PERCEPTIONS OF PROFESSIONAL NURSES ON MEDICATION ERRORS IN A PSYCHIATRIC HOSPITAL IN THE WESTERN CAPE

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ABSTRACT

As much as medication errors has drawn the attention of many stake holders in health around the globe, literature about medication errors in South Africa appear to be limited, especially in psychiatry. The purpose of this study, therefore, was to determine the perceptions of professional nurses on medication errors in a psychiatric hospital. The specific objectives are to determine the barriers of reporting medication errors medication errors in a psychiatric hospital in the Western Cape, as well as to determine the perceptions of professional nurses on medication errors, in a psychiatric hospital, in the Western Cape.

A quantitative research approach and descriptive design was followed to conduct this research study at a Psychiatric Hospital in the Western Cape. The population of this research study was the professional nurses in the selected Psychiatric Hospital. The target population of this research study amounted to (n=129) professional nurses. The participants of this research study were selected according to their availability, and the sample that eventually participated amounted to (n= 69). The data analysis for this research study was performed with the assistance of a statistician, using Statistical Package for Social Science (SPSS), version 24), while descriptive statistics was used to analyse the data.

Demographic factors showed no statistical significance in relation to the variables of barriers to reporting medication errors, and also the variables of the perceptions of professional nurses on the causes of medication errors, when Mann Whitney-U test was used. The Spearman correlation test revealed both statistical and non-statistical significance to the variables of barriers to reporting medication errors and to the variables of the perceptions of professional nurses on the causes of medication errors.

The limitations of this research study are that the findings of this study cannot be generalized to a larger population of professional nurses in a specific psychiatric hospital.

The recommendations of this study are, firstly, that ongoing awareness campaigns, regarding medication errors in psychiatric hospitals, should be conducted from both the Department of Health and the Nursing Schools. Secondly, clinical nurse practitioners should be encouraged to conduct research studies that will promote and improve nursing practice. Thirdly, when

medication errors occur in clinical practice, nursing professionals should be encouraged to report those errors, and the necessary support should be accorded to the "whistle blowers". Fourthly, the gaps in the reporting of medication errors should be identified and dealt with, in order for professional nurses to learn from their mistakes and improve their service. Finally, collaboration between health institutions and nursing training institutions should be increased, to strengthen pharmacological training and on-site in-service training for the nursing students, as well as qualified professional nurses, in order to promote and improve patient safety. The researcher also offers recommendations for future research studies.

KEY WORDS

Perceptions

Registered Professional nurses

Medication error

Psychiatric hospital

Western Cape

LIST OF ABBREVIATIONS

n – number of participants

FBU – Functional Business Units

MHCOP – Mental Health Care Of Older People

ICAS – Independent Counseling Advisory Service

NHRD – National Health Research Database

Man Nurs – Manager of Nursing

DECLARATION

I, Luthando Alpheus Matiso, declare that the study, *Perceptions of professional nurses on medication errors in a Psychiatric Hospital in the Western Cape*, is my original work that has not been submitted for any degree, or examination at any other University. All the references used, or quoted, in this study have been mentioned and fully acknowledged.

Full names: Luthando Alpheus. Matiso

Date: November 2017

Signature:……

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CHAPTER ONE

ORIENTATION OF THE STUDY

1.1. Introduction

In this chapter, the researcher provides a brief explanation of the background, rationale and the problem statement of this current research study. The aim and the objectives of the research study are also presented, as well as the significance of the study and a clarification of the definitions of terms used in this study.

1.2. Background

Medical errors are the most common threats to patient safety when they are admitted to a hospital. Medical errors refer to any event that puts the patient's health at risk, while hospitalized (Arimura, Imai, Okawa, Fujimura & Yamada, 2010). In a hospital setting, health care workers are often the perpertrators of medical errors (Dabaghzadeh, Rashidian, Torkamandi, Alahyari, Hanafi, Farsaei & Javadi, 2013). These medical errors included post operative complications (complications occuring after surgery), medication errors, patient falls, patient injuries, blood transfusion errors and injuries, as a result of restraints (Tran & Johnson, 2010). However the cost of medical errors is high, for example in the United States (US) alone it was estimated the annual cost of medical errros were between $ 17.7 to 26 Billion dollars (Bos, Rustagi, Gray, Halford, Ziemkiewicz & Shreve, 2011).

Medication errors are reportedly the most common medical errors that threaten health sectors around the globe (Ehsani, Cheragi, Nejati, Salari, Esmaeilpoor & Nejad, 2013). Medication error was defined by (Benkelfat, Gouin, Larose and Bailey, 2013) as an error in drug ordering, transcribing, dispensing and administration of medication. As much as professional nurses have the responsibility of administering medication to hospitalized patients and monitoring the effects thereof, literature has revealed that these health care practitioners are most often the perpetrators of medication errors (Llewellyn, Gordon & Reed, 2011; Leufer & Cleary-Holdforth, 2013). A study conducted in Greece, highlighted that both individual and organizational factors are a major determinants of medication error (Karavasiliadou and Athanasakis, 2014). On that note, professional nurses have identified several factors that

cause medication errors during the administration of medication, namely, failure to read the prescription, distraction, high patient acuity (the level of severity of an illness, one of the parameters considered in patient classification systems, designed to serve as guidelines for the allocation of nursing staff), work overload, the availability of drugs (time of prescription, as it is considered a medication error, when medication is given at a time, other than as prescribed), as well as confusing prescribed drug names that sound similar (Ismail & Taqi, 2013). In Saudi-Arabia, it was established that the lack of pharmacological knowledge, such as drug name confusion, the wrong strength calculation, wrong method of administration and miscommunication, was identified as the leading cause of medication errors perpetrated by professional nurses (Cheragi, Manoocheri, Mohammadnejad & Ehsani, 2013). In a comprehensive review that investigated medication errors in psychiatry, Procyshyn, Barr, Brickell and Horne (2010) found that the wrong dose (31%) was the most common type of medication error, followed by the wrong drug administration (21%), dose omission (17%), administration of medication at the wrong time (5%), and failure to record an administration or omission code (5%). According to Manias, Kinney, Cranswick and Williams (2013), medication errors occurred mostly in the following settings: in medical wards (17.2%), followed by surgical wards (16.1%), and intensive care units (12.3%). No matter what setting medication errors occur, it can't be hidden that the consequences of medication errors affect healthcare professionals, patients and families, psychologically, financially or in time cost (Tran and Johnson, 2010).

1.3. Rationale

Even though medication errors occur in psychiatric hospitals, this phenomenon is not well researched and is often under-reported (Bhatia, 2010). The majority of studies conducted on medication errors, highlight that most medication errors were perpetrated by professional nurses, employed in general hospitals (Maidment, Lelliott & Paton, 2006; Mann, Rothschild, Keohane, Chu & Bates, 2008 and Procyshyn *et al.*, 2010). After an extensive literature search, no studies that focused on medication errors, particularly in a psychiatric hospital of the Western Cape, South Africa, could be found. Therefore, the researcher identified the need to conduct this research study, to determine the perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape.

1.4. Problem statement

Medication error is a global health problem that affects patients while they are still in hospitals (Sulosaari, Suhonen & Lieno-kilpi, 2010). The incident rate of medication error ranges from 6.58% of every 1000 beds in an Australian hospital (Manias *et al.*, 2013), to 28% in Egypt (Mohamed & Gabr, 2010). Although the prevalence of medication error in psychiatric hospitals is universal, it remains under-reported and not well researched (Bhatia, 2010). The reason behind not reporting medication errors is because health care professionals (professional nurses) are often faced with corrective actions, or termination of employment, as a result (Khowaja, Nizar, Merchant, Dias, Bustamente-Gavino & Malik, 2008; Treiber and Jones (2010). Besides, in the researcher's opinion, some professionals do not understand what a medication error is, and the factors associated with medication errors are complex.

1.5. Aim

The aim of the study is:

- To determine the perceptions and barriers of professional nurses on medication errors in a psychiatric hospital in the Western Cape.

1.6. Objectives

The objectives of the study are:

- To determine the barriers to reporting of medication errors in a psychiatric hospital in the Western Cape;
- To determine the perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape, in association with demographic factors.

1.7. Significance of the study

The significance of this current research study is to increase awareness about medication errors among professional nurses, in a psychiatric hospital in the Western Cape. Information gained from this research study could be used during in-service training sessions to promote the recognition of medication errors.

1.8. Definitions of terms

Perceptions: Perceptions are defined as interpreting something, in a particular way, or according to your understanding (Soanes, Hawker & Eliot, 2006). In this current study, perceptions will be defined as what professional nurses consider medication errors to be, who commits them and what are the contributing factors to medication errors.

Professional nurse: A professional nurse is "a person who is qualified and competent to independently practice comprehensive nursing in the manner and to the level prescribed and who is capable of assuming responsibility and accountability for such practices" (Republic of South Africa [RSA]. Nursing Act 33 of 2005).

Medication error: For the purpose of this study, medication error will be defined as "any preventable actions that may cause or lead to patient harm, while medication is still managed by a health care professional" (Khowaja *et al.*, 2008).

Psychiatric hospital: A psychiatric hospital is defined as, "a health establishment that provides care, treatment and rehabilitation services only for users with mental illness" Republic of South Africa [RSA]. Mental Health Care Act 17 of 2002).

1.9. Chapter outline

Chapter 1: This chapter is an introduction to the research study. A brief explanation of the rationale and the problem statement of the research study is provided. The aim and the objectives of the research study are described, as well as the significance of the study and the definitions of terms used in the study. The chapter concludes with chapter outline of the study and a conclusion.

Chapter 2: In this chapter, the researcher conducted a literature review, by searching data bases for existing literature on the topic under scrutiny, in order to gain a better understanding of the topic.

Chapter 3: This chapter comprises the research design and methodology of the study. The researcher discusses the research setting, population, sampling method, data collection and data analysis. The researcher also describes research ethics adhered to, during this research project.

Chapter 4: In this chapter, the researcher discusses the results and data interpretations of the quantitative data that were gathered by means of a self-administered structured questionnaire.

Chapter 5: In this chapter, the researcher discusses the findings of the research study, in detail, compares it to, or contrasts it with, the findings of other relevant studies.

Chapter 6: This is the final chapter, in which the researcher provides a summary of the research project and offers recommendations for ongoing awareness campaigns, promotion and improvement of nursing practices, nurses' support, reporting of medication errors and collaboration of relevant institutions. The researcher also offers recommendations for future research. Finally, the significance and limitations of the study are presented, along with a conclusion to the research project.

1.10. Conclusion

In this chapter, the researcher briefly introduced the research study. The background, rationale, problem statement, aim, objectives, significance of the study and definitions of terms were discussed. An outline of the chapters for the whole study was also provided. The following chapter comprises the literature review, through which the researcher explored relevant literature to gain a better understanding of the topic under scrutiny.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

A review of relevant literature provides a clearer understanding of the nature and meaning of the topic under scrutiny, and also adds more creditability to the research study (De Vos, Strydom, Fouche & Delport, 2005). According to Ramdhani, Ramdhani & Amin (2014), a literature review is a discussion of published information on a particular subject area, as well as information on a particular subject within a certain period. In the context of this current research study, the researcher revisited certain topics that would add more support and meaning to the researched problem. These topics include the following:

- Definition of medication error;
- Prevalence of medication error;
- Causes of medication error;
- Barriers in reporting of medication error; and
- Management of medication error.

2.2. Definition of a medication error

In a health facility, the medication process involves different health care practitioners, all important for the improvement of the patient's health, while hospitalized. However, medication errors can occur at any stage of the medication process, whether prescribing, transcribing, dispensing, or administering medication (Volpe, Pinho, Stival & Karnikowski, 2014). Tshiamo, Kgositau, Ntsayagae & Sabone (2015) define a medication error as any preventable, or unintentional event, which occurs at any point in the medication process, being in the chain of handling and decision making, with the potential of compromising the intended purpose of the medication. In addition, a medication error can be defined as a failure in the treatment process, which leads to, or has the potential to cause harm to a patient (Roughead, Semple & Rosenfeld, 2016).

Medication error can also be defined as an event in which a health care professional chooses an inappropriate procedure to provide or administer medication, or uses an appropriate method, but the execution is incorrect (Saleh, Awadalla, El-masri & Sleem, 2013). According to Feleke and Girma (2010), a medication error is perceived as a preventable event, in which a patient is harmed, while still hospitalized. However, Karavasiliadou & Athanasakis (2014) define a medication error as any preventable event that may lead to or cause inappropriate medication use, while the medication is in the control of the health care practitioners. Although professional nurses are regarded as the final barrier between the patient and the medication error, they are still perceived as the most culpable perpetrators of medication errors (Marquard, Henneman, He, Jo, Fisher & Henneman, 2011).

2.3. Causes of medication errors

Professional nurses fulfill a very important role in the medication process, which is administering medication to patients in a hospital setting. This is one of their primary responsibilities and, in a multi-disciplinary team; these are the professionals who are in close contact with the patient mostly, spending 40% of their time administering medication (Jordan, 2011). A medication error is one of the most common medical errors to affect patients, while still under the care of health care professionals; however, there appears to be a lack of understanding among professional nurses of what constitutes a medication error. According to Al-Yossif, Mohamed & Mohamed (2013), job stress, anxiety and too much responsibility could result in medication error.

In a hospital environment there are numerous factors that could cause medication errors, which could affect patients in various ways (Athanasaki, 2012). Professional nurses are of the opinion that these factors could be unfavourable working conditions, being short staffed and working with limited resources (Karavasiliadou & Athanasakis, 2014). The professional nurses' lack of knowledge and experience could also result in medication errors (Lan, Wang, Yu, Chen, Wu & Tang, 2014). In addition, there are indications that the doctors' illegible hand writing and the failure to follow the "five rights" (right patient, right medication, right route, right dose and at the right time) of medication administration could result in medication errors (Treiber & Jones, 2010). Poor communication among health care professionals, involved in the medication process, could cause medication errors, as well (Sewal, Singh, Prakash, Kumar & Medhi, 2014), for example, when doctors discuss the

treatment of a patient, professional nurses are not involved in the final decision, which could be a problem in a health setting (Abubakar, Chedi, Simbak & Haque, 2014).

Errors could occur when professional nurses are required to multi-task between medication administration, assisting doctors on ward rounds, attending to emergencies in the ward, as well as the administration work of the ward (Kalisch & Aebersold, 2010). In addition, inadequate pharmacological knowledge that does not meet the standards of administering medication, as well as a lack of numeracy and calculation skills could result in medication errors (Pazokian, Tafreshi & Rassouli, 2014). Patient acuity and multiple medications that patients need in the unit could cause medication error (Blank, Tobin, Macomber, Jaouen, Dinoia & Visintainer, 2011). Professional nurses act in the best interest of the patient; however, a patient's refusal of medication, or inability to swallow the medication due to the severity of the illness, could lead to medication errors in a hospital setting (Nazarko, 2015). A patient not being in the ward during the medication rounds, the medication not being delivered, or the medication chart in the ward goes missing; these factors are beyond the control of the professional nurses, but they could result in medication errors (Wright, 2013).

2.4. Prevalence of medication errors

Prevalence of medication errors in a teaching hospital in France accounted for about 27.6% of medical errors (Berdot, Sabartier, Gillaizeau, Curuba, Prognon & Durieux, 2012). However, medication errors reported in a USA hospital accounted for 78% of all medical errors (Kruer, Jarrell & Latif, 2014). The results of a study conducted in an Australian hospital revealed an estimated rate of combined medication errors accounted for 0.31% of medical errors (Manias, Kinney, Cranswick & Williams, 2013), while medication errors accounted for 85.9% of all medical errors in a Brazilian hospital (Volpe *et al.*, 2014). Irrespective of at what stage in the medication process the medication error occurred, the unintentional medication errors recorded in a Chile hospital, accounted for 78% of all medical errors (Romero, Salazar, Rojas, Escobar, Grinen, Berasain, Tobar & Jiron, 2013).
Medication errors reported in an Indonesian hospital were approximately 20.4% of all medical errors (Ernawarti, Lee & Hughes, 2014). A total of 68.5% of medical errors were attributed to medication errors in Southern Iran (Vazin, Zamani & Hatam, 2014).

In Africa, the prevalence of medication errors that occurred in a Moroccan hospital accounted for 60% of all medical errors (Jennane, Madani, OuldErrkhis, Adibi, Khoudri, Belayachi, Dendane, Zeggwagh & Abouqal, 2011), while 51.8% of all medical error was recorded for medication errors in an Ethiopian study (Agalu, Ayele, Bedada & Woldie, 2012). According to Mzale (2012), the prevalence of medication errors that occurred in a Tanzanian hospital accounted for 80.1% of all medical errors. The findings of a study on the prevalence of medication errors in South Africa reported only 27.1% of all medical errors (Malangu & Nchabeleng, 2012).

2.5. Consequences of medication errors

An estimation of between 6 million (England - £) & 16 million (Germany - €) in medical costs was suffered due to medication errors in first world countries, such as England and Germany (Stausberg, 2014). In the USA, between 44000 and 98000 patients have died, due to medication errors, and the medical costs have amounted to between 17 and 29 billion dollars a year (Pirinen, Kauhanen, Danielsson- Ojala, Lilius, Tuominen, Rodriguez & Salanterä, 2015). The hospital costs include lab tests, treatment and non-invasive procedures, patient transfers to intensive care unit (ICU), as well as the increased length of stay in hospitals (Keers, Williams, Cooke & Ashcroft, 2013).

Health care professionals should be extra vigilant when working with medication because medication errors could have an adverse effect on patients (Benkelfat, Gouin, Larose & Bailey, 2013). Administering medication is regarded as one of the critical duties of a professional nurse, as medication error could result in the permanent disability, or death of a patient, while under the care of the health care professionals (Cheragi *et al.*, 2013). The negative outcomes of medication errors, which are irreversible, could be a traumatic and stressful experience for a professional nurse (Metsala & Vaherkoski, 2014).

