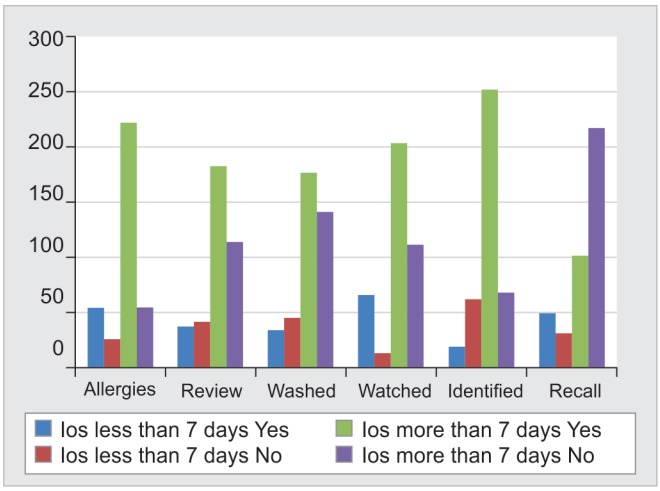
	Age less than 30 years		*Age more than 30 years*		*Chi-square*	
Questions	*Yes*	*No*	*Yes*	*No*	*test*	*p-value*
Whether nurses identified the respondents?	56 (14%)	186 (46.50%)	138 (34.50%)	20 (5%)	0.27	0.60
Did they wash their hands before dispensing medicines?	49 (12.25%)	193 (48.25%)	66 (16.50%)	92 (23%)	6.92	0.008
Did the nurses inform about medicines and ask for allergies?	144 (36%)	78 (19.50%)	68 (17%)	90 (22.5%)	37.76	0.0001
Did the nurses watch them taking medicines?	166 (41.5%)	76 (19%)	110 (27.5%)	48 (12%)	1.62	0.20
Did they review the medicines?	96 (24.5%)	146 (36.5%)	50 (12.5%)	108 (27%)	0.27	0.60
Do the patients recall the medicine and number of medicines?	196 (49%)	46 (11.50%)	104 (26%)	54 (13.25%)	6.92	0.008

Table 5: Do patients' perceptions and behaviors vary according to unit?

	Medicine		*Surgery*		*Chi-square*	
Questions	*Yes*	*No*	*Yes*	*No*	*test*	*p-value*
Whether nurses identified the respondents?	74 (18.5%)	18 (4.5%)	204 (51%)	104 (26%)	0.27	0.60
Did they wash their hands before dispensing medicines?	21 (5.25%)	71 (17.77%)	202 (50.5%)	106 (26.5%)	6.92	0.008
Did the nurses inform about medicines and ask for allergies?	22 (5.5%)	70 (17.5%)	186 (46.5%)	122 (30.5%)	37.76	0.0001
Did the nurses watch them taking medicines?	68 (16.5%)	24 (6%)	206 (51.5%)	102 (25.5%)	1.62	0.20
Did they review the medicines?	18 (4.5%)	74 (18.5%)	68 (17%)	240 (60%)	0.27	0.60
Do the patients recall the medicine and number of medicines?	24 (6%)	68 (17%)	127 (41.75%)	181 (45.25%)	6.92	0.008



Graph 4: Do patients perceptions vary according to gender?



Graph 5: Do patients perceptions and behaviors vary according to length of stay?

Table 6: Do patients' perceptions and behaviors vary according to gender?

	Male		*Female*			
Questions	*Yes*	*No*	*Yes*	*No*	*Chi-square*	*p-value*
Whether nurses identified the respondents?	92 (23%)	57 (14.25%)	186 (46.5%)	65 (16.25%)	9.07	0.002
Did they wash their hands before dispensing medicines?	34 (8.5%)	115 (28.75%)	189 (47.25%)	62 (15.5%)	23	0.0001
Did the nurses inform about medicines and ask for allergies?	56 (14%)	93 (24.25%)	152 (38%)	99 (27.25%)	19.77	0.0001
Did the nurses watch them taking medicines?	96 (24%)	53 (13.35%)	178 (44.5%)	73 (8.25%)	1.83	0.17
Did they review the medicines?	44 (11%)	105 (26.25%)	42 (10.5%)	209 (52.25%)	9.07	0.002
Do the patients recall the medicine and number of medicines?	79 (19.75%)	70 (17.5%)	72 (18%)	179 (44.75%)	23.59	0.0001

Table 7: Do patients' perceptions and behaviors vary according to LOS?

