Knowledge, Attitudes, and practice of Nurses on Medication Errors in Saidu Group of Teaching Hospital Swat.

Majid Khan[a], Najmus Saqib[a], Muhammad Awais, Sadia Yahya[a]

[a] School of Nursing, The University of Faisalabad

Correspondence: mjdhmd099@gmail.com

ABSTRACT

Background and Objectives: Enhancing human health is the primary objective of nurses. Among the most frequent, potentially dangerous mistakes that impact patient care are medication errors. These errors are seen as a worldwide issue that raises death rates, hospital stays, and associated expenses.

Aim is to study the medication errors of ordering, dispensing and administering and to compare the errors occurring in the Saidu group of teaching hospital with those occurring in the other health care setups around the word. To identify the most common mistake regarding the preparations of medication. To assess nurse's errors concerning administration of medication. To evaluate nurses' knowledge regarding Post administration of medication.

METHODOLOGY: At the Saidu group of teaching hospitals in Swat, a descriptive cross-sectional study was carried out. At Saidu Group of Teaching Hospital SWAT, 79 critical care nurses in total were chosen for the study and given an adopted questionnaire to complete. Questionnaire was consisted of four major parts, the demographic section, knowledge section, attitude section and practice. Data were entered into the SPSS version 26 software for analysis. And the results were represented in the form of frequency and percentages. For ethics stability, consent form is used and ethical approval was granted from college faculty and hospital committee.

RESULTS: The mean age in our study was 31 in which 68 % were male while 32% were female. 68% of the study participants (Nurses) label the medication cup and few nurses do not label the medication cup with patient's name or room number. Only 20% of participant did not report medication error.

CONCLUSION: Knowledge about medication process among nurses were good but further need a bit of improvement.

KEYWORDS: Medication error, knowledge, Nurse, attitude

INTRODUCTION

Any departure from the doctor's prescription order as it appears on the patient's chart is commonly referred to as a pharmaceutical mistake. Medication mistakes in hospitals happen roughly once every patient every day. Error rates for dosages administered during the cart-filling process range from 0.87% to 2.9%. A dispensing error occurs when pharmacy employees provide medications to nursing units or directly to patients in an ambulatory care pharmacy.(4). In 1983, 2876 people died from ME. By 1993, this number had risen to 7391, a 2·57-fold increase(16). Globally medication errors are among the major health and economic concerns. Annually 44,000 people die from preventable medication errors.1 One in every hundred Medi- cation errors lead to adverse reaction that can result in death (11).Approximately 20% of all medication administrations result in error(17). Between one and two errors per patient each day go undetected in addition to those that are reported (5).Increased lengths of stay, readmissions, patient mortality, post-discharge impairment, and emotional anguish for the patient, family, and administering nurse are among the mone- tary and personal expenses linked to these mistakes(6).Errors can be found in five distinct stages of the MA process: prescription, typing, dispensing, administering, and patient condition/documentation monitoring(5). The administration stage is especially prone to mistakes (11). Errors are more likely to occur

throughout these intricate procedures when requests or disruptions occur simultaneously (5). MA takes up between 16 and 40 percent of nurses' time (18). Since MA does not happen in a vacuum, it was determined that it actually "constitute[s] the day" because it was impossible to distinguish its effects from other duties, rather than taking up a specific amount of the nurses' day. Nurses' capacity to provide safe and efficient patient-centered care is impacted by how process interruptions are handled given the strong emphasis on MA (8).

Significance of the Study:

The medication error is one of the most common mistakes occur in health care system and nurses with pharmacist and physician have in important role in stopping these errors so our aim is to highlight these errors and give suggestion to overcome these errors.

Rational:

Patient admitted at health care setup have a chance of having victim of medication error so through this study we want to identify the statistics of these error and give suggestion about lowering the frequency of these error.

Operational definitions

Registered Nurse: A nurse is a person who is formally trained in a nursing institute and possesses a valid registration with Pakistan Nursing council.

Knowledge: Knowledge is understanding or awareness of nursing staff regarding the protocols of Medication administration.

Attitude: A settled way of thinking or feeling of nursing staff regarding Basic Life Support.