2.6. Barriers in reporting medication errors

The problem of medication errors affects all health care systems, including those of first world countries; although some improvements in technology, as well as medicine, have been observed, and certain procedures have been introduced to combat the under-reporting of medication errors (Sewal *et al.*, 2014).

Many factors, such as the fear of disciplinary actions, as well as the bureaucratic and non-user-friendly reporting systems in the facility, are regarded as the main barriers to reporting medication errors in a health facility (Haw & Cahill, 2010). When the medication error is a near miss, or did not reach the patient, professional nurses consider the reporting of the medication error as irrelevant, which confirms that their insight regarding what constitutes a medication error is limited (Farag & Anthony, 2015). Other reasons for not reporting is the fear of peer response (being branded as a telltale or causing team conflict), especially when medication error was committed by someone else (Haw, Stubbs & Dickens, 2014). For example, the most widely noted medication error is when medication administration is not documented, which indicates that incident reporting is insufficient because health care professionals' inability to identify errors comprehensively (Li, Kirkendall, Hall, Ni, Lingren, Kaiser, Lingren, Zhai, Solti & Melton, 2015). In addition, professional nurses do not consider the reporting of medication errors, not committed by them, as their responsibility, and dread the complexity of completing an incident report form, which indicates that a lack of in-service training could be a barrier to reporting medication errors (Holmström, Laaksonen & Airaksinen, 2015).

2.7. Management of medication errors

Under-reporting of medication errors is a huge problem; however, health professionals, involved in the medication process, should be encouraged to report medication errors so that the threat of medication errors can be overcome (Abubakar *et al.,* 2014). Hospital management should allow perpetrators of medication errors to voluntary report any medication error, so that a medication error management policy can be developed (McClead, Catt, Davis, Morvay, Merandi, Lewe, Stewart & Brilli, 2014). The health care system should promote a non-punitive system to encourage reporting of medication errors and documentation (Thomas, Cordonnier-Jourdin, Benhamou-Jantele, Divine & Lout, 2010). Since professional nurses are at the fore-front of preventing and detecting medication errors in a hospital setting, it would be essential for professional nurses to be included in the medication error management system (Thomas *et al.*, 2010).

Training and ongoing evaluation should be provided to assist the health institutions for the improved management of medication errors (Rozenbaum, Gordon, Brezis & Porat, 2013). The area where medication is administered should be free of distractions, so that professional

nurses could focus on the activity at hand, in order to create a safer medication practice (Härkänen, Turunen, Saano & Vehviläinen-Julkunen, 2013). Nursing managers should try to provide the ward with enough staff, because professional nurses tend to multi-task and this put the lives of the patients at risk (Valiee, Peyrovi & Nasrabadi, 2014). A safer environment for patients should be created by encouraging the reporting of medication errors in a hospital setting (Hashemi, Nasrabadi & Asghari, 2012).

2.8. Conclusion

In this chapter, the researcher identified some topics to clarify the identified problem through a review of relevant literature. The following this chapter comprises the research design and methodology of this current study.

CHAPTER THREE

RESEARCH METHODOLOGY AND DESIGN

3.1. Introduction

In this chapter, the researcher presents a detailed description of the selected research design, which was a quantitative research approach with a descriptive design, as well as the research methodology, including setting, population and sampling. The data collection instrument, data collection process and data analysis are outlined, as well as the validity and reliability of the study. The generalizability, limitations and ethics of the research study are also discussed in detail.

3.2. Quantitative research

The quantitative approach is a scientific explanation that aims to measure the social world, to test hypotheses, and to predict, as well as control human behaviour. It can be defined as an inquiry into a human problem, based on testing theory, composed of variables that are measured in numbers, and analysed with statistical procedure, in order to determine whether the predictive generalization of the theory hold true (De Vos, Strydom, Fouche & Delport, 2005). According to Yilmaz (2013), quantitative research can be defined as research that explains phenomena, according to numerical data, which are analysed by means of mathematically based methods, especially statistics. According to Burns and Grove (2009), the quantitative research approach is essential in developing the body of knowledge needed for evidence-based practice.

The level of existing knowledge of the research problem influences the type of research planned; therefore, as the level of knowledge of the current problem under investigation is limited, this research study will be conducted with a descriptive research approach (Burns & Grove, 2009).

3.3. Research design

The research design forms the blue-print of the research study and determines the methodology to be used by the researcher to obtain sources of information (research

participants), to collect and analyse data, select units of analysis, and interpret the results (Brink, Van der Walt & Van Rensburg, 2006; Bhattacherjee, 2012). According to Burns and Grove (2009), a research design guides the researcher to plan and implement the study in the most effective way to achieve the intended goal.

However, the design must be selected to suit the specific research study; therefore, the researcher followed a quantitative descriptive design to conduct this research study. Burns and Grove (2009) assert that a quantitative descriptive design study is explained as a research that is used to generate new knowledge about a concept, on which limited research has been conducted. This research method was most suitable for this current research study, as the researcher had no intentions of establishing a cause-effect relationship (Brink *et al.*, 2006).

3.4. Research setting

The setting in which this current research study was conducted is a specific psychiatric hospital, which is a level 3 hospital, in the Western Cape Province, South Africa. This specific hospital is divided in to four (4) functional business units (FBU), which are: Adults General Psychiatric; Forensic Psychiatric; Intellectual Disability; and Child and Adolescent Psychiatry.

3.5 Population

The term population defines the entire group of persons that is of interest to the researcher, or meets the criteria to be included in the research study (Brink *et al.*, 2006). In the context of this current research study, the population was all the professional nurses, who are permanently employed at a specific psychiatric hospital. The total number of professional nurses employed at this specific Psychiatric Hospital, was 161, divided into the following categories:

- Manager of Nursing (Level 1&2) (Man Nur = 1
- Assistant managers - Nursing (Speciality) = 8
- Operational Managers (Speciality) = 15
- Operational Managers (General) = 5
- Clinical Coordinator - Nursing = 1
- Professional nurses (Speciality) and Clinical Training nurses = 74

- Professional nurses (General) = 57
- Professional nurses (Community service nurses) =15

3.6 Sampling

According to Brink *et al.* (2006) and Acharya, Prakash, Saxena and Nigam (2013), sampling is a process of selecting a sample for the research study from the entire population, in order to obtain information about the phenomenon of interest.

3.6.1. Inclusion criteria

In order to have been considered for this current research study, a prospective respondent had to meet the following criteria:

- The professional nurse had to be employed on a permanent basis;
- The professional nurse had to have at least two or more years of psychiatric experience; and
- Administering medication had to be among the duties of the professional nurse.

Ultimately, (n=129) professional nurses met the criteria to be included in the research study. However, these professional nurses were employed in all four (4) FBUs of the specific psychiatric hospital.

3.6.2 Sampling method

The sampling method, adopted to select a sample for this current research study, was a convenience sampling method, as the researcher selected research respondents, who were available or enthusiastic to participate in the research study (Burns & Grove, 2009). By using this type of sampling method, the researcher was adhering to the research ethical consideration that the participation in any research study should be voluntary. In addition, it was not possible to include every eligible subject of the target group, as some professional nurses were on study leave, others had taken their annual leave, a few had recently resigned and the rest were not interested in participating in the research study. Therefore, the sample size for this current research study were selected from the

professional nurses, who were willing to participate in the research study, specifically, (n=69). Besides, De Vos *et al.* (2005) contend that (n=30) respondents are sufficient to perform basic statistical procedure.

3.7 Data collecting tool

The data collection tool utilised in this research study was adopted from the research study, *Nurse's perceptions on medication errors in Malta,* conducted by Petrova, Baldacchino and Camilleri (2010), which is an anonymous survey with close ended questions (Appendix A). The data collection tool has three sections; Section 1 comprises demographic factors, while Section 2 and 3 are in the form of a five-point Likert scale (1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree, 5= strongly agree). The data collection tool comprised 26 questions, which the research respondent was required answer by choosing the most appropriate answer to each question. The research respondents took, approximately, 15 minutes to complete the data collection tool.

Section 1: This section comprises the demographic information of the research respondent. In this section, the researcher tries to gain a good understanding of the selected group, participating in the research study. The questions that are covered in this section include questions such as: What is the age group of the respondent?; What is the gender of the respondent?; How long has the respondent been a professional nurse, in years?; In which service is the respondent currently active (FBU)?; How many years has the respondent been active in that service (FBU)?; What is the respondent's highest qualification in nursing education?; and, Which shift is the respondent currently working (07H00-19H-00 or 19H00-07H00)?

Section 2: The heading for this section is *Barriers of reporting medication errors*. Which the questions are close ended questions. The researcher is aware that some of the medication errors are not reported by the professional nurses because of the lack of insight about what constitutes a medication error. In this current study, the aim of the researcher is to gather information from the nurses/respondents, who are involved with medication administration. The researcher is of the opinion that this will clarify why medication errors are not reported by the professional nurses.

Section 3: The heading for this section is, *Perceptions of professional nurses on the causes of medication errors.* In this section, the researcher directs the questions at the professional nurses, because most of the literature ascribes blame to the professional nurses when medication errors occur, disregarding the fact that there are various professionals involved in the medication process. Professional nurses, therefore, are presented with the opportunity to voice their opinions on what constitutes a medication error in a psychiatric hospital.

3.7 Data collecting process

Data collection commenced after the proposed research study was approved by the University Higher Degrees and Senate Research Committee (Appendix F). An application for permission to conduct a research study at a specific psychiatric hospital was submitted to the Department of Health Research Committee (Western Cape Government), through the National Health Research Database (NHRD) portal. The NHRD forwarded the request for permission to the specific Psychiatric Hospital, as well as the research committees of the Western Cape Government (Appendix H) and the specific Psychiatric Hospital (Appendix J), respectively.

The potential research respondents were recruited in the monthly nursing meeting of the specific psychiatric hospital. The researcher visited professional nurses in the wards of the various FBUs, between 30 April and 30 June 2016. A detailed explanation about the current research study was provided to each potential research respondent. After agreeing to participate, the potential respondents were furnished with a consent form (Appendix B), information sheet (Appendix C), as well as the questionnaire (Appendix A) to complete in their own time. A few days later, the researcher returned to collect the questionnaires and the signed consent forms. The researcher signed the consent form, placed it, along with the completed questionnaire, in an envelope and sealed it, in the respondent's presence. The researcher printed and issued 129 questionnaires; however, only collect 69 questionnaires were completed. Therefore, 60 questionnaires were not returned due to the reasons mentioned previously.

3.8 Data analysis

The most powerful tool available to the researcher when analysing quantitative data is statistics. Without the aid of statistics, the quantitative data would simply be a chaotic

mass of numbers. Statistical methods enable the researcher to reduce errors, summarise, organise, manipulate, evaluate, interpret and communicate quantitative data (Brink *et al.*, 2006). Data was entered into the Statistical Package for Social Sciences (SPSS) version 24. To facilitate the summarizing of the data, the researcher used descriptive statistics to express the results in frequencies and percentages. The results of the data are presented in the form of frequencies, tables, pie charts and graphs. Statistical analysis was conducted in the form of cross-tabulations, using the Mann-Whitney U Test, Kruskal Wallis and Correlation test to measure associations between the variables of the data collection tool. The data tool was scored by using Cronbach's Alpha co-efficient, which is supposed to be 0, 7, or more (Burns & Grove, 2009). The data analysis was done with the assistance of a statistician.

3.9 Pilot study

A pilot study refers to a small-scale, trial run of the actual research study (Brink *et al.*, 2006). In addition, a pilot study is important to examine the validity and reliability of the data collection tool (Burns & Grove, 2009).

In this current research study, a pilot study was not conducted, as the data collection tool employed was an adopted tool that was used before in another research study, in which it was tested and accepted for reliability (Petrova, Baldacchino & Camilleri, 2010). This decision was taken with the assistance of a statistician. The researcher applied to the senior researcher (Petrova) for permission to use the data collection tool (Appendix D); permission was subsequently granted by Petrova (Appendix E).

3.10.1 Scientific rigor of the study

Validity and reliability are two concepts used in quantitative research to assess the quality of the research instrument that is used in a study (Coughlan, Cronin & Ryan, 2007). These two important concepts are discussed in the following sub-sections.

3.6.1. Validity

Validity refers to "the ability of an instrument to measure the variable that it is intended to measure" (Brink *et al.*, 2006). The researcher used the judgement of experts in

nursing at the University of the Western Cape (UWC), including the study Supervisor. The instrument was also scrutinised by the Research Ethics Committee of UWC, the Research Committee of the specified Psychiatric Hospital, as well as the statistician.

3.10.2 Reliability

Reliability of the data collection tool refers to the ability of the instrument to measure the accuracy and consistency of the target attributes (De Von, Block, Moyel-Wright, Ernst, Hayden, Lazzara, Savoy & Kostas-Polston, 2007). Reliability exists in degrees and is usually expressed as a form of correlation coefficient; therefore, for the data tool to display acceptable reliability, the Cronbach's Alpha coefficient should be 0, 7 or more (Burns & Grove, 2009). The reliability test was done for the data collection tool in this current study with an assistance of a statistician, and the Cronbach's Alpha co-efficient was established at 0,804.

Table 1: Scale of variables

Case Processing Summary		
Cases	**N**	**%**
Valid	69	100.0
Excluded	0	.0
Total	**69**	**100.0**

Table 2: Reliability of the data collection tool

Reliability Statistics		
Cronbach's Alpha	**Cronbach's Alpha Based on Standardized Items**	**Number of Items**
.804	.795	26

3.11 Generalizability

Generalizability refers to the degree to which the research methods justify the inference that the findings are true for a broader group than the study respondents; in particular, the inference that the findings can be generalized from the sample to the population (Burns &

Grove, 2009). The generalizability of this study was influenced by the response rate of the respondents.

3.12 Research ethics

The researcher has an ethical responsibility to recognize and protect the rights of the research respondents (Burns & Grove, 2009). The researcher adhered to the following ethical principles:

3.13.1. Autonomy

A prospective respondent has a right to decide voluntarily whether, or not, to participate in a research study (Brink *et al.,* 2006). The research respondent has the right to withdraw from participating in the research study at any time, without any risk of penalty, as his/her participation is voluntary.

3.13.2. Privacy and confidentiality

The research respondent has the right to determine the time, place and the extent to which personal information is shared with, or with-held from others (Burns & Grove, 2009). The researcher guaranteed that the information provided by the research respondents would only be used for the purpose of the current research study, and no one would be allowed to access the collected data, except the researcher and the supervisor of the study. No research respondent was allowed to use, or mention personal details in the data collection tool.

3.13.3. Beneficence

The researcher ensured that the research respondents were not harmed, emotionally or psychologically, by participating in the research study. If a research respondent had suffered emotionally or psychologically, s/he would have been referred to the Independent Counselling Advisory Service (ICAS) for counselling.

3.13.4 Informed consent

According to the literature informed consent is described as the intent to provide the prospective respondents with the ability to make an educated decision about

participating in a research study (Wester, 2011). The researcher personally met with potential respondents to explain what the research was about and who the principal researcher for the research study was. The rights of the research respondents were explained, after which they were provided with an information sheet (Appendix C) about the research study. The consent forms (Appendix B) and information sheets (Appendix C) were produced in plain language that was easily understood by the research respondents.

Most importantly, information on who to contact, to lay a complaint, should they feel that their rights as research respondents had been violated, was provided to potential respondents. The researcher again explained that participation in this current research study was voluntary, as well as confidential, and that the respondents could withdraw at any time without fear of negative repercussions regarding that action.

Finally, before participating in this research study, the researcher ensured that the potential respondents understood the information provided, as well as their rights as research respondents. Thereafter, the potential respondents were allowed to sign the consent forms, in so doing, confirming that they consented to participation in this current research study. When this process was completed, the researcher distributed the questionnaires, to be completed by the potential respondents in their own time.

3.14 Conclusions

In this chapter, the researcher explained in detail the methodology that was followed in this current study. The researcher obtained permission to use the questionnaire, adopted in this study. Permission was also obtained from the specific Psychiatric Hospital and the Department of Health (Western Cape). All permissions granted were confirmed by the approval letters from the respective parties (Appendices F, H, J). Most importantly, the ethics of research was respected and adhered to by the researcher.

In the following chapter, Chapter four, findings of the research study are presented in the form of frequencies, graphs, percentages and correlations.

CHAPTER FOUR
RESULTS AND DATA INTERPRETATIONS

4.1. Introduction

In this chapter, the researcher focuses on the results and interpretations of the data that was collected by means of the self-administered structured questionnaire. The research respondents voluntarily participated in the research study, after signing their consent forms, and the participation process took place at a time and place that was convenient to all parties involved.

The researcher used descriptive statistics to analyse the collected data. Descriptive statistics is described as a statistical method that assists the researcher to summarize and describe the quantitative data obtained from the data instrument/tool (Polit & Hungler, 1995). In this current research study, the results are expressed in the form of tables, pie charts, bar graphs and frequencies. Before interpreting the results, the completed questionnaires were coded by assigning a number to each one. The questionnaire was divided into three SECTIONS as follows:

- SECTION 1: Demographic factors;
- SECTION 2: Barriers to reporting medication errors; and
- SECTION 3: Perceptions of professional nurses on the causes of medication errors.

Sections 2 and 3 were tested for reliability, with the assistance of a statistician, and showed acceptable results of reliability, as illustrated in Table 3.