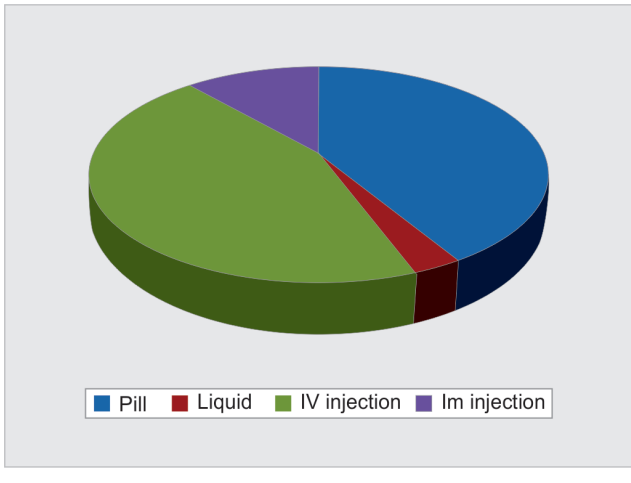
	Length of stay < 7 days		*Length of stay > 7 days*			
Questions	*Yes*	*No*	*Yes*	*No*	*Chi-square*	*p-value*
Whether nurses identified the respondents?	54 (13.5%)	26 (6.5%)	224 (65%)	56 (14%)	92.31	0.000
Did they wash their hands before dispensing medicines?	38 (9.5%)	42 (10.5%)	185 (46.5%)	115 (28.75%)	23.5	0.0001
Did the nurses inform about medicines and ask for allergies?	34 (8.5%)	46 (11.5%)	178 (44.5%)	142 (35.5%)	4.43	0.03
Did the nurses watch them taking medicines?	66 (16.5%)	14 (3.5%)	205 (52%)	112 (28%)	9.08	0.002
Did they review the medicines?	18 (4.5%)	62 (15.5%)	252 (63%)	68 (17%)	92.31	0.000
Do the patients recall the medicine and number of medicines?	49 (12.25%)	31 (7.75%)	102 (25.5%)	218 (54.5%)	23.5	0.0001

yes to all the questions except that only 18% could recall the medicine as compared to 19.75% in males.

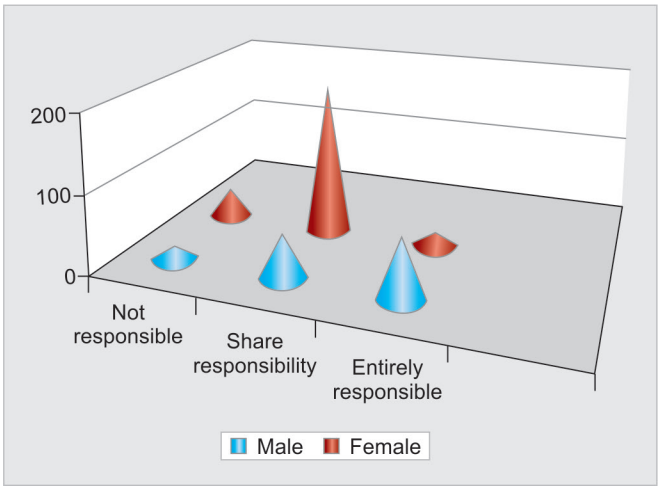
Table 7 and Graph 7 shows that the patients' perceptions vary with LOS. The respondents who had LOS < 7 days gave a negative response compared to those who had LOS of > 7 days. The p value was found to be significant in all cases.

Table 8 and Graph 8 informs that the last medicine given by the nurses to most of the respondents was IV injection of 46%, followed by a pill.