Practice: The actual application of Basic Life Support guidelines on patients by the nursing staff.

METHODOLOGY

Type of Research

This is quantitative research, descriptive in nature. The data for this study was collected through a closed pre-coded questionnaire. Questionnaire included with closed ended questions. Quantitative examination is a method to test objective hypotheses and the relationship among variables (9). In our questionnaire there are four parts including demographic, educational level, practice and attitude of nurses toward the medication error.

Research Strategy:

A cross-sectional study was designed in public sectors of Swat to analyze the frequency of medication error and attitude of nurses toward the medication error. The study was conducted in public hospitals, (Public Hospital) Saidu group of Teaching Hospital, from March 20 to April 20 2022. The study was conducted through

pre coded, structured questionnaire. Questions were related to educational level and attitude of nurses toward the medication error. The questionnaire was given to the nurses of inclusion criteria randomly.

Research design:

A descriptive cross-sectional study was conducted in public hospitals of Swat. For data collection a structured questionnaire with consent form was attached, in which aim of the study and rights of participants and rules clearly mentioned. Questionnaire included with demographic knowledge practice and attitude section. Pilot study was done by 20 questionnaires to remove any type of error.

Pilot study:

Pilot study was done in Saidu Hospital Swat (SGTH). 20 Nurses were asked to fill the questionnaires. All Nurses had experience more than year in Nursing. 26 of our questions only few were found incorrect which is been remove from questionnaire.

Target Population

More than 420 nurses working in Saidu hospitals of Swat, which was a target population for this study

Sample Size

79 sample size was selected for the study, Nurses from Saidu government hospitals, Male and female with various designation from hospital was the part of it. we use RAOSOFT for finding our accurate sample size in which we take 10% error the reason we did not take 5% is we are the beginners so chances of error are there then we take 95% confidence level because its mostly used and our total population is 430 nurses in SGTH. So, the RAOSAFT give us sample size of 79 as a reference we attached the screen shot at the end of the study

Sampling Technique

Due to shortage of time and lack of resources we apply Non probability descriptive cross sectional sampling technique.

Data Collection Methods

Data was collected through a questionnaire which include close ended questions. And questionnaire was the instrument of the study every participant has asked in consent form that if they want to leave the study at any time, they are free to leave. Questionnaire is the best and suitable data collection method for quantitative study as proved by many articles.

Research Instrument

Well structured, close ended questionnaire was my research instrument. The questionnaire covered four parts:

☒   Demographic data

☒   Educational level

☒   Practice of nurses

☐ Attitude of nurses toward medication process

Research survey:

When we modify our questionnaire and remove the incorrect questions from it then we visited to the Saidu group teaching hospital and discussion with the staff about the research and explain the questioned to them which they find difficult. Some staff just simply reject to give us data while some said that leave the question-naire and come after an hour and take it and some filled it on the spot.

Inclusion Criteria:

All those registered nurses in SGHT having a least one-year experience and performing duty in different wards and willing to share experiences with us are come in our inclusion criteria. (n=50).

Exclusion Criteria:

Nurses who are not present in hospital during our study or those who are not willing to share their experiences with us are come in this part of our study.

Sampling:

The sample was drawn by non-probability convenient sampling techniques from the nurses available at the hospital at the moment.

Research Instrument:

For conducting the survey, we used questionnaire as an instrument. A close ended questionnaire was used with a nominal question. The language of the questionnaire is English. The questionnaire consists of five portions, the consent form, the demographic questions and the educational level the practice and attitude of nurses toward medication error.

The demographic part:

In this part of the questionnaire, we have asked the participants about age, gender, qualification. We also asked the nurses about their position and the options which we gave were diploma, specialization, BSN and MSN. Number of years in Nursing has been asked.