Table 3: Cronbach's Alpha reliability Co-efficient

Sections	N of items	Cronbach's Alpha
Barrier of reporting medication errors	10	.863
Perceptions of Professional nurses on causes medication errors	9	.723

4.2. Research study sample results

The researcher identified (n = 129) potential research respondents, and 129 questionnaires were printed and distributed. The researcher managed to collect 69 of the 129 questionnaires issued, and every collected questionnaire was checked for correctness, and no questionnaire was discarded because of errors.

4.3. Section One: Demographic factors

In this study, the demographic factors section comprised questions that gathered the age and gender of the respondent, total number of years employed as a professional nurse, area of current employment (FBU), the number of years employed in that particular area (FBU), the highest qualifications of the respondent, as well as their current working-hours shift. The variables of this section are presented in frequencies and percentages.

4.3.1. Age of respondents

The number of respondents in this current research study was *n*= 69. Table 4 illustrates that the ages of the respondents ranged between 18 and 60 years of age, with a *mean*=2.43 and a *standard deviation* = .992. The age group with the majority of the respondents was the 31-40 years of age, with 36.23% (*n*=25); followed by the age group 41-50 years, with 27.54% (*n*=19). The third placed age group was the 21-30 years of age, with 18.84% (*n*=13). The lowest participation rate was recorded in the age group 51-60 years, which comprised 17.39% (*n*=12) of the respondents. In this current study, the age group, above 60, comprised 0(0%).

Table 4: Age of respondents

Age of Respondent	Frequency	Percentage
21-30	13	18.84%
31-40	25	36.23%
41-50	19	27.54%
51-60	12	17.39%
ABOVE 60	0	0%
Grand Total	**69**	100.00%

4.3.2. Gender of respondents

The gender of the respondents is illustrated in Figure 1, indicating that, of the total number of research participants (*n*=69), female representation was the highest at 57% (n=39), while the male respondents comprised 43% (*n*=30).

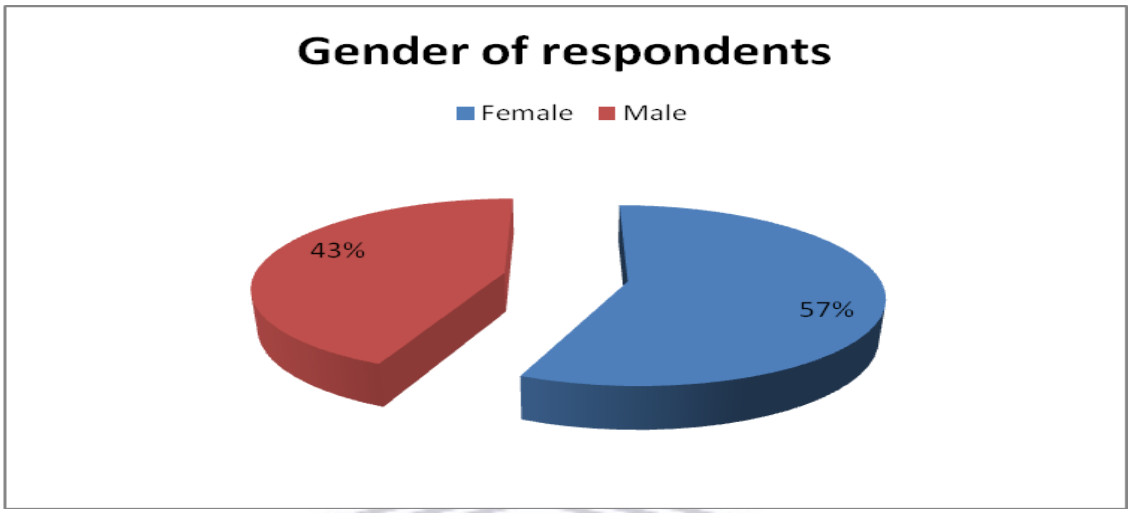

Figure 1: Gender of respondents

4.3.3. Respondents' total years of service as professional nurses

Figure 2. illustrates the respondents' total years of sevice as professional nurses. In the context of this current study, the respondents had between 2 and more-than-30 years of service as professioanl nurses, with a mean = 2.46 and a standard deviation = 1.461. According to the results obtained in this research study, two groups had the highest representation of 31% (*n*= 21), respectively. These groups comprised of respondents with 2-5years and 6-10 years service as professional nurses, respectively. The group that followed, at 17% (*n*= 12), was those respondents with 11-15 years of service. Next, at 13% (*n*= 9), was those respondents with 16-20 years of service. Finally, the groups that had 26-30 years, 21-25 years, and more-than-30 years of service, completed the balance, with 4% (*n*=3), 3% (*n*=2) and 1% (*n*=1), respectively.

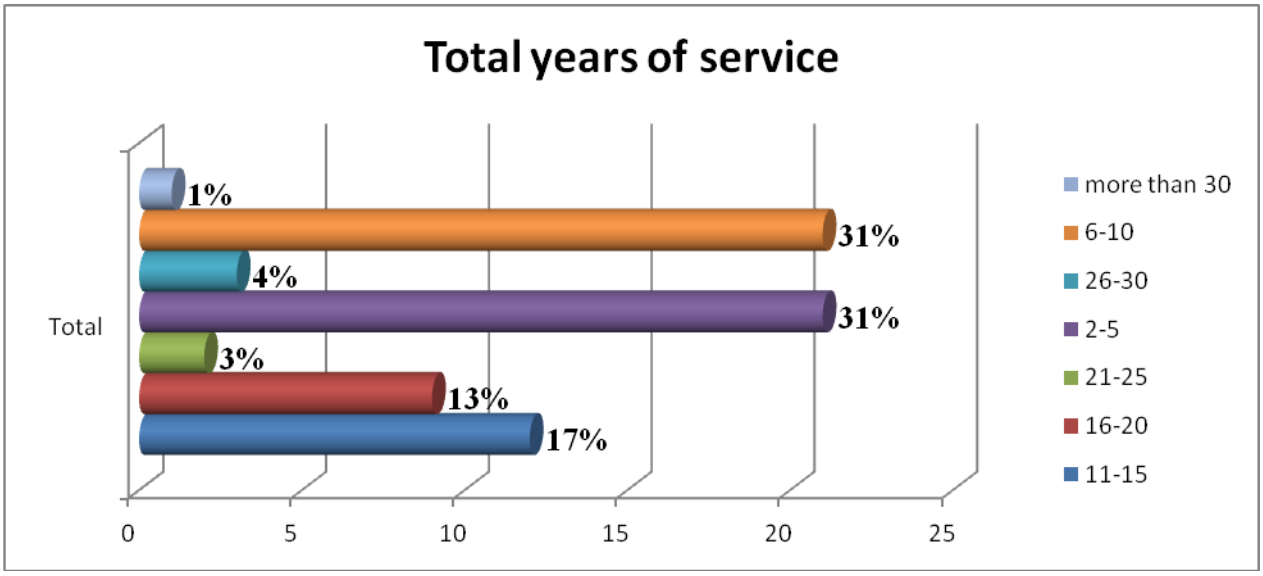

Figure 2: Total years of service as professional nurses

4.3.4. Respondents' current area of work (FBU)

Figure 3 illustrates the breakdown of this current study's respondents on duty in the various FBUs of the specific psychiatric hospital. The highest number of the study respondents, 42% (*n*=29), were on duty in the General Adult Psychiatry FBU, followed by the Intellectual Disability FBU, with 25% (*n*=17) of the study respondents. The third highest was the Forensic Psychiatry FBU, with 20% (*n*= 14) of the study respondents. The FBU with the lowest number of respondents was the Child and Adolescent Psychiatry FBU, with 13% (*n*= 9).

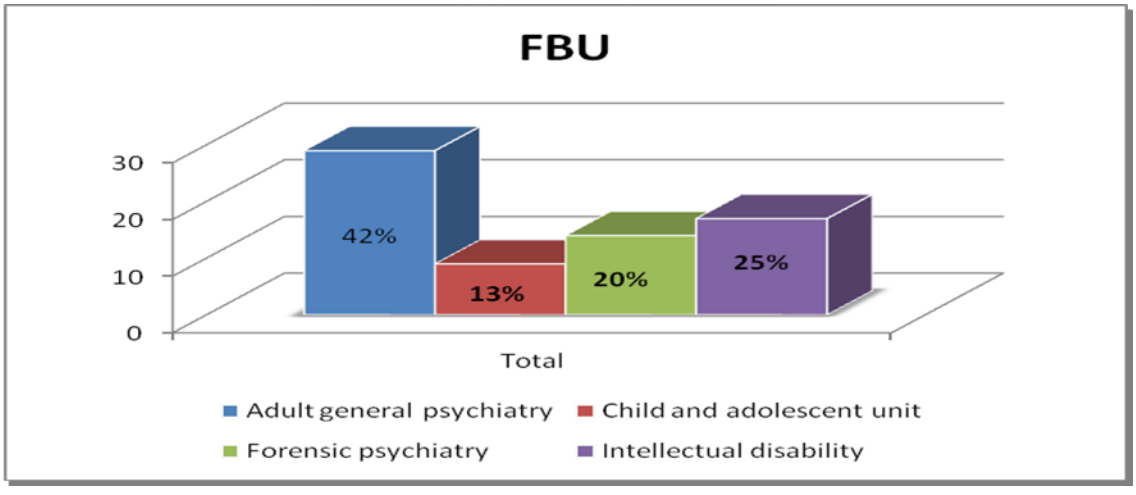

Figure 3: Study respondents employed in each FBU

4.3.5. Number of years in current area of work (FBU)

The professional nurses, who participated in this current research study, had varying years of experience in their respective FBUs. Figure 4 illustrates the number of years that the respondents were on duty in their current FBU's, with a mean = 1.89 and a standard deviation = 1.199. Respondents with 2-5 years' experience in their current FBUs, comprised 53% (*n*=36), while those with 6-10 years' experience comprised 25% (*n*=17). Respondents with 11-15 years of experience in their current FBUs, comprised 14% (*n*=10), those with 16-20 years of experience in their current FBUs, comprised 4% (*n*=3), those with 26-30 years of experience in their current FBUs, comprised 3% (*n*=2), while those with 21-25 years of experience in their current FBUs, comprised the lowest number of respondents, with 1% (1).

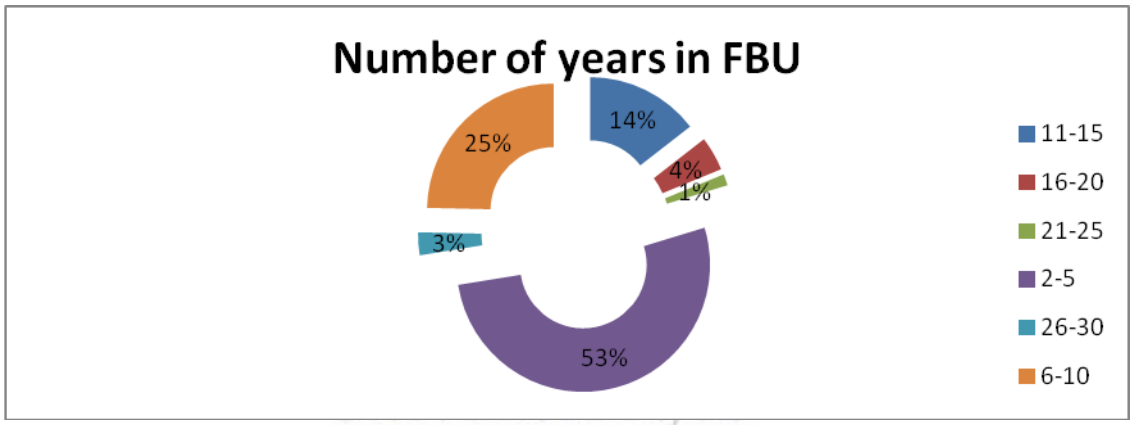

Figure 4: Number of years in FBU

4.3.6. Respondents' highest qualification

Figure 5 illustrates the number of respondents with various qualifications, and therefore, the highest qualification held by the professional nurses, who participated in this current research study. The findings of this research study revealed that most of the respondents held a Diploma in Nursing, comprising 45% (*n*=31), followed by professional nurses with specific Advanced Diploma in Nursing, comprising 28% (*n*=19) of this current study's respondents. Professional nurses with a Bachelor's Degree in Nursing constituted 20% (*n*=14), and those holding a Master's Degree in Nursing, comprised the lowest number of this current study's respondents, at 7% (*n*= 5). Therefore, the highest qualification held by the respondents in this current study was a Master's Degree in Nursing.

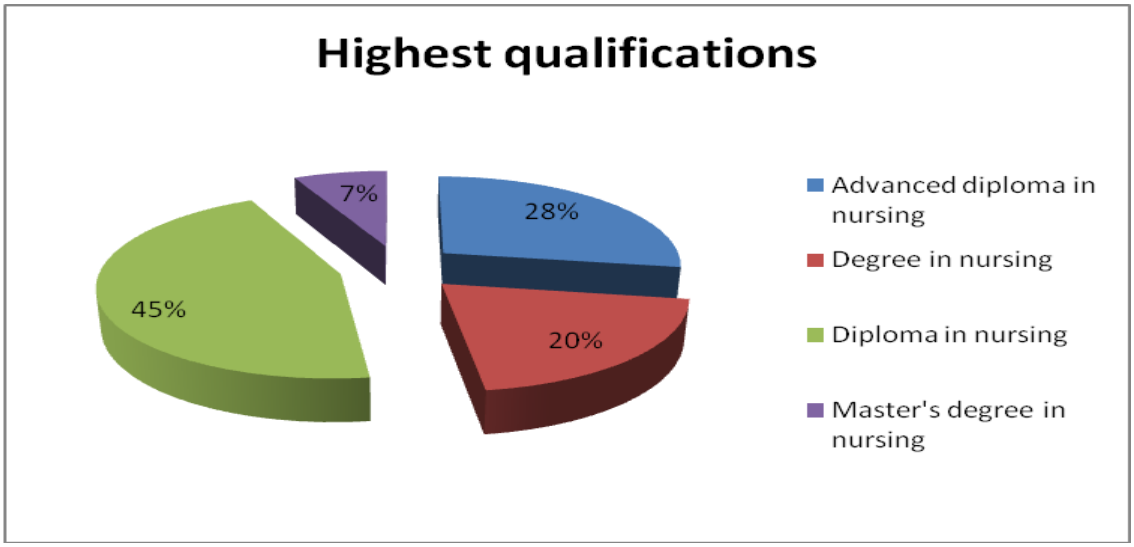

Figure 5: Highest qualification

4.3.7. Respondents' current shift of work hours

The professional nurses in the selected psychiatric hospital were on rotational duty of two 12-hour shifts, 07H00 - 19H00 (Day Shift) & 19H00 - 07H00 (Night Shift). Figure 6 illustrates the shifts that the respondents were working at the time, with a mean = 1.13 and standard deviation = .339. The results of this current study reveal that most of the respondents (n=59, 86%) worked the day shift, and the least represented (n=10, 14%) worked the night shift.

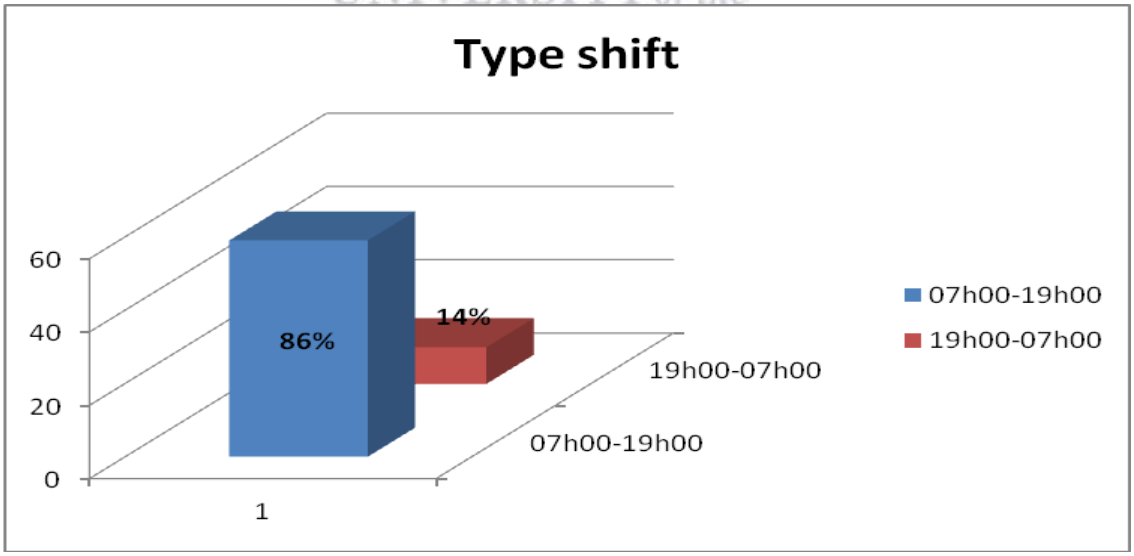

Figure 6: Type of Shift

4.4. Section two: Barriers to reporting medication errors

In this section, the barriers to reporting medication errors in a psychiatric hospital are subjected to three tests. The first test is the Frequency distribution, the second test is a non-parametric test, the Mann-Whitney U test, and the third test is the Spearman Correlation test. This section has ten variables:

1. No knowledge of what constitutes a medication error,
2. No knowledge of how to complete an incident form,
3. Not reported because of no negative outcome for patients,
4. Not reported for fear of peer reactions,
5. Not reported for fear of nursing managers' reactions,
6. Not reported for fear of being stigmatized,
7. Not reported for fear of lawsuit,
8. Not reported because of feeling guilty,
9. Not reported because of covering for fellow peers, and
10. Not reported because of being busy in the ward.

4.4.1. Frequency distribution test

In this test, the prospective respondent is required to choose the most appropriate response to the variable presented, from the list provided. These responses to the variables presented are in the form of a 5-point Likert scale (Strongly disagree, Disagree, neither agrees nor disagrees, agree and strongly agree), and the results are presented in the form of frequencies and percentages.