Table 9 shows that about 47.25% respondents feel that the nursing care of the hospital is very safe; 11% respondents feel that the nursing care of the hospital is safe, whereas 8.5% respondents feel that the nursing



Graph 6: Type of medication given to respondents



Graph 7: Perception of respondents about their participation in care

care of the hospital is somewhat unsafe, and 7.75% respondents feel that the nursing care of the hospital is unsafe. The perceptions of the respondents vary according to the unit they are in, gender, and the LOS.

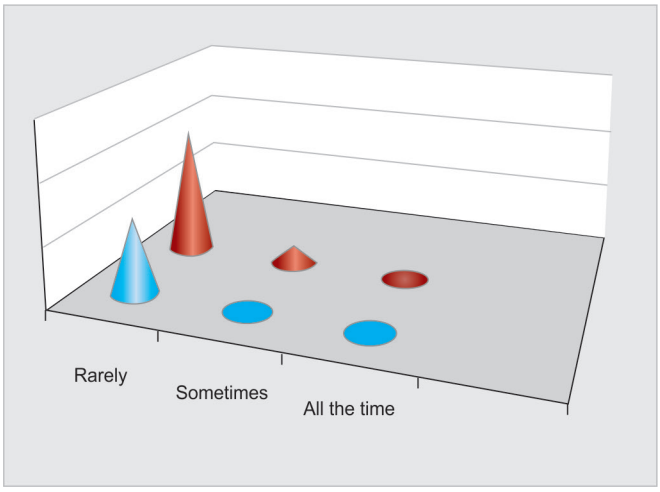
Table 10 shows that 62.5% of the respondents rated the care provided by the hospitals as good and this is statistically significant (p = 0.000).

Table 11 shows that about 63% respondents feel that their care is a responsibility shared by both doctors as well as themselves.

Table 12 shows that about 84% respondents rarely ensured about their medicines.

Table 8: Type of last medicine given to respondents

Questions	*Yes*
Which was the last medicine given by nurse?	
Pill	172 (43%)
Liquid	12 (3%)
IV injection	184 (46%)
IM injection	48 (12%)



Graph 8: Whether the respondents ensured about their care?

DISCUSSION

Medication use is a complex process that involves coordination among various health care professionals.

Table 9: Respondents' perception of nursing care (n = 400)

Respondents' perception of nursing care	*Med less than 7 days*		*Med more than 7 days*		*Surgery less than 7 days*		*Surgery more than 7 days*		*Obgyn less than 7 days*	*Obgyn more than 7 days*
	Males	*Females*	*Males*	*Females*	*Males*	*Females*	*Males*	*Females*	*Females*	*Females*
Very safe	4	4	35	10	8	0	38	5	30	60
Safe	8	0	0	0	2	2	20	0	12	102
Somewhat unsafe	0	0	1	5	2	0	11	3	8	4
Unsafe	0	0	25	0	0	0	0	0	0	6

Table 10: Rating of care by respondents

Rating of care by respondents	*Medicine*		*Surgery*		*Obgyn*
	Males	*Females*	*Male*	*Females*	*Females*
Excellent 52 (13%)	6	0	4	4	38
Good 248 (62.5%)	28	12	46	6	168
Poor 98 (24.5%)	39	7	26	0	16

Chi-square = 73.43; p = 0.000

Table 11: Perception of the respondents about their care

Respondents' perception of their participation in care	*Number*	*Males*	*Females*
Not responsible	56 (14%)	18	38
Shared responsibility	252 (63%)	56	196
Entirely responsible	92 (23%)	75	17

Chi-square = 0.73; p = 0.39

Table 12: Whether the respondents ensured about their medicines?

Whether the respondents ensured about their medicines (correct dose, time)?	*Number*	*Males*	*Females*
Rarely	336 (84%)	125	211
Sometimes	52 (13%)	20	32
All the time	12 (3%)	4	8

Chi-square = 0.08; p = 0.77

Medication errors may happen at any stage of patient care like prescribing, transcribing, dispensing, and administration. Studies have corroborated that medication safety errors may contribute to morbidity and mortality.

As medication errors result in damage to patient's health and influence the health care budgets, it is worth studying the types, frequency, impact of medication errors, and the factors responsible for errors. The literature review suggests limited research has been carried out in India in this area.