Data Analysis:

Data analysis was performed using SPSS, version 26, software. Frequency distribution tables for categorized variables, and numerical indices of minimum, maxi-mum, mean and standard deviation (SD) for research quantitative variables were provided by means of descriptive statistics, and tables related to comparisons and correlations were done using analytical statistics.
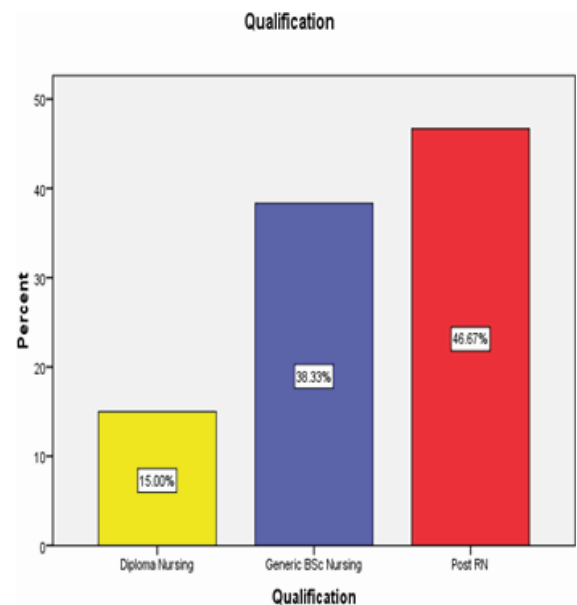
RESULTS

Interpretation: The graph reveal mean age of the study participants (Nurses) is 31. And the standard deviation is 5.4.
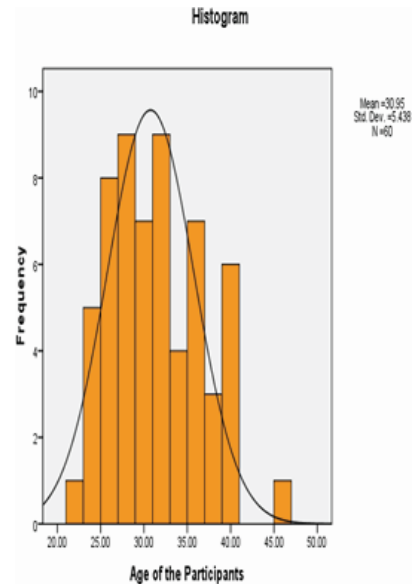
4.1 Graph no 1: Mean age and standard deviation of the study participants

In our study most of the study participants were male (68%) and less were female nurses (32%).

Graph no 2: Gender

Interpretation:

The education of nurses who were selected for the study was Diploma Nurses (15%), generic BScN (38%) and Post RN (47%).

Table No 1: ignorance of medicines minor side effect by the nurses

Do you check patient's armband prior to administer medication					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	47	78.3	78.3	78.3
	No	13	21.7	21.7	100.0
	Total	60	100.0	100.0	

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	12	20.0	20.0	20.0
	No	48	80.0	80.0	100.0
	Total	60	100.0	100.0	

Interpretation: The mean experience of the nurses who were selected for the study was 8 year and standard deviation was 5.5%.The major reason for not participation and incomplete participation were family restrictions, time constraints and unexpected distance (attending) phone calls, physician calls for consultation and crying of children). Total 384 nursing mothers participated in study. Each district contributed around 33% participants. The socio-demographic variables of the study were district of residence, age and education of nursing mothers, number of children and place of delivery of last child. that among total participants, 72% (n=277) nursing

Table No 2: Nurses checking patient armband prior to administer medication

Do you prepare and carry medication of more than two patient at a time					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	29	48.3	48.3	48.3
	No	31	51.7	51.7	100.0
	Total	60	100.0	100.0	

Majority(78%) of the nurses check the patient armband before administering the medication to reduce the chances of error and very few ignore to check the armband of the patients.
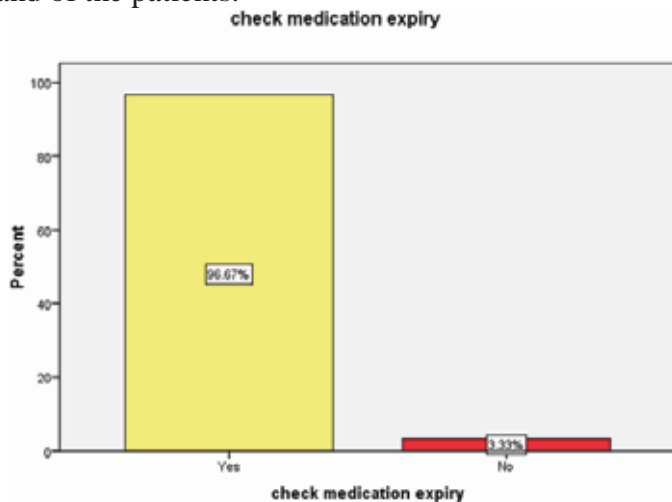
Graph no 7: Nurses check medication expiry when administering medicines