4.4.1.1. No knowledge of what constitutes a medication error, and No knowledge of how to complete an incident form

In Table 5, the variable "No knowledge of what constitutes a medication error" are illustrated, with the respondents selecting their most appropriate answer from the categories provided. The majority of the respondents disagreed (n=26, 37.7%) that "no knowledge of what constitutes a medication error" was a barrier to reporting medication errors, with seventeen respondents (n=17, 24.6%) strongly disagreeing with the statement. In contrast to the above, some respondents (16,

23.2%) agreed that "No knowledge of what constitutes a medication error" was a barrier to reporting medication errors. Ten respondents (n=10, 14.5%) selected "neither agrees nor disagrees", which was the lowest choice in the categories selected, indicating that the respondents were not sure about what the barriers to reporting medication errors were.

Additionally, as illustrated in Table 5, many of the respondents disagreed (n=23, 33.3%) that "No knowledge of how to complete an incident form" was a barrier to reporting medication errors, which was the most popular selection. This was followed by n=19 (27.5%) respondents, who strongly disagreed; while n=18 (26.1%) agreed that "No knowledge of how to complete an incident form" was a barrier to reporting medication errors. The least selected answer was "neither agrees nor disagrees" that "no knowledge of how to complete an incident form" was a barrier to reporting medication errors (n=9, 13.0%).

Table 5: No knowledge of what constitutes a medication error, and No knowledge of how to complete an incident form

Variables	Categories	Frequencies	Percentages
No knowledge of what constitutes a medication error	Strongly disagree	17	24.6
	Disagree	26	37.7
	Neither agrees nor disagrees	10	14.5
	Agree	16	23.2
Variables	**Categories**	**Frequencies**	**Percentages**
No knowledge of how to complete an incident form	Strongly disagree	19	27.5
	Disagree	23	33.3
	Neither agrees nor disagrees	9	13.0
	Agree	18	26.1

4.4.1.2. Not reported because of no negative outcome for patients

In Table 6, the responses of the respondents to the variable "Not reported because of no negative outcome for patients" are illustrated. According to the responses observed, most of the respondents selected "agree" (n=28, 40.6%), which indicates their acceptance of medication errors not being reported, when patients do not suffer any negative outcomes. However, other respondents selected "disagree" (n=17, 24.6%), indicating that the variable "Not reported because of no negative outcome for patients" was not acceptable. A third group of respondents selected "strongly disagree" (n=10, 14.5%), indicating that a medication error which is "Not reported because of no negative outcome for patients" is totally unacceptable. In addition, 9 respondents (n=9, 13.0%) selected "strongly agree", while 5 (7.2%) selected "neither agrees nor disagrees", which was the lowest score.

Table 6: Not reported because of no negative outcome for patients

Variables	Categories	Frequencies	Percentages
Not reported because of no negative outcome for patients	Strongly disagree	10	14.5
	Disagree	17	24.6
	Neither agrees nor disagrees	5	7.2
	Agree	28	40.6
	Strongly agree	9	13.0

4.4.1.3. Not reported for fear of peer reactions, and Not reported fear of nursing manager's reactions

In Table 7, the analysis of data continues, and the variables "Not reported for fear of peer reactions, and not reported for fear of manager's reactions" are illustrated. Thirty-five respondents (n=35, 50.7%) agreed that medication errors are not reported because the nurses fear their peers' reactions. Fifteen respondents (n=15, 21.7%) selected "strongly agree" that "Not reported for fear of peer reactions' could be a barrier to reporting medication errors. However, some respondents selected "disagree" (n=10, 14.5%), others selected "strongly disagree" (n=5, 7.2%) and the smallest group selected "neither agrees nor disagrees" (n=4, 5.8%). Simultaneously in Table 7, the results for the variable "Not reported for fear of nursing manager's reactions" are illustrated. Most respondents agreed (n=33,

47.8%) that "Not reported for fear of manager's reactions" was a barrier to reporting medication errors. Some respondents strongly agreed (n=24, 34.8%), others disagreed (n=6, 8.7%), while n=5 (7.2%) strongly disagreed and n=1 (1.4%) neither agreed nor disagreed that "not reported for fear of nursing manager's reactions" was a barrier to reporting medication errors

Table 7: Not reported for fear of peer reactions, and Not reported for fear of nursing manager's reactions

Variables	Categories	Frequencies	Percentages
Not reported for fear of peer reactions	Strongly disagree	5	7.2
	Disagree	10	14.5
	Neither agrees nor disagrees	4	5.8
	Agree	35	50.7
	Strongly agree	15	21.7
Variables	**Categories**	**Frequencies**	**Percentages**
Not reported for fear of nursing managers reactions	Strongly disagree	5	7.2
	Disagree	6	8.7
	Neither agrees nor disagrees	1	1.4
	Agree	33	47.8
	Strongly agree	24	34.8

4.4.1.4. Not reported for fear of being stigmatized, and Not reported for fear of a lawsuit

The variables "Not reported for fear of being stigmatized" and "Not reported for fear of a lawsuit" are illustrated in Table 8, according to the respondents' choices. Thirty-two (n=32, 46.4%) respondents agreed that "Not reported for fear of being stigmatized" was a barrier to reporting medication errors. Nineteen respondents (n=19, 27.5%) strongly agreed that "Not reported for fear of being stigmatized" was a barrier to not reporting medication errors. Nine respondents (n=9, 13.0%) disagreed, while four (n=4, 5.8%) strongly disagreed, and those, who could neither agree nor disagree, equalled five (n=5, 7.2%), which was the least selected answer.

Additionally, twenty-nine respondents (n=29, 42.0%) agreed that not reporting medication errors for fear of a lawsuit, was a barrier, while twenty-three (n=23, 33.3%) strongly agreed. Curiously, six respondents (n=6, 8.7%) selected "disagree" and "strongly disagree", respectively, and five (n=5, 7.2%) selected "neither agrees nor disagrees", which was the least popular.

Table 8: Not reported for fear of being stigmatized, and Not reported for fear of a lawsuit

Variables	Categories	Frequencies	Percentages
Not reported for fear of being stigmatized	Strongly disagree	4	5.8
	Disagree	9	13.0
	Neither agrees nor disagrees	5	7.2
	Agree	32	46.4
	Strongly agree	19	27.5
Variables	**Categories**	**Frequencies**	**Percentages**
Not reported for fear of a lawsuit	Strongly disagree	6	8.7
	Disagree	6	8.7
	Neither agrees nor disagrees	5	7.2
	Agree	29	42.0
	Strongly agree	23	33.3

4.4.1.5. Not reported because of feeling guilty, and Not reported because of covering for fellow peers

The frequencies of respondents' selections, regarding the variable "Not reported because of feeling guilty" are illustrated in Table 9. The respondents selected the most suitable answer on the Likert scale to indicate their opinions about the variables. Most of the respondents (n=37, 53.6%) agreed that "Not reported because of feeling guilty" was barrier to reporting medication errors, while others (n=12, 17.4%) disagreed. Eight respondents (n=8, 11.6%) strongly agreed, while seven (n=7, 10.1%) neither agreed nor disagreed, which indicated uncertainty about whether "Not reported because of feeling guilty" was a barrier to reporting

medication errors. Five respondents (n=5, 7.2%) strongly disagreed, which was the least popular selection.

Additionally, in Table 9, the frequencies of respondents' selections, regarding the variable "Not reported because of covering for fellow peers" are illustrated. Most of the respondents (n=31, 44.9%) agreed that "not reported because of covering for fellow peers" was a barrier to reporting medication errors. Indecision was apparent when fourteen respondents (n=14, 20.3%), selected "neither agrees nor disagree". In addition to the respondents, who agreed, eleven (n=11, 15.9%) strongly agreed, indicating an overwhelming majority, who believed that "Not reported because of covering for fellow peers" was a barrier. However, some respondents disagreed (n=7, 10.1%) and tried to dispute the phrase, while six respondents (n=6, 8.7%) strongly disagreed that covering for peers was a barrier.

Table 9: Not reported because of feeling guilty, and Not reported because of covering for fellow peers

Variables	Categories	Frequencies	Percentages
Not reported because of feeling guilty	Strongly disagree	5	7.2
	Disagree	12	17.4
	Neither agrees nor disagrees	7	10.1
	Agree	37	53.6
	Strongly agree	8	11.6
Variables	**Categories**	**Frequencies**	**Percentages**
Not reported because of covering for fellow peers	Strongly disagree	6	8.7
	Disagree	7	10.1
	Neither agrees nor disagrees	14	20.3
	Agree	31	44.9
	Strongly agree	11	15.9

4.4.1.6. Not reported because of being busy in the ward

In Table 10, the frequencies of the respondents' selections for the variable "Not reported because of being busy in the ward" are illustrated. According to the responses, thirty-three respondents (n=33, 47.8%) disagreed that "Not reported because of being busy in the ward" is a barrier to reporting medication errors,

while 18 (26.1%) respondents agreed that it is a barrier. An equal response rate was received from respondents, who selected "strongly disagree" and "neither agrees nor disagrees" (n=8, 11.6%), respectively. Therefore, the overwhelming majority disagreed that being too busy in the ward was a reason for not reporting medication errors. Only two respondents (n=2, 2.9%) strongly agreed that it was a barrier to reporting medication errors.

Table 10: Not reported because of being busy in the ward

Variables	Categories	Frequencies	Percentages
Not reported because of being busy in the ward	Strongly disagree	8	11.6
	Disagree	33	47.8
	Neither agrees nor disagrees	8	11.6
	Agree	18	26.1
	Strongly agree	2	2.9

4.4.2. The non-parametric test, the Mann-Whitney U test

In the context of the current study, a non-parametric test was used to test for statistical significance of the variables in the study. Therefore, a Mann-Whitney U test was used to test for the statistical significance of the relationship between the variables of the barriers to reporting medication errors and gender. The results are presented in the form of means and standard deviations.

4.4.2.1. No knowledge of what constitutes a medication error, and No knowledge of how to complete an incident form

In Table 11, the results of the test for statistical significance in the relationship between "No knowledge of what constitutes medication error" and gender, are illustrated. The results revealed a Mean=2.48 and a SD=1.158. There was no statistical significance (*U*=574.000, p=.890) in the relationship between "No knowledge of what constitutes a medication error" and gender.

Also in Table 11, the results of the test for statistical significance in the relationship between "No knowledge of how to complete an incident form" and gender are illustrated. The results revealed a Mean=2.38 and a SD=1.152. There was no statistical significance (*U*=512.000, p=.358) in the relationship between "No knowledge of how to complete an incident form" and gender.

Table 11: No knowledge of what constitutes a medication error, and No knowledge of how to complete an incident form

Variable	N	N=male	N=female	Mean	SD	Test =	Asymp.Sig
No knowledge of what constitutes a medication error	69	30	39	2.48	1.158	574.000	.890
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
No knowledge of how to complete an incident form	69	30	39	2.38	1.152	512.000	.358

4.4.2.2. Not reported because of no negative outcome for patients, and Not reported for fear of peer reactions

The results of the test for statistical significance in the relationship between "Not reported because of no negative outcome for patients" and gender, are illustrated in Table 12. The results revealed a Mean=3.14 and a SD=1.320. There was no statistical significance (*U*=582.500, p=.975) in the relationship between "Not reported because of no negative outcome for patients" and gender.

Also in Table 12, the results of the test for statistical significance in the relationship between "Not reported for fear of peer reactions" and gender are illustrated. The results revealed a Mean=3.65 and a SD=1.186. There was a statistical significance (*U*=421.000, p=.032) in the relationship between "Not reported for fear of peer reactions" and gender.

Table 12: Not reported because of no negative outcome for patients, and Not reported for fear of peer reactions

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Not reported because of no negative outcome for patients	69	30	39	3.14	1.320	582.500	.975
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Not reported for fear of peer reactions	69	30	39	3.65	1.186	421.000	.032

4.4.2.3. Not reported for fear of nursing manager's reactions, and Not reported for fear of being stigmatized

The results of the test for statistical significance in the relationship between "Not reported for fear of nursing manager's reactions" and gender, are illustrated in Table 13. The results revealed a Mean=3.91 and a SD=1.197. There was a statistical significance (*U*=359.000, p=.013) in the relationship between "Not reported for fear of nursing manager's reactions" and gender.

Also in Table 13, the results of the test for statistical significance in the relationship between "Not reported for fear of being stigmatized" and gender are illustrated. The results revealed a Mean=3.75 and a SD=1.156. There was a statistical significance (*U*=427.000, p=.040) in the relationship between "Not reported for fear of being stigmatized" and gender.

Table 13: Not reported for fear of nursing manager's reactions, and Not reported for fear of being stigmatized.

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Not reported for fear of nursing manager's reactions	69	30	39	3.91	1.197	359.000	.013
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Not reported for fear of being stigmatized	69	30	39	3.75	1.156	427.000	.040

4.4.2.4. Not reported for fear of a lawsuit, and Not reported because of feeling guilty

In Table 14, the results of the test for statistical significance in the relationship between "Not reported for fear of a lawsuit" and gender, are illustrated. The results revealed a Mean=3.83 and a SD=1.239. There was no statistical significance (*U*=497.000, p=.258) in the relationship between "Not reported for fear of a lawsuit" and gender.

Also in Table 14, the results of the test for statistical significance in the relationship between "Not reported because of feeling guilty" and gender are

illustrated. The results revealed a Mean=3.45 and a SD=1.132. There was no statistical significance (*U*=572.000, p=.863) in the relationship between "No knowledge of how to complete an incident form" and gender.

Table 14: Not reported for fear of lawsuit, and Not reported because of feeling guilty

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Not reported for fear of nursing manager's reactions	69	30	39	3.83	1.239	497.000	.258
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Not reported for fear of being stigmatized	69	30	39	3.45	1.132	572.000	.863

4.4.2.5. Not reported because of covering for fellow peers, and Not reported because of being busy in the ward

In Table 15, the results of the test for statistical significance in the relationship between "Not reported because of covering for fellow peers" and gender, are illustrated. The results revealed a Mean=3.46 and a SD=1.158. There was no statistical significance (*U*=570.000, p=.859) in the relationship between "Not reported because of covering for fellow peers" and gender.

Also in Table 15, the results of the test for statistical significance in the relationship between "Not reported because of being busy in the ward" and gender are illustrated. The results revealed a Mean=2.61 and a SD=1.088. There was no statistical significance (*U*=488.500, p=.210) in the relationship between "Not reported because of being busy in the ward" and gender.

Table 15: Not reported because of covering for fellow peers, and Not reported because of being busy in the ward

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Not reported for fear of nursing manager's reactions	69	30	39	3.46	1.158	570.000	.859
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Not reported for fear of being stigmatized	69	30	39	2.61	1.088	488.500	.210

4.4.3. Spearman Correlation test

When the Mann-Whitney U test was conducted, some of the results revealed a statistical significance in the relationship between the genders of the respondents to the variables measured (not reported for fear of peer reactions, not reported for fear of nursing manager's reactions, not reported for fear of being stigmatized). The rest of the measured variables revealed no statistical significance in the relationship between them and the gender of the respondents. However, to intensify the statistical significance of the measured variables, the Spearman Correlation test was employed to test the relationship between the variables of the barriers to reporting medication errors, in the interpretation of the results of this current research study (See table 26).

Table 16: Spearman Correlation test between the subscales of Barriers to reporting medication errors

Spearman's rho	VARIABLES	No knowledge of what constitutes a medication error	No knowledge of how to complete an incident form	Not reported because of no negative outcomes in patients	Not reported for fear of peer reactions	Not reported for fear of nursing managers reactions	Not reported for fear of being stigmatized	Not reported for fear of lawsuit	Not reported because of feeling guilty	Not reported because of covering for fellow peers	Not reported because of being busy in the ward	Results
	No knowledge of what constitutes a medication error	1.000	.483*	.285*	.036	.029	.101	. 141	. 227	.215	.111	Correlation Coefficient
		.000	.000	.017	.769	.815	.410	. 248	. 061	.076	.366	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	No knowledge of how to complete an incident form	.483**	1.000	.320**	.150	.155	.141	. 232	. 297*	.253*	.053	Correlation Coefficient
		.000	.000	.007	.219	.205	.247	. 055	. 013	.036	.663	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	Not reported because of no negative outcomes in patients	.285*	.320**	1.000	.620**	.563**	.384**	. 486**	. 524**	.358**	.151	Correlation Coefficient
		.017	.007	.000	.000	.000	.001	.000	.000	.003	.215	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	reported for fear of peer	.036	.150	.620**	1.000	.768**	.594**	. 567**	. 507**	.376**	.026	Correlation Coefficient

		.769	.219	.000	.000	.000	.000	.000	.000	.001	.830	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	Not reported for fear of nursing managers' reactions	.029	.155	.563**	.768**	1.000	.608**	. 561**	. 397**	.319**	.017	Correlation Coefficient
		.815	.205	.000	.000	.000	.000	.000	.001	.007	.887	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	Not reported for fear of being stigmatized,	.101	.141	.384**	.594**	.608**	1.000	.510**	.523**	.289*	.119	Correlation Coefficient
		.410	.247	.001	.000	.000	.000	.000	.000	.016	.330	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	Not reported for fear of law suit	. 141	. 232*	. 486**	. 567**	. 561**	.523**	1.000	.690**	. 448**	. 150	Correlation Coefficient
		.284	.055	.000	.000	.000	.000	.000	.000	.015	.217	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	Not reported because of feeling guilty	.227	.297*	.524**	. 507**	.397**	.510**	.690**	1.000	.292*	.243	Correlation Coefficient
		.061	.013	.000	.000	.001	.000	.000	.000	.015	.045	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	because of covering	.215	.253*	.358**	.367**	.319**	.289*	.448**	.292	1.000	.169	Correlation Coefficient

		.076	.036	.003	.001	.007	.016	.000	.015	.000	.164	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N
	Not reported because of being busy in the ward	.111	.053	.151	.026	.017	.119	.150	.243*	.169	1.000	Correlation Coefficient
		.366	.663	.215	.830	.887	.330	.217	.045	.164	.000	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	69	N

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed)

A Spearman correlation test was run to determine the relationship between the subscales of barriers to reporting medication errors. The results revealed that there were positive correlations between the variables of "Barriers to reporting medication errors", with statistical significance or no statistical significance. The following results of the Spearman Correlation test are illustrated in Table 16.