The purpose of this study is to explore patient's perceptions, attitudes, and beliefs about the safety practices utilized by nurses when administering medications. Specifically, the study addresses patients' perceptions of nurse behaviors regarding safe medicine administration, patient behaviors, patient's perceptions of nursing care, and patient's perceptions of their participation/accountability in care at a tertiary care hospital.

The sample size of our study was 400 respondents, whereas the sample size of other studies were 167 respondents in a study by Arun kumar et al, 210 respondents in Teri Ann Myhre study, and 280 respondents in Michelle Kermode & Vanlal Muaniindian study.

In our study, the mean age of the respondents was 29.08 ± 6.53, whereas in a study by Teri Ann Myhre the mean age was 64.2 years in the range of 19 to 93 years.

In a pediatric review, this age was < 19 years and lndian Academy of Pediatrics is working toward elimination of unsafe injection practices in India. Thus, pediatricians' efforts to achieve the safe and appropriate use of injections today will have a major impact to protect the adult who is in every child in India.

Do Patients' Perceptions and Behaviors vary according to Age?

Eight tests were conducted to detect if there were differences in the perceptions and behaviors of medication safety practices when the age was < 30 and > 30 years. Three of the tests yielded significant results, indicating that there are differences between patients' perceptions and behaviors according to age. Understanding the impacts of age as a variable is increasing and also important as the demographics shift to an older population.

The number of medications patients reported receiving in this study was positively correlated with age. The mean age of the study participants was 29.08 years and the average number of medicines they reported receiving was two. This is consistent with the work of Teri Ann Myhre (2007), Meadows (2006), and by Fulton and Allen (2005), who report that "61% of individuals older than age 65 take at least one prescription medication, with most taking an average of two to five medications".

Do Patients' Perceptions and Behaviors vary according to Unit?

In our study, the number of respondents from medicine unit was 23% and the number of patients from surgical unit (surgery + Obstetrics and Gynecology) was 77%, whereas in a study of Arun Kumar et al, the number of respondents from medicine unit was 48.62% and the number of respondents from surgical unit was 51.37%. In the study conducted by Teri Ann Myhre, the number of respondents from medicine unit was 50%, whereas that from surgical unit was 50%.

Eight tests were conducted to detect if there were differences between the medical and surgical patients' perceptions and behaviors of medication safety practices. Significant results were obtained in three tests, indicating that there are differences between medical and surgical patients' perceptions and behaviors according to the nursing unit they were in. In a study done by Arun Kumar et al, the authors have not correlated the findings from patients' perspective.

A statistically significant difference was found between the responses of the medical and surgical patients, p = 0.016, in a study by Teri Ann Myhre, which indicated a positive relationship between medical patients and an increased number of medicines administered. This is supported in the literature. Chronic diseases are more common in the older population as aging causes alterations in metabolism (Fulton and Allen, 2005). Further, patients requiring acute medical interventions *vs* surgical interventions are often experiencing an exacerbation of a chronic illness, therefore supporting the need for increased medication use.

Do Patients' Perceptions and Behaviors vary according to Gender?

Our study had 62.75% of female respondents and 37.25% male respondents as compared to that study of

Arun Kumar et al, which had 68.86% male respondents and 31.2% of female respondents. In a study conducted by Teri Ann Myhre, 49.7% respondents were males and 50.3% were females.

Eight tests were conducted to detect if there were differences between the respondents perceptions and behaviors of medication safety practices according to gender. Six of the tests yielded significant results, indicating there are differences in patients' perceptions and behaviors according to gender.

Do Patients' Perceptions and Behaviors vary according to LOS?

In a study conducted by Teri Ann Myhre, the LOS of 84.3% respondents was <7 days, whereas about 15.7% respondents had LOS of >7 days.

Eight tests were conducted to detect if there were differences between the mean LOS of respondents and their perceptions and behaviors of medication safety practices. All the tests yielded significant results, indicating that there are differences between patients' perceptions and behaviors according to LOS. This is in contrast to a study by Teri Ann Myhre where three tests were positive as the mean age of respondents was 64 as compared to ours of 29 years. As the LOS increased the participation of respondents decreased.