Interpretation: Approximately all the study participant's nurses check the expiry of the medicines before administering the medication to the patients

Table No 2: Nurses checking patient armband prior to administer medication

Do you label syringes and bags with medication, name, and room number					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	43	71.7	71.7	71.7
	No	17	28.3	28.3	100.0
	Total	60	100.0	100.0	

Interpretation:
Maximum number (72%) of the study participant's label syringes and bags with medication, name and room number of the patients

DISCUSSION

This study was conducted with aim of identifying potential medication errors with their prevalence in Saidu group of teaching hospital, in resource limited setting. The role of nurse in preventing medication errors was also investigated. It was found that medication errors were common in health care setup.

In our study the nurses that much open to answered the that what type of medication error they done and what were the conserveness after the incidence but most of the nurses 93.3% said that its necessary to report any error in the medication process. Through discussion with staff, we find out that most of the error occur in the administrative phase of medication process as same to the study saying that Approximately 78% (158) of the 202 surveys received included medication error in administration. (22). During the study period, 136 (68 %.) medication errors were encountered in medication orders (n=200) by clinical pharmacists. Male gender was found most susceptible to medication errors (70.59%). Among the identified errors, prevalent error found was dosing error (27.21%), followed by incomplete prescription error (13).

Majority 68.33% of the participants in our study were male while only up to 32% were female which is also one of the reasons of low number of medication error as the study say that the response rate to the survey was 8.2%. Approximately 78% (158) of the 202 surveys received included medication error descriptions; we analyzed these 158 accounts. Of those nurses who admitted making an error, 87% were women(22).

T.he work load in government hospital is too huge because the number of nurses is too few in Saidu hospital. In our study 67% replied that there is enough staff

and the rest replied that there is no enough staff to handle work load which result poor patients care. Educational level section of our questionnaire has seven questions and the response to these questioned were 100% positive everyone knows the basics and have knowledge about medication error. Explanation of side effect from any medicines to the patients is important because it keep important role in patient's care. In our study 71.6% nurses replied that they explain the medication side prior to administering the medicine to the patients.

One of the main reasons of control medication error rate Is also that majority 73.3% nurses did not administer the medicine prepare by another nurse. And 97% of the participant have check the expiry rate before administering medicine.

CONCLUSION

Results of the study confirm that frequency of medication error among nurses is not too much high but still it is significant and should be taken as a part of concern. The reason of low frequency of medication error is the educational level of nurses which was quite good and other reasons were the attitude of nurses toward medication process they check expiry before administration and explain the process to their patient. But still need to give more education on how to lower the frequency of error and what to do if any error occurs because some nurses answered that they did not report if mediation error occur.

Recommendation:

This study result showed that the ratio of medication error among nurses selected from Saidu government teaching hospital Swat KPK is low. The main reason behind this is the work experience which was more than 8 year and the strong reason was educational level. 38% were BScN and 46% of nurses done their post RN only few were only diploma nurse which was the reasons of low medication error frequency. In one study the researcher said that 87% of error occur from female nurses and our study 68% were male but still need to overcome this problem and completely remove the medication error for which the government need to arrange session in which the more experience nurses need to take the class and share their experience.

Limitation

Due to insufficient time and lack of resources our research study is limited to Saidu government teaching hospital Swat KPK and to a sample size of 79 staff nurses. And convenient sampling method is applied because of insufficient time.

One of the main reasons of control medication error

rate Is also that majority 73.3% nurses did not administer the medicine prepare by another nurse. And 97% of the participant have check the expiry rate before administering medicine.

REFERENCES

1. Anderson BP, Townsend T, CCRN-CMC CB. Medication errors. Am Nurse Today. 2010;44.

2. Ameer A, Dhillon S, Peters MJ, Ghaleb M. Systematic literature review of hospital medication administration errors in children. Integr Pharm Res Pract. 2015;4:153.