- A positive correlation was recorded between **"No knowledge of what constitutes a medication error"** and "No knowledge of what constitutes a medication error", which revealed neither a statistical significance nor non-statistical significance (r=1.000; p=.000).
- The relationship between "No knowledge of what constitutes a medication error" and "No knowledge of how to complete an incident form", revealed a positive correlation, which was statistically significant (r=.483, p=.000).
- A positive correlation was recorded between "No knowledge of what constitutes a medication error" and "Not reported because of no negative outcome for patients", which revealed a statistical significance (r=.285; p=.017).
- The relationship between "No knowledge of what constitutes a medication error" and "Not reported for fear of peer reactions", revealed a positive correlation, which was not statistically significant (r=.036, p=.769).

- A positive correlation was recorded between "No knowledge of what constitutes a medication error" and "Not reported for fear of nursing manager's reactions", which revealed a non-statistical significance (r=.029; p=.815).
- The relationship between "No knowledge of what constitutes a medication error" and "Not reported for fear of being stigmatized", revealed a positive correlation, which was not statistically significant (r=.101, p=.410).
- A positive correlation was recorded between "No knowledge of what constitutes a medication error" and "Not reported for fear of lawsuit", which revealed a non-statistical significance (r=.141; p=.248).
- The relationship between "No knowledge of what constitutes a medication error" and "Not reported because of feeling guilty", revealed a positive correlation, which was not statistically significant (r=.227, p=.061).
- A positive correlation was recorded between "No knowledge of what constitutes a medication error" and "Not reported because of covering for fellow peers", which revealed a non-statistical significance (r=.215; p=.076).
- The relationship between "No knowledge of what constitutes a medication error" and "Not reported because of being busy in the ward", revealed a positive correlation, which was not statistically significant (r=.111, p=.366).

- There was a positive correlation between **"No knowledge of how to complete an incident form"** and "No knowledge of how to complete an incident form", which has shown neither statistical significance nor non-statistical significance (r=1.000; p=.000).
- There was a positive correlation between "No knowledge of how to complete an incident form" and "Not reported because of no negative outcome for patients", which was not statistically significant (r=.320**; p=.007).
- The test revealed a positive correlation between "No knowledge of how to complete an incident form" and "Not reported for fear of peer reactions", which was not statistically significant (r =.150; p =.219).

- Non-statistical significance (r=.155; p=.205) was evident, when the results revealed that there was a positive correlation between "No knowledge of how to complete an incident form" and "Not reported for fear of nursing manager's reactions".
- There was a positive correlation between "No knowledge of how to complete an incident form" and "Not reported for fear of being stigmatized", which was not statistically significant (r=.141; p=.247).
- The test the showed a positive correlation between "No knowledge of how to complete an incident form" and "Not reported for fear of lawsuit", which was not statistically significant (r =.232; p =.055).
- Statistical significance (r=.297*; p=.013) was evident, when the results revealed that there was a positive correlation between "No knowledge of how to complete an incident form" and "Not reported because of feeling guilty".
- There was a positive correlation between "No knowledge of how to complete an incident form" and "Not reported because of covering for fellow peers", which was statistically significant (r=.253*; p=.036).
- A test the showed a positive correlation between "No knowledge of how to complete an incident form" and "Not reported because of being busy in the ward", which was not statistically significant (r=.053; p=0.663).

❖ The results revealed a positive correlation between **"Not reported because of no negative outcome for patients"** and "Not reported because of no negative outcome for patients" which was neither statistically significant nor non-statistically significant (r=1.000; p=.000).

❖ A positive correlation was evident between the association of "Not reported because of no negative outcome for patients" and "Not reported for fear of peer reactions", which was statistically significant (r=.620**; p=.000).

❖ The test recorded a positive correlation between "Not reported because of no negative outcome for patients" and "Not reported for fear of nursing manager's reactions", which was statistically significant (r=.563**, p=.000).

❖ The results revealed a positive correlation between "Not reported because of no negative outcome for patients" and "Not reported for fear of being stigmatized", which was statistically significant (r=.384**; p=.001).

- ❖ The results in this test continued to reveal a positive correlation between "Not reported because of no negative outcome for patients" and "Not reported for fear of lawsuit", which was statistically significant (r=.486**; p=.000).
- ❖ The relationship of variable "Not reported because of no negative outcome for patients" and "Not reported because of feeling guilty" revealed a positive correlation that was statistically significant (r=.524**; p=.000).
- ❖ A positive correlation was evident between "Not reported because of no negative outcome for patients" and "Not reported because of covering for fellow peers" and recorded a statistical significance (r =.358**; p =.003).
- ❖ A positive correlation was found between "Not reported because of no negative outcome for patients" and "Not reported because of being busy in the ward", which was not statistically significant (r =.151; p =.215).

- The results showed a positive correlation between **"Not reported for fear of peer reactions"** and "Not reported for fear of peer reactions" and it was evident that there was neither statistical significance nor non-statistical significance (r =1.000; p = .000).
- The results between "Not reported for fear of peer reactions" and "Not reported for fear of nursing manager's reactions" produced a positive correlation, and the result was statistically significant (r =.768**; p =.000).
- A positive correlation between "Not reported for fear of peer reactions" and "Not reported for fear of being stigmatized" was observed, which was statistically significant (r =.594**; p =.000).
- A positive correlation was recorded between "Not reported for fear of peer reactions" and "Not reported for fear of lawsuit", and there was a statistical significance (r=.567**; p =.000).
- There was statistical significance (r =.507**; p =.000), and the results indicated that there was a positive correlation between "Not reported for fear of peer reactions" and "Not reported because of feeling guilty".

- The results showed a positive correlation between "Not reported for fear of peer reactions" and "Not reported because of covering for fellow peers", and statistical significance was evident (r =.376**; p=.001).
- A positive correlation was evident between "Not reported for fear of peer reactions" and "Not reported because of being busy in the ward", which was not statistically significant (r =.026; p =.830).

- When the results showed a positive correlation between **"Not reported for fear of nursing manager's reactions"** and "Not reported for fear of nursing manager's reactions" there was neither statistical significance nor non-statistical significance (r =1.000; p =.).
- The Spearman correlation showed another positive correlation between "Not reported for fear of nursing manager's reactions" and "Not reported for fear of being stigmatized", with statistically significant results (r = .608**; p = .000).
- The test results determined that the relationship between "Not reported for fear of nursing manager's reactions" and "Not reported for fear of lawsuit" showed a positive correlation, which was statistically significant (r = .561**; p = .000).
- The results revealed a positive correlation between "Not reported for fear of nursing manager's reactions" and "Not reported because of feeling guilty", and there was a statistical significance (r = .397**; p = .001).
- A positive correlation was still present between "Not reported for fear of nursing manager's reactions" and "Not reported because of covering for fellow peers", with a statistical significance (r = .319**; p = .007).
- A correlation test produced a positive correlation between "Not reported for fear of nursing manager's reactions" and "Not reported because of being busy in the ward", with no statistical significance (r =.017; p =.887).

- Continuing with the correlation test between **"Not reported for fear of being stigmatized"** and "Not reported for fear of being stigmatized", a positive correlation was observed, with the results that were neither statistical significant nor non-statistical significance (r =1.000; p =.000).

- ❖ The Spearman correlation test showed a positive correlation between "Not reported for fear of being stigmatized" and "Not reported for fear of lawsuit", which was statistically significant (r =.510**; p =.000).
- ❖ When the results revealed a positive correlation between "Not reported for fear of being stigmatized" and "Not reported because of feeling guilty", there was statistical significance (r = .523**; p = .000).
- ❖ Continuing with the correlation test between "Not reported for fear of being stigmatized" and "Not reported because of covering for fellow peers", a positive correlation was observed, which was statistically significant (r =.289*; p =.016).
- ❖ A positive correlation was evident when a test was done between "Not reported for fear of being stigmatized" and "Not reported because of being busy in the ward", with no statistical significance (r =.119; p = .330).

- Continuing with the test, a positive correlation between **"Not reported for fear of lawsuit"** and "Not reported for fear of lawsuit" was observed, and the results showed neither statistical significance, nor non-statistical significance (r =1.000; p = .000).
- Between "Not reported for fear of lawsuit" and "Not reported because of feeling guilty", the test showed a positive correlation, with a statistical significance (r=.690**; p =.000).
- After running a test between "Not reported for fear of lawsuit" and "Not reported because of covering for fellow peers". A positive correlation was established, with no statistical significance (r =.448; p =.015).
- The results of the test between "Not reported for fear of lawsuit" and "Not reported because of being busy in the ward" showed a positive correlation, with no statistical significance (r=.150; p =.217).

- ➢ The test showed a positive correlation between **"Not reported because of feeling guilty"** and "Not reported because of feeling guilty", which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).

- The test between "Not reported because of feeling guilty" and "Not reported because of covering for fellow peers", showed a positive correlation, with no statistical significance (r =.292*; p = .015).
- The test revealed a positive correlation between "Not reported because of feeling guilty" and "Not reported because of being busy in the ward", which was not statistically significance (r =.243; p =.045).

- A positive correlation was obvious between **"Not reported because of covering for fellow peers"** and "Not reported because of covering for fellow peers", with neither statistical significance, nor non-statistical significance (r =1.000; p =.000).
- When the results showed a positive correlation between "Not reported because of covering for fellow peers" and "Not reported because of being busy in the ward", there was no statistical significance (r = .169; p = .164).

- When the results showed a positive correlation between **"Not reported because of being busy in the ward"** and "Not reported because of being busy in the ward", there was neither statistical significance nor non-statistical significance (r = 1.000; p = .000).

4.5. Section three: Perceptions of professional nurses on the causes of medication errors

In this section, the perceptions of professional nurses on the causes of medication errors in a psychiatric hospital are subjected to three tests. The first test is the Frequency distribution, the second test is a non-parametric test, the Mann-Whitney U test, and the third test is the Spearman Correlation test. This section has nine variables:

1. Failing to follow the 5 rights of medication administration
2. Being distracted by patients or co-workers
3. Being tired and exhausted
4. Confusion with similar medication names
5. Illegible writing
6. Poor quality of packaging

7. Wrong dose prescribed
8. Acuity level of patients
9. Multi-tasking while administering medication

4.5.1. Frequency distribution test

In this test, as with the barriers to reporting medication errors, the respondent is required to choose the most appropriate response to the variable presented, from the list provided, which, again, was in the form of a 5-point Likert scale (Strongly disagree, Disagree, neither agrees nor disagrees, agree and strongly agree), and the results are presented in the form of frequencies and percentages. The aim of this test is the response analysis on the frequency distribution of professional nurses' perceptions on the causes of medication errors in a psychiatric hospital.

4.5.1.1. Failing to follow the 5 rights of medication administration, and Being distracted by patients or co-workers

In Table 17, two variables are analysed according to the selections of the respondents, to produce the frequency distribution. The majority of the respondents (n=28, 40.6%) agreed that "Failing to follow the 5 rights of medication administration" is a source of medication errors, while fifteen (n=15, 21.7%) disagreed. Twelve respondents (n=12, 17%) strongly agreed that medication errors are caused by the nurses, who fail to follow the 5 rights of medication administration, while eight respondents (n=8, 11.6%) neither agreed nor disagreed, and six (n=6, 8.7%) strongly disagreed.

Regarding the variable "Being distracted by patients or co-workers", twenty-six respondents (n=26, 37.7%) agreed that medication errors are caused when nurses are distracted by patients or co-workers, while seventeen (n=17, 24%) disagreed. Twelve (n=12, 17.4%) neither agreed nor disagreed that medication errors are caused when nurses are distracted by patients or co-workers; however, ten respondents (n=10, 14.5%) strongly agreed, and four (n=4, 5.8%) strongly disagreed.

Table 17: Failing to follow the 5 rights of medication administration, and Being distracted by patients or co-workers

Variables	Categories	Frequencies	Percentages
Failing to follow the 5 rights of medication administration	Strongly disagree	6	8.7
	Disagree	15	21.7
	Neither agrees nor disagrees	8	11.6
	Agree	28	40.6
	Strongly agree	12	17.4
Variables	**Categories**	**Frequencies**	**Percentages**
Distracted by patients or co-workers	Strongly disagree	4	5.8
	Disagree	17	24.6
	Neither agrees nor disagrees	12	17.4
	Agree	26	37.7
	Strongly agree	10	14.5

4.5.1.2. Being tired and exhausted, and Confusion with similar medication names

In Table 18, the frequency distribution of the variable "Being tired and exhausted" is illustrated, according to the responses of the study respondents. Most of the respondents (n=30, 43.5%) agreed that "Being tired and exhausted" causes medication errors; however, fifteen respondents (n=15, 21.7%) disagreed. The fact that ten respondents (n=10, 14.5%) selected "neither agrees nor disagrees" indicates that some of the respondents are not really sure that "Being tired and exhausted" could cause medication errors. Eleven respondents (n=11, 15.9%), strongly agreed that "being tired and exhausted" causes medication errors, while three (n=3, 4.3%) strongly disagreed with the statement that medication errors are caused by "being tired and exhausted".

Additionally in Table 18, some respondents (n=30, 43.5%) agreed that medication errors are caused by nurses confusing similar medication names; however, nineteen respondents (n=19, 27.5%) disagreed with the statement. Other respondents (n=11, 15.9%) strongly agreed that medication errors are caused by

the confusion of similar medication names. Five respondents (n=5, 7.2%) selected "neither agrees nor disagrees" and four (n=4, 5.8%) selected "strongly disagree" that medication errors are caused by confusing similar medication names.

Table 18: Being tired and exhausted and Confusion with similar medication names

Variables	Categories	Frequencies	Percentages
Being tired and exhausted	Strongly disagree	3	4.3
	Disagree	15	21.7
	Neither agrees nor disagree	10	14.5
	Agree	30	43.5
	Strongly agree	11	15.9
Variables	**Categories**	**Frequencies**	**Percentages**
Confusion with similar medication names	Strongly disagree	4	5.8
	Disagree	19	27.5
	Neither agrees nor disagree	5	7.2
	Agree	30	43.5
	Strongly agree	11	15.9

4.5.1.3. Illegible writing

In Table 19, the analysis of the variable "Illegible writing" is illustrated. The results are presented according to the responses of the respondents. Most of the respondents (n=34, 49.3%) agreed that "Illegible writing" could be a cause of medication errors, while some participants (n=20, 29.0%) strongly agreed with the statement. An equal number of respondents (n=7, 10.1%) respectively disagreed, and neither agreed nor disagreed that medication errors are caused by illegible writing, while one respondent (n=1, 1.4%) strongly disagreed.

Table 19: Illegible writing

Variables	Categories	Frequencies	Percentages
Illegible writing	Strongly disagree	1	1.4
	Disagree	7	10.1
	Neither agrees nor disagree	7	10.1
	Agree	34	49.3
	Strongly agree	20	29.0

4.5.1.4. Poor quality of packaging, and Wrong dose prescribed

The results of the analysis of the above-mentioned variables are illustrated in Table 20. Firstly, some respondents (n=26, 37.7%) agreed that the "Poor quality of packaging" caused medication errors. while others (n=19, 27.5%) disagreed. Eleven respondents (n=11, 15.9%) neither agreed nor disagreed that medication errors could be caused by the "Poor quality of packaging"; however, eight respondents (n=8, 11.6%) strongly agreed that the poor quality of packaging caused medication errors, while five (n=5, 7.2%) strongly disagreed.

Also in Table 20, the frequency distribution results for the variable "Wrong dose prescribed" are illustrated. Thirty-four respondents (n=34, 49.3%) agreed, while four (n=4, 5.8%) disagreed and sixteen (n=16, 23.2%) neither agreed nor disagreed with the statement. Thirteen respondents (n=13, 18.8%) strongly agreed, while two (n=2, 2.9%) strongly disagreed that the "Wrong dosage prescribed" could be a source of medication errors

Table 20: Poor quality of packaging, and Wrong dose prescribed

Variables	Categories	Frequencies	Percentages
Poor quality of packaging	Strongly disagree	5	7.2
	Disagree	19	27.5
	Neither agrees nor disagree	11	15.9
	Agree	26	37.7
	Strongly agree	8	11.6
Variables	**Categories**	**Frequencies**	**Percentages**
Wrong dose prescribed	Strongly disagree	2	2.9
	Disagree	4	5.8
	Neither agrees nor disagree	16	23.2
	Agree	34	49.3
	Strongly agree	13	18.8

4.5.1.5. Acuity level of patients, and Multi-tasking while administering medication

The results of analysis of the variables "Acuity level of patients" and "Multi-tasking while administering medication" are illustrated in Table 21. Some of the respondents (n=26, 37.7%) agreed that medication errors are caused by the acuity level of patients. while others (n=19, 27.5%) disagreed. Sixteen respondents (n=16, 23.2%) neither agreed nor disagreed that medication errors are caused by the acuity level of patients, while six (n=6, 8.7%) strongly disagreed and two (n=2, 2.9%) strongly agreed.