Report that patients are usually perceived as victims of errors and safety failures, when in fact active involvement or partnering in their care is their responsibility. Safety promotion can be enhanced when patients participate in the various stages of their care.

To test patient awareness and participation in their care, questions 6 to 8 were included in the questionnaire. Of the respondents, 152 (76%) recalled the number of medicines they had last received, reporting an average of two medicines. Clinically, this is a positive finding supporting the notion that patients are actively participating in their medication administration process by observing what medications they are receiving. Building a Safer Health System strongly recommends that patients be viewed as members of the health team and encouraged to become actively involved in their care.

In our study, about 63% respondents (more surgical) feel that their care is a responsibility shared by both doctors as well as themselves, as compared to a study by Teri Ann Myhre where he found that the medical respondents and surgical respondents shared equally.

Several organizations (Agency for Health care Research and Quality, 2005; American Hospital Association, 2005; Institute of Safe Medication Practices, 2005; National Patient Safety Foundation, 2005) focus on encouraging patients to take an active role in their care by questioning, paying attention, and being informed.

Involving patients would be one way of gaining a better understanding of their perceptions of safety practices, providing valuable insights. The results identify key safety issues from a patient's perspective to focus change strategies that will improve patient care. Patients and the general public will benefit from this research, given that society is dependent upon the practices of health care providers.

In our study, the last medicine given by the nurses to most of the respondents was IV injection (46%), followed by a pill. In another study, injection practices in the formal and informal health care sectors in rural North India were studied by Michelle Kermode & Vanlal Muaniindian, and the findings of this survey highlight the fact that informal practitioners in India are commonly administering injections with clear implications for patient safety. There is a need to promote strategies for injection safety among medical personnel.

In our study, about 47.25% respondents feel that the nursing care of the hospital is very safe. 62.5% of the respondents rated the care provided by the hospitals as good (medicine respondents rated care lower as compared to surgical respondents) and this is statistically significant ($p = 0.000$) compared to a study by Teri Ann Myhre, where he also found that the medical respondents rated the practices lower as compared to surgical respondents.

Review of the medication orders for appropriateness is one of the most challenging parts of the medication management use. This can be achieved by focused human resource training and designing and implementing effective systems as has been done by Satguru Singh Apollo Hospitals, Ludhiana, India, Dr. Geeta Chaudhary, Clinical Pharmacologist, and Satguru Partap Singh Apollo Hospitals, Ludhiana, India.

SUMMARY

Medication records of 400 respondents from medicine, surgery, and obstetrics and gynecology in-patient units at a tertiary care hospital in a rural setting were studied, employing a quantitative survey instrument as the methodology, in an attempt to better understand patients' perceptions, attitudes, and beliefs regarding safety practices utilized by nursing staff during medication administration.

Data were analyzed by the four independent variables: Unit, age, gender, and LOS. Tests of significance

were performed, and the results were presented in the following groupings: Patients' perceptions of nurse behaviors regarding safe medicine administration, nursing care, and their participation/accountability in their care.

- The mean age of the respondents from Obstetrics and Gynecology was 29.08 ± 6.53.
- The mean age of the respondents from medicine was 33.4 ± 9.6.
- The mean age of the respondents from surgery was 33.68 ± 12.2.
- A total of 23% respondents belonged to medicine unit, 21.5% respondents belonged to surgery unit, and 55.5% respondents belonged to Obstetrics and Gynecology unit. Of the total respondents, 62.75% were females.
- 76 respondents in medicine, 72 respondents in surgery, and 172 respondents in Obstetrics and Gynecology stayed in the hospital for >7 days.
- Respondents < 30 years of age responded negatively to three out of six questions compared to the respondents > 30 years of age. Respondents in both groups did not see nurses washing their hands before medication, nor did she ask for allergies. But she watched for any reaction after medication. Both groups could recall the last medicine given to them and remembered the number of medicines being two. This is statistically significant (p = 0.008, 0.0001, and 0.008), showing that age does not alter the perception of the quality of health care.