3. Alemu W, Belachew T, Yimam I. Medication administration errors and contributing factors: A cross-sectional study in two public hospitals in Southern Ethiopia. Int J Afr Nurs Sci. 2017;7:68–74.

4. Barker KN, Flynn EA, Pepper GA, Bates DW, Mikeal RL. Medication errors observed in 36 health care facilities. Arch Intern Med. 2002;162(16):1897–903.

5. Choo J, Hutchinson A, Bucknall T. Nurses' role in medication safety. J Nurs Manag. 2010;18(7):853–61.

6. Franklin BD, Vincent C, Schachter M, Barber N. The incidence of prescribing errors in hospital inpatients. Drug Saf. 2005;28(10):891–900.

7. Franklin BD, Reynolds M, Shebl NA, Burnett S, Jacklin A. Prescribing errors in hospital inpatients: a three-center study of their prevalence, types and causes. Postgrad Med J. 2011;87(1033):739–45.

8. Hirani S, McFarlane J. Medication errors by novice nurses in a pediatric and neonatal care setting of Pakistan: Analysis of problems and proposed solutions. Pediatr Neonatal Nurs Open Access. 2016;2(1):2470–0983.

9. Hayes C, Jackson D, Davidson PM, Power T. Medication errors in hospitals: a literature review of disruptions to nursing practice during medication administration. J Clin Nurs. 2015;24(21–22):3063–75.

10. Jain S, Basu S, Parmar VR. Medication errors in neonates admitted in intensive care unit and emergency department. Indian J Med Sci. 2009;63(4).

11. Jennings BM, Sandelowski M, Mark B. The nurse's medication day. Qual Health Res. 2011;21(10):1441–57.

12. Kaur A, Charan GS. A study to assess the knowledge regarding medication error among staff nurses at SGRD Hospital, Amritsar, Punjab. Int J Health Sci Res. 2018;8(8):213–8.

13. Khayam MU. Medication errors assessment and prevention by a clinical pharmacist in pediatric wards of RMI Hospital Peshawar, KPK-Pakistan. Ann Pak Inst Med Sci. 2015;11(3):124–9.

14. Manias E, Kusljic S, Wu A. Interventions to reduce medication errors in adult medical and surgical settings: a systematic review. Ther Adv Drug Saf. 2020;11:2042098620968309.

15. Mulac A, Taxis K, Hagesaether E, Granas AG. Severe and fatal medication errors in hospitals: findings from the Norwegian Incident Reporting System. Eur J Hosp Pharm. 2021;28(e1):e56–61.

16. Ogunleye OO, Oreagba IA, Falade C, Isah A, Enwere O, Olayemi S, et al. Medication errors among health professionals in Nigeria: a national survey. Int J Risk Saf Med. 2016;28(2):77–91.

17. Potter P, Wolf L, Boxerman S, Grayson D, Sledge J, Dunagan C, et al. Understanding the cognitive work of nursing in the acute care environment. J Nurs Adm. 2005;35(7–8):327–35.

18. Phillips DP, Christened N, Glynn LM. Increase in US medication-error deaths between 1983 and 1993. Lancet. 1998;351(9103):643–4.

19. Raza H, Akhtar Y. Prevention of medication errors in a Pakistani hospital because of concurrent evaluations and interventions by pharmacists. Natl J Health Sci. 2021;6(4):149–53.

20. Solanki ND, Shah C. Root cause analysis of medication errors at a multi-specialty hospital in Western India. Int J Basic Clin Pharmacol. 2013;2(6):819–23.

21. Treiber LA, Jones JH. Making an infusion error. J Infus Nurs. 2018;41(3):156–63.

22. Williams DJ. Medication errors. J R Coll Physicians Edinb. 2007;37(4):343.

23. World Health Organization. Medication errors. Geneva: WHO; 2016.

Authors Contributions:

Majid khan: Substantial contrib ution to the conception, design of the work.

Najmus Saqib, Muhammad Awais: Survey and design of the work. Data collection. SPSS computing tool.

Sadia Yahya: Drafting for approval of the final version to be published.