Regarding "Multi-tasking while administering medication", thirty-one respondents (n=31, 44.9%) agreed that medication errors are caused when nurses are multi-tasking, while administering medication, with twenty (n=20, 29.0%), strongly agreeing. Two groups of seven respondents (n=7, 10.1%), respectively, selected "disagree" and "neither agrees nor disagrees" in response to the statement that medication errors are caused by "Multi-tasking while administering medication", while four subjects (n=4, 5.8%) strongly disagreed.

Table 21: Acuity level of patients, and Multi-tasking while administering medication

Variables	Categories	Frequencies	Percentages
Acuity level of patients	Strongly disagree	6	8.7
	Disagree	19	27.5
	Neither agrees nor disagree	16	23.2
	Agree	26	37.7
	Strongly agree	2	2.9
Variables	**Categories**	**Frequencies**	**Percentages**
Multi- tasking while administering medication	Strongly disagree	4	5.8
	Disagree	7	10.1
	Neither agrees nor disagree	7	10.1
	Agree	31	44.9
	Strongly agree	20	29.0

4.5.2. Non-parametric test

As with the barriers to reporting medication errors, a Mann-Whitney U test was used to test for the statistical significance of the relationship between the variables of the perceptions of professional nurses on the causes of medication errors and gender, in a psychiatric hospital. The results are presented in the form of means and standard deviations.

4.5.2.1. Failing to follow the 5 rights of medication administration, and being distracted by patients or co-workers.

In Table 22, the results of the relationship between "Failing to follow the 5 rights of medication administration" to gender are illustrated, with a Mean=3.35 and a SD=1.253. There was no statistical significance (U=476.000, p =.165) evident between the relationship of "Failing to follow the 5 rights of medication administration" to male and female.

Simultaneously, in Table 22, the results of the relationship between "Being distracted by patients or co-workers" and gender are illustrated, with a

Mean=3.33 and a SD=1.159. There was no statistical significance (U=536.500, p=.540), between the relationship of "Being distracted by patients or co-workers" to gender in the study.

Table 22: Failing to the follow 5 rights of medication administration, and being distracted by patients or co-workers

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Fails to follow the 5 rights of medication administration	69	30	39	3.35	1.253	476.000	.165
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Being distracted by patients or co-workers	69	30	39	3.33	1.159	536.500	.540

4.5.2.2. Being tired and exhausted, and Confusion with similar medication names

The results of the relationship between "Being tired and exhausted" to gender in this study are represented in Table 23, with a Mean=3.48 and a SD=1.119. There was no statistical significance (U=478.500, p=.173), between the relationship of "Being tired and exhausted" to gender.

Additionally, the results of the relationship between "Confusion of similar medication names" to gender are illustrated in Table 23, with a Mean=3.35 and a SD=1.211. There was no statistical significance (U=560.000, p=.755), between the relationship of "Confusion with similar medication names to gender.

Table 23: Being tired and exhausted and Confusion with similar medication names

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Being tired and exhausted	69	30	39	3.48	1.119	478.500	.173
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Confusion with similar medication names	69	30	39	3.35	1.211	560.000	.755

4.5.2.3. Illegible writing, and Poor quality of packaging

In Table 24, the results of the relationship between "Illegible writing" to gender in this current study are illustrated, with a Mean=3.90 and a SD=1.002. The results revealed a statistical significance (U=428.000, p=.042) between the relationship of "Illegible writing" to gender in this study.

The relationship between "Poor quality of packaging" and gender is also illustrated in Table 24, with a Mean=3.19 and a SD=1.179. There was no statistical significance (U=512.500, p=.360) between the relationship of "Poor quality of packaging" and gender in this study.

Table 24: Illegible writing, and Poor quality of packaging

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Illegible writing	69	30	39	3.90	1.002	428.000	.042
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Poor quality of packaging	69	30	39	3.19	1.179	512.500	.360

4.5.2.4. Wrong dose prescribed, and Acuity level of patients

The results of the relationship between "Wrong dose prescribed" and gender in this study are illustrated in Table 25, with a Mean=3.78 and a SD=.905. There was no statistical significance found (U=577.500, p=.922) between the relationship of "Wrong dose prescribed" and gender.

In Table 25 the results of the relationship between "Acuity level of patients" and gender in this study are also illustrated, with a Mean=2.99 and a SD=1.064. There was no statistical significance evident (U=543.000, p=.595) in the relationship between "Acuity level of patients" and gender.

Table 25: Wrong dose prescribed, and Acuity level of patients

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Wrong dose prescribed	69	30	39	3.78	.905	577.500	.992
Variable	**N**	**N=male**	**N=female**	**Mean**	**SD**	**Test**	**Asymp.Sig**
Acuity level of patients	69	30	39	2.99	1.064	543.000	.595

4.5.2.5. Multi-tasking while administering medication

Lastly, In Table 26, the results of the relationship between "Multi-tasking while administering medication" to gender in this study are illustrated with a Mean=3.78 and a SD=1.162. There was no statistical significance found (U=465.500, p=1.25) in the relationship between "Multi-tasking while administering medication" and gender.

Table 26: Multi- tasking while administering medication

Variable	N	N=male	N=female	Mean	SD	UTest	Asymp.Sig
Multi-tasking while administering medication	69	30	39	3.78	1.162	465.500	1.25

4.5.3. Spearman Correlation

When the Mann-Whitney U test was conducted, one of the results revealed a statistical significance in the relationship between the genders of the respondents to the variables measured (illegible writing). The rest of the measured variables revealed no statistical significance in the relationship between them and the gender of the respondents. However, as with the barriers to reporting medication errors, to intensify the statistical significance of the measured variables, the Spearman Correlation test was employed to

test the relationship between the variables of the perceptions of professional nurses on the causes of medication errors in a psychiatric hospital, in the interpretation of the results of this current research study.

Table 27: Correlation between the variables of perceptions of professional nurses on the causes of medication error.

Spearman's rho	Variables	Failing to follow the 5 rights of medication administration	Being distracted by patients or co-workers	Being tired and Exhausted	Confusion with similar medication names	Illegible writing	Poor quality in packaging	Wrong dose prescribed	Acuity level of patients	Multi- tasking while administering medication	Results
	Failing to follow the 5 rights of medication administration	1.000	.092	.182	.237*	.129	-.021	-.174	.173	.142	Correlation Coefficient
		.000	.451	.134	.050	.290	.861	.152	.155	.244	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N
	Being distracted by patients or co-workers	.092	1.000	.500**	.299*	.127	. 351**	.195	.164	.390**	Correlation Coefficient
		.451	.000	.000	.013	.298	.003	.109	.179	.001	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N
	Being tired and Exhausted	.182	.500**	1.000	.300*	.301*	.188	. 242*	.286*	.281*	Correlation Coefficient
		.134	.000	.000	.012	.012	.123	. 045	.017	.019	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N

	Confusion with similar medication names	.237*	.299*	.300*	1.000	.137	. 466**	. 165	.218	.216	Correlation Coefficient
		.050	.013	.012	.000	.262	.000	. 175	.072	.075	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N
	Illegible writing	.129	.127	.301*	.137	1.000	.220	.159	.298*	.335**	Correlation Coefficient
		.290	.298	.012	.262	.000	.069	.192	.013	.005	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N
	Poor quality in packaging	-.021	.351**	.188	.466**	.220	1.000	.455**	.382**	.272*	Correlation Coefficient
		.861	.003	.123	.000	.069	.000	. 000	.001	.024	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N
	Wrong dose prescribed	-.174	.195	.242*	.165	.159	.455**	1.000	-.006	-.023	Correlation Coefficient
		.152	.109	.045	.175	.192	.000	.000	.963	.854	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N
	Acuity level of patients	.173	.164	.286*	.218	.298*	-.006	.382**	1.000	.240*	Correlation Coefficient
		.155	.179	.017	.072	.013	.963	.001	.000	.047	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N

	Multi- tasking while administering medication	.142	.390**	.281*	.216	.335**	-.023	.272*	.240*	1.000	Correlation Coefficient
		.244	.001	.019	.075	.005	.854	.024	.047	.000	Sig. (2- tailed)
		69	69	69	69	69	69	69	69	69	N

* Correlation is significant at the 0.05 level (2-tailed) ** Correlation is significant at the 0.01 level (2-tailed)

The following results of the Spearman Correlation test conducted are illustrated in Table 27.

- In this test, a positive correlation was found between **"Failing to follow the 5 rights of medication administration"** and "Failing to follow the 5 rights of medication administration", which which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Being distracted by patients or co-workers", which was not statistically significant (r =.092; p =.451).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Being tired and exhausted", which was not statistically significant (r =.182; p =.134).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Confusion of similar medication names", which was statistically significant (r =.237*; p =.050).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Illegible writing", which was not statistically significant (r =.129; p =.290).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Poor quality of packaging", which was not statistically significant (r =-.021; p =.861).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Wrong dose prescribed", which was not statistically significant (r =-.174; p =.152).

- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Acuity level of patients", which was not statistically significant (r =.173; p =.155).
- In this test, a positive correlation was found between "Failing to follow the 5 rights of medication administration" and "Multi-tasking while administering medication", which was statistically significant (r =.142; p =.244).

- In this test, a positive correlation was found between **"Being distracted by patients or co-workers"** and "Being distracted by patients or co-workers", which was neither statistically significant, nor non-statistical significant (r=1.000; p =.000).
- In this test, a positive correlation was found between "Being distracted by patients or co-workers" and "Being tired and exhausted", which was statistically significant (r =.500**; p =. 005).
- In this test, a positive correlation was found between "Being distracted by patients or co-workers" and "Confusion of similar medication names", which was not statistically significant (r =.299*; p =.013).
- In this test, a positive correlation was found between "Being distracted by patients or co-workers" and "Illegible writing", which was not statistically significant (r =.127; p =.298).
- In this test, a positive correlation was found between "Being distracted by patients or co-workers" and "Poor quality of packaging", which was statistically significant (r =.351**; p =.003).
- In this test, a positive correlation was found between "Being distracted by patients or co-workers" and "Wrong dose prescribed", which was not statistically significant (r =.195; p =.109).
- In this test, a positive correlation was found between "Being distracted by patients or co-workers" and "Acuity level of patients", which was not statistically significant (r =.164; p =.179).

- In this test, a strong positive correlation was found between "Being distracted by patients or co-workers" and "Multi-tasking while administering medication", which was statistically significant (r =.390**; p =.001).

- In this test, a positive correlation was found between **"Being tired and exhausted"** and "Being tired and exhausted", which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).
- In this test, a positive correlation was found between "Being tired and exhausted" and "Confusion of similar medication names", which was statistically significant (r =.300; p =.012).
- In this test, a positive correlation was found between "Being tired and exhausted" and "Illegible writing", which was statistically significant (r =.301; p =.012).
- In this test, a positive correlation was found between "Being tired and exhausted" and "Poor quality of packaging", which was not statistically significant (r =.188; p =.123).
- A positive correlation was observed between "Being tired and exhausted" and "Wrong dose prescribed", with statistical significance (r =.242*; p =.045).
- The test between "Being tired and exhausted" and "Acuity level of patients" revealed a positive correlation, with statistical significance (r=.286*; p =.017).
- The correlation test between "Being tired and exhausted" and "Multi-tasking, while administering medication", showed a positive correlation, which was statistically significant (r =.281*; p =.019).

- In this test, a positive correlation was found between **"Confusion of similar medication names"** and "Confusion of similar medication names", which was neither statistically significant nor none statistically significant (r =1.000; p =.000).

- In this test, a positive correlation was found between “Confusion of similar medication names” and “Illegible writing”, which was not statistically significant (r =.137; p =.252).
- In this test, a positive correlation was found between “Confusion of similar medication names” and “Poor quality of packaging”, which was statistically significant (r =.466**; p =.000).
- In this test, a positive correlation was found between “Confusion of similar medication names” and “Wrong dose prescribed”, which was not statistically significant (r =.165; p =.175).
- In this test, a positive correlation was found between “Confusion of similar medication names” and “Acuity level of patients”, which was not statistically significant (r =.218; p =.072).
- In this test, a positive correlation was found between “Confusion of similar medication names” and “Multi-tasking while administering medication”, which was not statistically significant (r =.216; p =.075).

- In this test, a positive correlation was found between **“Illegible writing”** and “Illegible writing”, which which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).
- In this test, a positive correlation was found between “Illegible writing” and “Poor quality of packaging”, which was not statistically significant (r =.220; p =.069).
- In this test, a positive correlation was found between “Illegible writing” and “Wrong dose prescribed”, which was not statistically significant (r =.159; p =.192).
- Also between “Illegible writing” and “Acuity level of patients”, a positive correlation was found, with statistical significance (r =.298*; p=.013).
- The correlation test produced a positive correlation between “Illegible writing” and “Multi-tasking while administering medication”, which was statistically significant (r =.335**; p =.005).

- ❖ In this test, a positive correlation was found between **"Poor quality of packaging"** and "Poor quality of packaging", which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).
- ❖ But then a positive correlation was seen between "Poor quality of packaging" and "Wrong dose prescribed", which was statistically significant (r =.455**; p =.000).
- ❖ The test showed a positive correlation, between "Poor quality of packaging" and "Acuity level of patients", which was statically significance (r =.382**; p =.001).
- ❖ While a positive correlation was found in a correlation test between "Poor quality of packaging" and "Multi-tasking while administering medication", which was statistically significant (r =.272*; p =.024).

- In this test, a positive correlation was found between **"Wrong dose prescribed"** and "Wrong dose prescribed", which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).
- In this test, a positive correlation was found between "Wrong dose prescribed" and "Acuity level of patients", which was not statistically significant (r =-.006; p =.963).
- In this test, a positive correlation was found between "Wrong dose prescribed" and "Multi-tasking while administering medication", which was not statistically significant (r =-.023; p =.854).

- ➢ In this test, positive correlation was found between **"Acuity level of patients"** and "Acuity level of patients", which was neither statistically significant, nor non-statistically significant (r =1.000; p =.000).
- ➢ The correlation test still produced a positive correlation between "Acuity level of patients" and "Multi-tasking while administering medication", was statically significant (r =.240*; p =.047).

- The test showed a positive correlation, between **"Multi-tasking while administering medication"** and "Multi-tasking while administering medication", which was neither statistically significant nor none statistically significant (r =1.000; p =.000).

4.6. Conclusions

The results in this chapter were presented as frequencies of distribution, in the form of tables and graphs/figures, as well as means and standard deviations for statistical significance, in the form of tables. The results assisted the researcher to draw conclusions on the perceptions of professional nurses, regarding medication errors in a psychiatric hospital. The following chapter comprises the discussions of the findings.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1. Introduction

In this chapter, the researcher discusses the findings of this current study and compares it to, or contrasts it with, the findings of other relevant studies. In the context of this study, the aim was to determine the perceptions of professional nurses on medication errors in a psychiatric hospital, in the Western Cape. The respondents in this study were professional nurses, who are permanently employed in a specific psychiatric hospital, in the Western Cape. One of the duties of these respondents is the management and administration of medication to patients. Since the topic of medication errors is critical and sensitive in the health care system, the researcher had to explain to the prospective respondents that this research was not being conducted to identify and implement punitive measures against anyone, who had committed a medication error. Instead, it was anticipated that the information, gathered in this study, would be utilized to provide in-service training and promote patient safety in the selected psychiatric hospital.

The sample size for this study was sixty-nine (n= 69) respondents. The questionnaire used in the data collection phase of this study was an adopted, structured questionnaire, with three sections that were aligned as follows: Section one: Demographic factors (with this section a researcher wanted to learn more about the respondents); Section two and Section three the respondents were given a choice of responses, in the form of a Likert scale (1. Strongly disagree; 2. Disagree; 3. Neither agrees nor Disagrees; 4. Agree; 5. Strongly agree), to choose from regarding "Barriers to reporting medication errors" in a psychiatric hospital and "Perceptions of professional nurses on the causes of medication errors" in a psychiatric hospital. In both sections 2 and 3, the respondents had to choose their most appropriate response.

5.2. Demographics

In this current study, the participation was received from female professional nurses (39 or 57%) with the male complement comprising 30 (43%) respondents, indicating that the

nursing profession, in this selected Psychiatric Hospital, is dominated by female professional nurses. The dominance of the female gender in the nursing profession is also highlighted in a study that was conducted in United States of America, with a female participation rate of 82.5% (Farag & Anthony, 2014).

In this current study, the age group of the respondents ranged between twenty one and sixty years. However, the age group that represented the majority participation was thirty one to forty years (25 or 36.23%). But finding of another study in the health sector revealed that, in reality, the age of a professional nurse in the nursing profession is becoming younger, with the age group in that study being 23 to 54 years (Hashemi, Nasrabadi & Asghari, 2012).

In the context of this current study, regarding the results for the total years of service as professional nurses, two groups shared equal representation in this study, with 30% of the respondents, each. These groups were the two-to-five-years-experienced and the six-to-ten-years-experienced professional nurses. The number of respondents per area of work, or FBU, was assigned as follows: adult general psychiatry, 29 (42%), followed by intellectual disability, 17 (25%), Forensic Psychiatry, 14 (20%), and finally, Child and Adolescent Psychiatry 9 (13%).

Additionally, the respondents were asked to indicate their total years of experience in their respective working areas, or FBUs. The respondents indicated their experience, in their respective work areas, as ranging between two to five years (52%). Surprisingly, followed by the group with experience in a particular area of work (26 to 30 years) was only represented by three percent (3%) of the respondents, while one percent (1%) of the respondents had between 21 to 25 years' experience in a particular area of work.