  The perception of medicine respondents was negative to four out of six questions as compared to surgery respondents. Both the units said the nurses identified them before medication and watched for any reaction after medication. Both groups could recall the last medicine given to them and remembered the number of medicines and the perception was negative for washing of hands and review of medicine by the nurses. This is statistically significant (p = 0.008, 0.0001, and 0.008), thus unit alters the perception of the quality of health care. The medicine respondents rated care lower as compared to surgical respondents.
- The patients' perception varies with gender, and it has been found to be significant in five out of six cases where p value is < 0.05. Females rated the quality of care better and shared the responsibility for health care.
- The patients' perception varies with LOS. The respondents who had a LOS < 7 days gave a negative response as compared to those who had a LOS of >7 days. The p value was found to be significant in all cases. The respondents who stayed longer rated the quality of care better and shared the responsibility for health care.
- In addition, 47.25% respondents feel that the nursing care of the hospital is very safe; 11% respondents feel that the nursing care of the hospital is safe, whereas 8.5% respondents feel that the nursing care of the hospital is somewhat unsafe, and 7.75% respondents feel that the nursing care of the hospital is unsafe. The perceptions of the respondents vary according to the unit they are in, gender, and LOS.
- A total of 63% respondents feel that their care is a responsibility shared by both doctors as well as themselves, more so by the female respondents from surgical units and who stayed longer.

CONCLUSION

According to patients' perceptions reported in this study, there were a number of inconsistencies noted in the seven rights of medication administration delivered by nurses, specifically patient identification, hand washing, allergy assessment, and patient teaching. The perceptions of medication safety practices do change with the unit they are in, gender, and LOS.

This research did not focus on medication administration errors but rather on the patients' perceptions, attitudes, and beliefs about medication safety practices. However, opportunities clearly exist to develop practice improvement initiatives targeted at improving medication administration processes. The results identify key safety issues from a patients' perspective to focus on change strategies that will improve patient care.

Case Record Form

1. Before giving my medicine to me today, I saw the nurse wash his/her hands. 1. Yes 2. No
2. Before giving my medicine to me today, the nurse identified me by: Please check (√) all that apply. 1. Asking me to state my name 2. Calling me by my name 3. Did none of the above
3. The medicine the nurse gave me today was NEW. Today was the first time I received it. 1. No 2. Yes
4. Before giving my medicine to me, the nurse asked me if I had any allergies. 1. Yes 2. No

5. What medicine are you allergic to?

6. The last time your nurse gave you medicine, how many different types (number) of medicine were you given?

7. For each medicine, the nurse reviewed the following information with me before giving me my medicine. Please check (√) all that apply.

   1. Name of the medicine
   2. Amount or dose of medicine ordered
   3. How often I will get the medicine
   4. What the medicine will taste like
   5. Why I am taking the medicine
   6. Side effects I should watch for
   7. Asked if I have ever taken the medicine before
   8. None of the above

8. Can you recall what type of medicine your nurse last gave to you?

   1. No – If you answered No
   2. Yes – If you answered Yes

9. What type of medicines were they? Please check (√) all that apply.

   1. Pain medicine
   2. Antibiotic

10. I have a list of all the medicines I am currently taking.

    1. Yes 2. No

11. The last time my nurse gave me my medicine it was: Please check (√) all that apply.

    1. A pill
    2. A liquid
    3. I.V. – intravenous injection

12. The nurse watched me take my pills or liquid medicine before he/she left the room.

    1. No 2. Yes

13. I feel the care I receive from nurses is:

    1. Very safe
    2. Safe
    3. Somewhat unsafe
    4. Very unsafe

14. The level of trust I have in the nursing care I receive is:

    1. No trust at all
    2. Somewhat distrustful
    3. Trustful
    4. Complete trust

15. Overall, I would rate the nursing care during this hospital stay as:

    Very good
    Good
    Poor
    Terrible

16. In your opinion, who is responsible for making sure your medicine is given safely?

    I am not responsible
    Shared responsibility with nurses, doctors
    I am mostly responsible
    I am entirely responsible

17. How often do you check to ensure the medicine you are being given is correct (correct dose, correct medicine, given at correct time)?