In this study, the level of qualification was represented by a Diploma in Nursing, Degree in Nursing, Advanced Psychiatric Nursing, Master's Degree in Nursing and Doctoral Degree in Nursing. The majority of the respondents in this study indicated that their highest qualification was a Diploma in Nursing (45%), followed by those with an Advanced Diploma in Nursing (28%), and in third place, those with a Degree in Nursing (20%). Additionally, in this specific psychiatric hospital, a few professional nurses held a Master's Degree in Nursing (7%), according to the results of this current research study. Lastly, the respondents were asked to indicate which duty shift they were working at the time. The results indicated that

most of them were working the 12-hour day (86%), with rest working the 12-hour night shift (14%). It is crucial for nursing staff to provide nursing services on a 24-hour basis, so that the health status of patients is be maintained at all times (Lin, Liao, Chen & Fan, 2012).

5.3. Testing for frequency distribution

In the current study, frequency distribution was used to assess the participant's selection of answers, according to their preferences. The research participants were required to choose the most appropriate answer from the following 5-point Likert scale (Strongly disagree, Disagree, neither agrees nor disagrees, agree and strongly agree).

5.3.1. Barriers to reporting medication errors

5.3.1.1. No knowledge of what constitutes a medication error, and No knowledge of how to complete an incident form

In this current study, respondents chose "disagree" (n=26, 37.7%) as the most appropriate response to the variable, "No knowledge of what constitutes medication error". Therefore, this indicated that the respondents disagreed that "No knowledge of what constitutes medication error" was a barrier to reporting medication errors. Farag and Anthony (2015) argue that the lack of reporting medication errors is promoted by the vast/different definition of medication errors. In addition, for the variable "No knowledge of how to complete an incident form", "disagree" (n=23, 33.3%), was again the most popular response among the respondents, which indicated strong disagreement that medication errors were not reported because of "No knowledge of how to complete an incident form". However, in a study conducted at a Canadian hospital, the participants indicated that they would report medication errors more frequently, if reporting was made easier (Hartnell, MacKinnon, Sketris & Fleming, 2012).

5.3.1.2. Not reported because of no negative outcome for patients

For the variable, "Not reported because of no negative outcome for patients", the respondents chose agree (n=28, 40.6%) as their popular response. This response implied that medication errors were not reported, when there was no negative outcome for the patients. In contrast to the above statement, the findings from a study conducted at a hospital in Saudi Arabia, (n=39, 67%) of the respondents

indicated that they would report medication errors, even if there was no harm done to the patient (Almutary & Lewis, 2012).

5.3.1.3. Not reported for fear of peer reactions, and Not reported fear of nursing manager's reactions

The respondents chose "agree" for both "Not reported for fear of peer reactions" (n=35, 50.7%), and "Not reported fear of nursing manager's reactions" (n=33, 47.8%). Therefore, it was evident that, from the professional nurse's opinion, the decision not to report medication errors was compelled by the fear of both peer and nursing manager's reactions (Pfeiffer, Manser & Wehner, 2010). When the professional nurse's views were reviewed, the results of this current study revealed that fear of nursing managers reactions, was the main reason for not reporting medication errors (Bahadori *et al.*, 2013).

5.3.1.4. Not reported for fear of being stigmatized, and Not reported for fear of a lawsuit

The professional nurses fear stigmatization, which validates the reason that medication errors are not be reported. They revealed this, when selected "agree" (n=32, 46.4%) was selected as the popular response. In addition, the respondents agreed (n=29, 42.0%) that the fear of a lawsuit could also influence the non-reporting of medication errors. In a study conducted at an Iranian hospital, among the studied variables were the fear of being stigmatized and the fear of a lawsuit, which were the most important variables that would influence medication errors not being reported (Bahadori *et al.*, 2013).

5.3.1.5. Not reported because of feeling guilty, and Not reported because of covering for fellow peers

Heard, Sanderson and Thomas (2012) assert that feeling guilty is the main reason for not reporting medication errors. This current study yielded a similar result, when most of the respondents selected "agree" (n=37, 53.6%), as their popular response. This showed that the tested variable played an important role in the non-reporting of medication errors. In addition, the respondents demonstrated that covering for fellow peers also played a role in the non-reporting of medication errors, this was shown by selecting "agree" (n=31, 43.9%), as the popular

choice/response. Covering for fellow peers was highlighted by Hartnell *et al.* (2012) as an important factor in the non-reporting of medication errors, in a study conducted at a hospital in Canada.

5.3.1.6. *Not reported because of being busy in the ward*

Being busy in the ward was not viewed as a barrier to reporting medication errors, as the respondents selected "disagree" (n=33, 47.8%). However, Sewal *et al.* (2014) confirm that reporting medication errors, while busy in the ward could be difficult, and could result in medication errors not being reported, at all.

5.3.2. Perceptions of professional nurses on the causes of medication errors

5.3.2.1. Failing to follow the 5 rights of medication administration and being distracted by patients or co-workers

Failing to follow the 5 rights of medication administration, was viewed as an important variable that could cause medication error. This was evidenced by the response of the respondents, when they selected "agree" (n=28, 40.6%). The results of a study conducted at a hospital in Denmark, revealed that the professional nurses viewed "failing to follow the 5 rights of medication administration" as a contributing factor in the causes of medication errors and, if ignored, could compromise the safety of the patient (Soerensen, Lisby, Nielsen, Poulsen & Mainz, 2013). A popular choice of response by the respondents to the variable "Being distracted by patients or co-workers" was "agree" (n=26, 37.7%), which indicated that distraction by patients or co-workers could lead to medication errors in the ward. Cottney and Innes (2014) revealed, from a study conducted in acute adult mental health wards, at a hospital in the UK, that distractions by patients or co-workers were viewed as a cause of medication errors.

5.3.2.2. Being tired and exhausted, and Confusion with similar medication names

Being tired and exhausted was selected as a number one cause of medication errors at a hospital in Turkey (Unver, Tastan & Akbayrak, 2012). Similar findings emerged in this current study, when the respondents selected "agree" (n=30, 43.5%) as their preferred response. This indicated that being tired and exhausted

caused medication errors. In addition, the respondents implied, by selecting "agree" (n=30, 43.5%) as their response of choice, that confusing similar medication names could also result in medication errors. In a study, at an Iranian hospital, the popular cause of medication error was believed to be confusing similar medication names (Mansouri *et al.*, 2014).

5.3.2.3. Illegible writing

According to the results of this current study, the respondents agreed (n=34, 49.3%) that illegible writing was a cause of medication errors. According to a study conducted in Northampton, UK, illegible writing was among the leading causes of medication errors (Haw & Cahill, 2011).

5.3.2.4. Poor quality of packaging, and Wrong dose prescribed

Poor quality in packaging of medication was viewed as a crucial factor in this current study, as most of the respondents selected "agree" (n=26, 37.7%), to indicate that this variable caused medication error. In contrast, a study conducted at a hospital in Turkey, yielded results, which demonstrated that poor quality in packaging was not an important factor in the causes of medication error (Unver *et al.*, 2012). The respondents selected "agree" (n=34, 49.3%) as their favorite response, which revealed that the wrong dose prescribed could cause medication errors. The wrong dose prescribed error was the most prevalent cause of medication errors, in a study conducted at a hospital in Saudi Arabia (Al- Jeraisy**,** Alanazi & Abolfotouh, 2011).

5.3.2.5. Acuity level of patients, and Multi-tasking while administering medication

The results of a study conducted between North American and European professional nurses revealed that the professional nurses agreed that the acuity level of patients were common causes of medication errors (Parry, Berriball & While, 2015). However, the results of this current study revealed a similarity, as the professional nurses/respondents selected "agree" (n=26, 37.7%) as their most popular response, implying that they consented to the acuity level of patients being a cause of medication errors. Additionally, the findings from a study conducted by Kalisch and Aebersold (2010) revealed that multi-tasking during

medication administration rounds promoted medication errors. In this current study, the results revealed that medication errors could be caused by multi-tasking. Respondents indicated this by selecting "agree" (n=31, 44.9%) as their response.

5.4. Testing for statistical significance

Continuing the discussion of the results obtained in this current study, a Mann Whitney-U test was employed to test for statistical significance in the relationship between the variables of "Barriers to reporting medication errors" and gender in this study. The variables that displayed statistical significance were "Not reported for fear of peer reactions, "Not reported for fear of nursing managers' reactions" and "Not reported for fear of being stigmatized"; while the rest of the variables showed no statistical significance in their relationship to gender in this study. The rest of the variables were "No knowledge of what constitutes a medication error", No knowledge of how to complete an incident form", "Not reported because of no negative outcomes in patients", "Not reported for fear of a lawsuit", "Not reported because of feeling guilty", "Not reported because of covering for fellow peers" and "Not reported because of being busy in the ward".

The Mann Whitney-U test was also employed to test for statistical significance in the relationship between the variables of the "perceptions of professional nurses on the causes of medication errors" and gender in a psychiatric hospital. Statistical significance was displayed in the relationships between the variable "Illegible writing" and gender in this study. However, there was no statistical significance between the relationships of the rest of the variables, namely, "failing to follow the 5 rights of medication administration", "being distracted by patients or co-workers", "being tired and exhausted", "confusion about similar medication names", "poor quality of packaging", "wrong dose prescribed", "acuity levels of patients" and "multi-tasking while administering medication".

To intensify the statistical significance, the subscales of the "barriers to reporting medication errors" were also tested by employing the Spearman correlation test. The results revealed positive statistical correlations for all variable sets that were, either statistically significant, or non-statistically significant. The results of this current study revealed that there was statistical significance in the association of *"No knowledge of what constitutes a medication error"*

with “No knowledge of how to complete an incident form”, as well as “Not reported because of no negative outcome for patients”. The associations of *“No knowledge of what constitutes a medication error”* with the 7 remaining variables were all non-statistically significant. The results of this current study revealed that there was statistical significance in the association of *“No knowledge of how to complete an incident form”* with “Not reported because of feeling guilty”, as well as “Not reported because of covering for fellow peers”. The associations of *“No knowledge of how to complete an incident form”* with the 6 remaining variables were all non-statistically significant.

The results of this current study revealed that there was non-statistical significance in the association of *“Not reported because of no negative outcome for patients”* with “Not reported because of being busy in the ward”. The associations of *“Not reported because of no negative outcome for patients”* with the 6 remaining variables were all statistically significant. The results of this current study revealed that there was non-statistical significance in the association of *“Not reported for fear of peer reactions”* and “Not reported because of being busy in the ward”. The associations of “Not reported for fear of peer reactions” with the 5 remaining variables were all statistically significant. The results of this current study revealed that there was non-statistical significance in the association of *“Not reported for fear of nursing manager’s reactions”* and “Not reported because of being busy in the ward”. The associations of *“Not reported for fear of peer reactions”* with the 4 remaining variables were statistically significant.

The results of this current study revealed that there was non-statistical significance in the association of *“Not reported for fear of being stigmatized”* and “Not reported because of being busy in the ward”. The associations of *“Not reported for fear of being stigmatized”* with the 3 remaining variables were statistically significant. The results of this current study revealed that there was statistical significance in the association of *“Not reported for fear of lawsuit”* and “Not reported because of feeling guilty”. The associations of *“Not reported for fear of lawsuit”* with the 2 remaining variables were non-statistically significant. The results of this current study further revealed that there was no statistical significance in the associations of *“Not reported because of feeling guilty”* with “Not reported because of covering for fellow peers”, as well as “Not reported because of being busy in the ward”.
Finally, the results of this current study further revealed that there was no statistical significance in the associations of *“Not reported because of covering for fellow peers”* and

"Not reported because of being busy in the ward". In addition, all the associations of the variables with themselves indicated neither statistical significance nor non-statistical significance.

According to Holmström *et al.* (2015), medication errors constitute a serious threat to health care safety, internationally. However, they can be defined as any preventable event that can cause, or lead to patient harm, while the medication is in the control of a health care professional. In support of the above statement, Aboshiqah (2013) reveals that there is a need for further studies to ascertain and clarify why medication errors are not reported, or documented in health care facilities. Findings from a previous study conducted with professional nurses, regarding the barriers to reporting medication errors, reveal that the professional nurses did not report medication errors because of the following factors: "No knowledge of what constitutes a medication error" and "No knowledge of how to complete an incident form" (Alduais, Mogali, Al Shabrain, Al Enazi & Al-awad, 2014). In another study it was reported that a medication error was not reported by the perpetrators, if there was no harm or negative outcome to a patient (Hashemi *et al.*, 2012). Mayo & Duncan (2004) revealed in the results of their study that the reasons for not reporting medication errors included being afraid of the nursing manager and co-workers' reactions. An incident like this could cause the perpetrator to feel betrayed, or unsupported by his/her colleagues, or the nursing manager, as their reactions could differ (Schelbred & Nord, 2007). In a survey conducted in Iran, the results significantly revealed that the barriers to reporting medication errors were perceived by professional nurses as the lack of knowledge about what constitutes an error, as well as the fear of being blamed by colleagues and supervisors (Tabatabaee, Kalhor, Nejatzadegan, Jahromi & Sharifi, 2014).

The reporting of medication errors is also influenced by the consequences of medication errors for a patient, with the professional nurse feeling guilty, after realizing that a medication error had happened (Pazokian *et al.,* 2014). The expectation of high standards of care from professional nurses by a multi-disciplinary team, nurse managers and fellow peers, puts pressure on the individual, who has caused the medication error, which results in the medication error not being reported (Joolaee, Hajibabaee, Peyrovi, Haghani & Bahrani, 2011). According to Treiber and Jones (2010), the barrier to reporting a medication error, for a professional nurse in their study, was the fear of a lawsuit, as well as the consequences of a lawsuit. According to their study, professional nurses fear the loss of employment, or being

struck off the nurses roll, because of a lawsuit. It is the responsibility of professional nurses to report any medication error that occurs in the ward; however, it is a difficult decision to make, when the error was caused by another professional nurse. Besides, professional nurses tend not to report medication errors, because they fear the consequences of reporting medication errors, or what the other nurses would say about them, which results in medication errors remaining unreported among the professional nurses (Espin, Wickson-Griffiths, Wilson & Lingard, 2010). The participants in a previous study admitted not reporting medication errors because of being busy in the ward (Vincent, Stanhope & Crowley- Murphy, 1998). Being busy in the ward would constitute attending to sick patients, as well as nursing administrative duties.

The perceptions of professional nurses on the causes of medication errors in a psychiatric hospital in this current study showed virtually no statistical significance when tested using the Mann Whitney-U statistical tests, except for the result of one sub-scale, "illegible writing", which revealed a statistical significance in the relationship between the genders of the respondents to the variable. However, a Spearman correlation test showed positive correlations, which were either statistically or non-statistically significant.

The results of this current study revealed that there was statistical significance in the associations of *"Failing to follow the 5 rights of medication administration"* with "Confusion of similar medication names" as well as "Multi-tasking while administering medication". The associations of *"Failing to follow the 5 rights of medication administration"* with the 6 remaining variables were all non-statistically significant. The results of this current study revealed that there was statistical significance in the associations of *"Being distracted by patients or co-workers"* and "Being tired and exhausted", "Poor quality of packaging", as well as "Multi-tasking while administering medication". The associations of *"Being distracted by patients or co-workers"* with the 4 remaining variables were all non-statistically significant.

The results of this current study revealed that there was non-statistical significance in the association of *"Being tired and exhausted"* and "Poor quality of packaging". The associations of *"Being tired and exhausted"* with the 5 remaining variables were all statistically significant. The results of this current study revealed that there was statistical significance in the association of *"Confusion of similar medication names"* and "Poor quality

of packaging". The associations of *"Confusion of similar medication names"* with the 4 remaining variables were all non-statistically significant. The results of this current study revealed that there was statistical significance in the associations of *"Illegible writing"* with "Acuity level of patients", as well as "Multi-tasking while administering medication". The associations of *"Illegible writing"* with the 2 remaining variables were non-statistically significant.

The results of this current study revealed that there was statistical significance in the associations of *"Poor quality of packaging"* with "Wrong dose prescribed", "Acuity level of patients", as well as "Multi-tasking while administering medication". The results of this current study revealed that there was non-statistical significance in the associations of "Wrong dose prescribed" with "Acuity level of patients", as well as "Multi-tasking while administering medication". Finally, the results of this current study further revealed that there was statistical significance in the associations of *"Acuity level of patients"* and "Multi-tasking while administering medication". In addition, all the associations of the variables with themselves indicated neither statistical significance nor non-statistical significance.

The results of this current study were compared with the results of the previous relevant studies, on the same topic. It was observed that, medication errors occurred because the 5 rights of medication administration were dismissed by professional nurses, who were not familiar with the particular medications, or the prescriptions were unclear (Tsang, Yuk & Sham, 2014). The distraction of professional nurses, while administering medication, resulted in medication errors in a study that was conducted at a Psychiatric hospital in the United Kingdom [UK] (Haw & Cahill, 2011). In a study conducted by Dickens (2007), tiredness and exhaustion was observed as one of the causes of medication errors. However, medication that sounded similar, or looked similar, was problematic, because they resulted in medication errors (Al-Youssif *et al.*, 2013).

In a previous study, conducted in Iran, the perceptions of professional nurses on medication errors indicated that medication errors could be caused by illegible writing on the treatment cards of patients (Abdar *et al.*, 2014). The results of a study, conducted by Jhanjee, Bhatia, Oberio and Srivastava (2012) at a psychiatric hospital, confirm that prescribing the wrong medication caused medication errors. Mc Bride-Henry and Foureur (2006) conducted a study in New Zealand and observed that patients' acuity could cause medication errors in the ward.

Professional nurses are expected to perform nursing administrative duties, clinical duties, as well as their primary responsibility of medication administration. A previous study conducted by Kalisch and Aebesold (2010) revealed that multi-tasking, while busy with medication rounds, could be a cause of medication errors.

5.5. Conclusion

In this chapter, the researcher discussed the findings of this current study and compared them to studies conducted by various other researchers, which highlighted whether this current study was similar or different. The following chapter, Chapter 6, comprises a summary of the study, significance of the study, recommendations of the study, recommendations for future research, limitations of the study and conclusions of the study.