    Rarely
    Sometimes
    Always

REFERENCES

1. Hippocrates. Hippocratic Oath; n.d. [retrieved 2005 Nov 16]. Available from: http://en.wikipedia.org/wiki/Hippocratic_Oath#Modern_Alternatives.
2. Rhonda L, Neville AS, David H. Applying hierarchicaltask analysis to medication administration errors. Appl Ergon 2006 Sep;37(5):669-679.
3. Karen M, Maralyn F. Medication administration errors: understanding the issues. Aust J Adv Nurs 2006 May;23(3):33-41.
4. Jones SW. Reducing medication administration errors innursing practice. Nurs Stand 2009 Aug 19-25;23(50): 40-46.
5. Baker GR, Norton PG, Flintoff V, Blais R, Brown A, Cox J, Etchells E, Ghali WA, Hébert P, Majumdar SR, et al. The Canadian Adverse Effect Study: the incidence of adverse effects among hospital patients in Canada. Can Med Assoc J 2004 May 25;170(11):1678-1686.
6. Inoue K, Koizumi A. Application of human reliability analysis to nursing errors in hospitals. Risk Anal 2004 Dec;24(6):1459-1473.
7. Arun Kumar KS, Venkateswarlu K, Ramesh A. A study of medication administration errors in a tertiary care hospital. Indian J Pharm Pract 2011 Apr-Jun;4(2):37-41.
8. Institute of Medicine (IOM). To err is human: building a safer health system. Washington (DC): National Academy Press; 2000.
9. Alberta Health and Wellness (AHW). Alberta Health Data Bases/Population Demographics 2005/06 Population Data; 2007. Created 2007 Feb 20.
10. Health Quality Council of Saskatchewan. About the Health Quality Council; 2005 [retrieved 2006 Jan 16]. Available from: http://www.hqc.sk.ca/portal.
11. Semmelweiss I. The etiology, concept and prophylaxis of childbed fever. Carter KC, translator. Madison (WI): University of Wisconsin Press; 1983.
12. Schimmel EM. The hazards of hospitalization. Qual Saf Health Care 2003 Feb;12(1):58-63.
13. Chinook Health. Utilization indicators, Units 3C, 4A, 4B, and 4C. Utilization indicator report. Lethbridge (AB): Author; 2005/2006b.
14. Vincente KJ. Less is (sometimes) more in cognitive engineering: the role of automation technology in improving patient safety. Qual Saf Health Care 2003 Aug;12(4):291-294.
15. Brennan TA, Leape LL, Laird NM, Hebert L, Localio AR, Lawthers AG, Newhouse JP, Weiler PC, Hiatt HH. Incidence of adverse events and negligence in hospitalized patients: results of the Harvard Medical Practice Study I. N Engl J Med 1991 Feb;324(6):370-376.
16. Leape LL, Brennan TA, Laird N, Lawthers AG, Localio AR, Barnes BA, Hebert L, Newhouse JP, Weiler PC, Hiatt H. The nature of adverse events in hospitalized patients: results of the Harvard Medical Practice Study II. N Engl J Med 1991 Feb;324(6):377-384.

17. Wilson RM, Runciman WB, Gibberd RW, Harrison BT, Newby L, Hamilton JD. The Quality in Australian Health Care Study. Med J Aust 1995 Nov 6;163(9):458-471.
18. Rasmussen J. The definition of human error and a taxonomy for technical system design. In: Rasmussen J, Duncan K, Leplat J, editors. New technology and human error. Chichester: Wiley; 1987. p. 23-30.
19. Chaudhary G. Case study: review of medication orders for appropriateness at Satguru Singh Apollo Hospitals, Ludhiana, India. 2010. Available from: http://www.jointcommission-international.org/JCInsight/07-10-Case-Study-Satguru-Singh-Apollo-Hospitals-Ludhiana-India/.
20. Hutin YJ. Acting on evidence: progress towards elimination of unsafe injection practices in India. Indian Pediatr 2005 Feb;42(2):111-115.
21. Kermode M, Muani V. Injection practices in the formal & informal health care sectors in rural north India. Indian J Med Res 2006 Nov;124(5):513-520.