CHAPTER SIX

SUMMARY AND RECOMMENDATIONS

6.1. Introduction

In this chapter, the researcher concludes this research mini thesis by summarising the research findings and discussing the recommendations of the study.

6.2. Summary

The aim of this study was to determine the perceptions of professional nurses on medication errors in a psychiatric hospital, in the Western Cape. The specific objectives were:

1. To determine the barriers of reporting medication errors in a psychiatric hospital in the Western Cape.
2. To determine the perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape, in association with demographic factors.

A quantitative research design, through a descriptive approach, was followed to conduct this research study. The research study was conducted at a Psychiatric hospital, after approval was obtained from the research committee of the specific Psychiatric hospital, as well as from the research committee of Western Cape Government (Department of Health) and the University of the Western Cape's Senate Higher Degrees Committee. The respondents were allowed to participate in this current research study, after information about the study was disclosed, and they had voluntarily provided informed consent to participate in the research study. The population of this study was the professional nurses, who are working, on a permanent basis, at the selected Psychiatric hospital. The criterion for inclusion in this study was that the professional nurse had to be managing and administering medication at ward level.

According to the advice of the statistician, a Pilot study was not necessary, as the questionnaire adopted for this study, was used before in a previous study. This implies that the questionnaire was tested for any irregularities that might have emerged. However, a reliability testing of the data collection tool was conducted, with the aid of the statistician,

and the results revealed that the Cronbach's Alpha Coefficient was =.804. Descriptive statistics was employed to interpret the demographic factors of the study. The results were interpreted in the form of frequencies, bar graphs, tables and pie charts. Firstly, a frequency distribution test was conducted for all the variables of the "Barriers to reporting medication errors", as well as the "Perceptions of professional nurses on the causes of medication errors" in a Psychiatric hospital. Thereafter, a Mann Whitney-U test followed, to test for statistical significance, as well as the relationship between the variables and gender. Thirdly, to intensify the statistical significance and to calculate the strength of the variables in section two and section three, a Spearman correlation test was conducted, with the results indicating a significant correlation between the subscales.

6.3. Significance

The researcher searched intensively for literature about the perceptions of professional nurses on medication errors in Psychiatric hospitals in the Western Cape, and failed to find any literature related to the topic under study. However, it is anticipated that this study would be used by scholars in South Africa, to understand the perceptions of professional nurses on medication errors in a Psychiatric hospital, in South Africa. Most importantly, the researcher categorically stated that the information garnered in this study will only be used for the development of the nursing profession.

6.4. Recommendations

According to the findings of this current research study, the subscales of the "Barriers to reporting medication errors", as well as the "Perceptions of professional nurses on the causes of medication errors", in a Psychiatric hospital, were statistically significant and revealed strong and weak positive correlations to each other. Therefore, the researcher recommends that:

1. Ongoing awareness campaigns, regarding medication errors in Psychiatric hospitals, should be conducted by the Department of Health and Nursing Schools.
2. Clinical nurse practitioners should be encouraged to conduct research studies that will promote and improve nursing practice.
3. When medication errors occur, nursing professionals should be encouraged to report them and the necessary supported should be provided.

4. The inconsistencies of the reporting of medication errors should be identified, and dealt with, in order to enhance the nursing profession.
5. Collaboration with health institutions, as well as nursing training institutions should be encouraged to strengthen pharmacological in-service training to the nursing students and qualified nursing professionals.

6.4.1. Recommendations for future research

- A quantitative research study is highly recommended for the population of professional nurses at other Psychiatric hospitals in South Africa. It will be very interesting to learn and identify the challenges of other professional nurses at Psychiatric hospitals, regarding their perceptions on medication errors.
- South African scholars and Health care facilities would benefit greatly from a qualitative study on the perceptions of professional nurses regarding medication errors in Psychiatric hospitals.
- Further quantitative and qualitative research studies on the barriers to reporting medication errors by professional nurses in South African Psychiatric hospitals should be explored to increase the knowledge base on this phenomenon.

6.5. Limitations

The findings of this study cannot be generalized to the larger population of professional nurses, as this study was focused only on the perceptions of professional nurses regarding medication errors in a specific Psychiatric hospital in the Western Cape. The selected Psychiatric hospital has a population (n= 161) professional nurses, out of which the target group for this study emerged (n= 129). However, the sample size of this study was a lesser number (n= 69), due to the non-availability of certain respondents, and the lack of interest displayed by other professional nurses.

6.6. Conclusion

The purpose of this study was to determine the perceptions of the professional nurses on medication errors in a Psychiatric hospital in the Western Cape. The information gathered could be incorporated with in-service training, to assist professional nurses to identify

medication errors and to report them, as they occur, without fear of any disciplinary actions, or being judged as unprofessional.

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ADDENDUMS

Addendum A: Data Collection tool - Questionnaire

Perceptions professional nurses on medication errors in a psychiatric hospital in the Western Cape

Questionnaire number ☐

Section 1: Demographic information

Please complete the demographic section of this questionnaire. Select your response by circling (O) the most appropriate answer.

1.1	What is your age group?	1=21-30	2=31-40
		3=41-50	4=51-60
		5= above 60	
1.2	What is your gender?	1= Female	2=Male
1.3	How long have you been a professional nurse in total years?	1=2 to 5	2= 6 to 10
		3= 11 to 15	4= 16 to 20
		5= 21 to 25	6= 26 to 30
		7= more than 30	
1.4	In type of service are you currently working in?	1= General adult psychiatry	2=Child and adolescent psychiatry
		3=Forensic psychiatry	4= Intellectual disability
1.5	How many years have you worked in this area?	1= 2-5	2= 6-10
		3= 11-15	4= 16-20
		5= 21-25	6= 26- 30
1.6	What is your highest qualification in nursing education?	1= Diploma in nursing	2= Degree in nursing
		3= Advanced diploma in nursing	4=Master's degree in nursing
		5=Doctorate in nursing	
1.7	Which shift are you working?	07h00- 19h00	19h00- 07h00

Section 2: Barriers of reporting medication errors

Please rate the following questions on a five point scale:

1. Strongly disagree
2. Disagree
3. Neither agrees nor disagrees
4. Agree
5. Strongly agree

		Strongly disagree	Disagree	Neither agrees nor	Agree	Strongly agree

				disagrees		
2.1	Medication errors are not reported because of not knowing what constitutes a medication error.	1	2	3	4	5
2.2	Medication errors are not reported because of not knowing how to report medication errors in an incident report form.	1	2	3	4	5
2.3	Some medication errors are not reported because there is no negative outcome in the patient.	1	2	3	4	5
2.4	Some medication errors are not reported because professional nurses are afraid of the reaction they will receive from their peers.	1	2	3	4	5
2.5	Some medication errors are not reported because professional nurses are afraid of the reaction they will receive from the Nurse Managers.	1	2	3	4	5
2.6	Some medication errors are not reported because of fear of being stigmatized as unprofessional.	1	2	3	4	5
2.7	Some medication errors are not reported because of feeling guilty.	1	2	3	4	5
2.8	Some medication errors are not reported because of fear of lawsuit.	1	2	3	4	5
2.9	Some medication errors are not reported because professional nurse is covering up for a fellow peer.	1	2	3	4	5
2.10	Some medication errors are not reported because of being busy in the ward.	1	2	3	4	5

Section 3: Perceptions of Professional Nurses on causes of medication errors

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
3.1	Medication errors occur because the professional nurse fails to follow the 5 right's of Medication Administration.	1	2	3	4	5
3.2	Medication errors occur when the professional nurse is distracted by a patients or co-workers.	1	2	3	4	5
3.3	Medication errors occur when professional nurses is tired and exhausted.	1	2	3	4	5
3.4	Medication errors occur when there is confusion between 2 drugs with similar names.	1	2	3	4	5
3.5	Medication errors occur because of Doctor's writing on the prescription chart (illegible writing).	1	2	3	4	5
3.6	Medication errors occur when the Doctor prescribe the wrong dose.	1	2	3	4	5
3.7	Medication errors occur when the medication labels/packaging are of poor quality or damaged.	1	2	3	4	5
3.8	Medication errors occur because of the acuity level of the patients.	1	2	3	4	5
3.9	Medication errors occur because a professional nurse multi task while administering medication.	1	2	3	4	5

THE END

Thank you very much for your valued time and participation.

Addendum B: Informed Consent form

I ……. give consent to participate in the research study titled: **The perceptions of professional nurses on medication errors in a psychiatric**

hospital in the Western Cape. I understand that my participation is voluntary. I agree to participate in this research study by answering a questionnaire.

SIGNATURE OF THE PARTICIPANT…… DATE ……

If any questions arises regarding the research study, or about participating in the research study. Please feel free to contact (Luthando. Alpheus. Matiso).

Cell Number: 0825607018 or at

Email: luthando.matiso@gmail.com.

Mr. Luthando. A. Matiso_____DATE_____

Researcher

Dr S. Arunachallam_____DATE_____

Supervisor

Addendum C: Information Sheet

Project Title*:* Perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape.

What is this study about?

This is a research project being conducted by Luthando. Alpheus. Matiso from the University of the Western Cape. You are invited to participate in this research project because you are an advocate for the patient, it is believe that you are the best candidate, to come up with strategies to improve patient safety. The purpose of this research project is to determine the perceptions of professional nurses on medication errors occurring in a psychiatric hospital in the Western Cape.

What will I be asked to do if I agree to participate?

You will be asked to answer a self administering questionnaire that will take up to ± 15 minutes. This will take place in a Psychiatric Hospital in the Western Cape.

Would my participation in this study be kept confidential?

Your personal information is confidential and it will be kept as such. To help protect your confidentiality, there is no need to write your name in the questionnaire. The questionnaire will be filled in a private room and the information given by the participant will only be used for the purpose of the research study. When you are done the form will be put in an envelope that will be closed in front of you. All the answered questionnaires will be opened when the needed information has been collected from everyone that has been selected to participate in the research study. There will be a special key that will be used assigned to every questionnaire, this key will be used only when the so that when information is captured in a statistical programme. When a research report is written about this research study, your identity will be protected to the maximum extent as possible.

What are the benefits of this research?

This research is not designed to benefit you personally, but the results may help the investigator learn more about the perceptions of professional nurses on medication errors

occurring in the psychiatric hospital in the Western Cape. Information gained from the research study will be used during in-service training sessions to promote the recognition of medication errors. So that patient safety can be improved in the health service.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

Is any assistance available if I am negatively affected by participating in this study?

Should the participant be negatively affected by participating in the study or there are questions that he/she need explanation on you are welcomed to contact Luthando. Alpheus. Matiso. Should the research participants be affected emotionally or psychologically by participating in this research study, they will be referred to ICAS, free of charge.

What if I have questions?

This research is being conducted by Luthando. Alpheus. Matiso form the school of Nursing at the University of the Western Cape. If you have any questions about the research study itself, please feel free to contact Luthando. Alpheus. Matiso at: Address:

6 Conifer Street, Mandalay, 7785

Telephone number: 0825607018

E-mail: luthando.matiso@gmail.com

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact: Head of Department: Dr S. Arunachallam

E-mail:sarunachallam@uwc,ac.za

Dean of the Faculty of Community and Health Sciences:

Prof Jose Franz

University of the Western Cape

Private Bag X 17

Bellville

Email: chs-deansoffice@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee. Reference Number (15/780).

Addendum D: Application for permission to use data collection tool

Luthando. A. Matiso

6 Conifer Street

Mandalay

7785

Student no: 2520140

Elmira Petrova

Nursing division, institute of Health Care

University of Malta

Email: elmi@abv.bg

Dear Sir/ Madam

Re: Application for permission to use a data collection tool in a research study

I am a student who is doing a Nursing Masters Degree in Advanced Psychiatric Nursing at the University of the Western Cape. The topic of the research study is, ***Perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape.***

I would like to request permission to use data collection tool that was used in a research study of, ***Nurse's perceptions of medication error in Matla*** *(2010).*

Yours faith fully

L. A. Matiso

Email: luthando.matiso@gmail.com

Addendum E: Letter granting permission to use data collection tool

On Mar 23, 2015 8:49 PM, "Elmira Petrova" <elmi@abv.bg> wrote:

Dear Matiso

The permission is given by the author to use the questionnaire for your Master's Degree.

Please if you publish an article let me know.

Regards

Elmira Petrova MSc in Health Science, PhD student.

Addendum F: Ethics Clearance Letter

DEPARTMENT OF RESEARCH DEVELOPMENT

10 December 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by: Mr. L Matiso (School of Nursing).

Research Project: Perceptions of professional nurse on medication errors in a psychiatric hospital in the Western Cape.

Registration no: 15/7/80

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

Addendum G: Permission requested from DoH to conduct research

Dear Sir/ Madam

Re: Application for permission to conduct a research study in a health facility (Lentegeur Psychiatric hospital)

I am a post graduate student from The University of the Western Cape, I am studying towards a Nursing Masters Degree in Advanced Psychiatric nursing. I hereby apply for a permission to conduct a research study in the health facility. The topic of the research study is*: The*

perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape.

The participants will be the professional nurses from Lentegeur Psychiatric Hospital, the participants will need to complete the research questionnaire and participants will be selected by using a convenience sampling. Every participant will give consent before participating in this research study.

Participation is voluntary and there is a right to withdraw from the research study at any time without any risk of being penalised. The confidentiality is assured and the information provided by the participants will be used for the purpose of the research only.

The research has received an ethical clearance from the University of the Western Cape (registration no: 15/7/80).

Thank you

Your kind response will be highly appreciate

Yours sincerely

Luthando Alpheus Matiso (Researcher)

_____

Persal no: 54920191

Student number: 2520140

Cell phone number: 0825607018

e -mail: luthando.matiso@gmail.com

Addendum H: DoH Approval letter

Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857: fax: +27 21 483 9895
5th Floor, Norton Rose House., 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: WC_2016RP35_463
ENQUIRIES: Ms Charlene Roderick

University of the Western Cape
Private Bag X17
Bellville
7535

For attention: **Mr Luthando Matiso**

Re: **Perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape**

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact the following people to assist you with any further enquiries in accessing the following site:

Lentegeur Hospital **N Jacobs** **Contact No. 021 370 1105**

Kindly ensure that the following are adhered to:

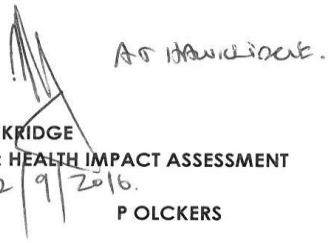
1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.

2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (**annexure 9**) within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).

3. In the event where the research project goes beyond the *estimated completion* date which was submitted, researchers are expected to complete and submit a progress report (**Annexure 8**) to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).

4. The reference number above should be quoted in all future correspondence.

Yours sincerely



DR A HAWKRIDGE
DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE: 12/9/2016.
CC **P OLCKERS** **DIRECTOR:MITCHELLS PLAIN / KLIFONTEIN**

Addendum I: Permission request from Health Facility to conduct research

Lentegeur Psychiatric Hospital

Highlands Drive, Lentegeur

Mitchells Plain

7785

Dear Sir/Madam

Re: Application for permission to conduct a research study in the health facility

I am a post graduate student from The University of the Western Cape, I am studying towards a Nursing Masters Degree in Advanced Psychiatric nursing. I hereby apply for a permission to conduct a research study in the health facility. The topic of the research study is*: The perceptions of professional nurses on medication errors in a psychiatric hospital in the Western Cape.*

The participants will be the professional nurses, the participants will need to complete the research questionnaire and participants will be selected by using a convenience sampling. Every participant will give consent before participating in this research study.

Participation is voluntary and there is a right to withdraw from the research study at any time without any risk of being penalised. The confidentiality is assured and the information provided by the participants will be used for the purpose of the research only.

Your kind response will be highly appreciate

Yours sincerely

Luthando Alpheus Matiso (Researcher)

Student number: 2520140

Cell phone number: 0825607018

e -mail: luthando.matiso@gmail.com

Addendum J: Approval Letter from Health Facility

Western Cape Government
Health

Lentegeur Hospital

29 March 2016

Lentegeur Hospital Research Ethics Committee
Lentegeur Hospital
Highlands Drive
Mitchells Plain
7785

To whom it may concern

Re: Research Project: Perceptions of professional nurse on medication errors in a psychiatric hospital in the Western Cape

Principal Investigator: Mr Luthando Matiso

University: Western Cape

Student number: 15/7/80

Thank you for your submission to the Research and Ethics committee at Lentegeur Hospital.
We note that your study has received ethical permission from the University of the Western Cape

We are pleased to confirm that the above research project has been granted ethical approval by the hospital Research Ethics Committee for the period between 29 March 2016- 31 December 2016.

Yours sincerely,

Dr L Moodley
Chair – Research Ethics Committee
Lentegeur Hospital

Highlands Drive, Mitchells Plain, 7785
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Private Bag X4
Mitchells Plain, 7785

Addendum K: Editorial Certificate

Idea Corporation t/a

AQUARIAN PUBLICATIONS

11 November 2017

To whom it may concern

Dear Sir/Madam

RE: Editorial Certificate

This letter serves to prove that the thesis listed below was language edited for proper English, grammar, punctuation, spelling, as well as overall layout and style by myself, publisher/proprietor of Aquarian Publications, a native English speaking editor.

Thesis title

Perceptions of professional nurses
on medication errors in a Psychiatric Hospital
in the Western Cape

Author

Luthando Alpheus Matiso

The research content, or the author's intentions, were not altered in any way during the editing process, however, the author has the authority to accept or reject my suggestions and changes.

Should you have any questions or concerns about this edited document, I can be contacted at the listed telephone and fax numbers or e-mail addresses.

Yours truly

E H Londt
Publisher/Proprietor

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