UNIVERSITI TEKNOLOGI MARA

EVALUATION OF MEDICATION ADMINISTRATION ERRORS IN GERIATRIC PATIENT IN MEDICAL WARDS IN TWO GOVERNMENT HOSPITALS OF KABUL, AFGHANISTAN

JAWED AHMAD ONEEB BIN ABDUL MOHAMMAD

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ABSTRACT

Evaluation of Medication Administration Errors (MAEs) among geriatric inpatients in the local setting requires more extensive investigation and time. There are not enough academic sources on the epidemiology of MAEs and patients' outcomes among geriatric inpatients. Hence, a prospective study was conducted to determine the prevalence, contributing factors, and effects of MAEs on patients' outcomes in geriatrics. This study was carried out in two government hospitals of Kabul city, Afghanistan. In Ibn Sina Emergency hospital, total number of observations was 456, and MAEs were calculated for 204 cases (44.7%). The most common type of MAEs was the wrong time (67.6%) followed by missed dose (15.7%), wrong concentration (5.0%), with 8 errors (3.9%) caused patient harm but did not need interventions. Multivariate analysis of variables indicates that the route of administration (adjusted OR: 4.26; 95% CI: 2.42 - 7.5; p = 0.000), type of medication (adjusted OR: 0.35; 95% CI: 0.17 - 0.74; p = 0.006), and number of nurses serving medicine (adjusted OR: 0.45; 95% CI: 0.29 - 0.71; p = 0.000) were significantly associated with MAEs. Medication administration errors were not significantly associated with total number of patients in the ward, medication administration time, medication supply system, and day of observations. In Ali Abad Teaching, hospital 414 cases of medication administration were supervised, among those 164 cases (39.6%) were with erroneous administration. Wrong time error (61%) was the most frequent type of error, followed by missed dose (25.6%), compliance error (7.3%), with 8 errors (4.88%), which were reached to the patients and caused harm, but did not require interventions. Result of multivariate analysis shows that route of administration (adjusted OR: 6.82; 95 % CI: 4.11 - 11.31; p = 0.000) medication supply system (adjusted OR: 3.03; 95% CI: 1.76 - 5.2; p = 0.000) number of nurses serving medicine (adjusted OR: 0.37; 95% CI: 0.17 - 0.84; p = 0.016) and time of administration (adjusted OR: 4.17; 95% CI: 2.06 - 8.49; p = 0.000) were significantly associated with MAEs. The total number of patients in the ward, type of medication and day of observations were not significantly associated with MAEs. Based on the result of the Chi square test, number of medications was significantly associated with the number of errors in both hospitals ($p < 0.05$). The medication distribution system should be always updated, and all healthcare professionals should work together as an allied team to reduce incidences of MAEs. Thus, the unwanted consequences of MAEs will be prevented in patients and society.

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CHAPTER ONE
INTRODUCTION

1.1 Research Background

The Institute of Medicine (IOM) defined patient safety as "*the freedom from accidental injury due to medical care or from medical error.*" It is the main worry and an indicator of health care quality services. Different factors and circumstances may affect patient safety (Kohn, Corrigan, & Donaldson, 2002; Westat, Joann, & Veronica, 2004). Among these factors, Medication Errors (MEs) are essential elements that threaten patient safety in all health care systems (Stratton, Blegen, Pepper, & Vaughn, 2004), and errors that occur in the medication processes that include ordering, transcribing, dispensing, and administrating. Medication Error is one of the top ten universal causes of morbidity and mortality throughout the world (Fontan, Maneglier, Nguyen, Brion, & Loirat, 2003; Lisby, Nielsen, & Mainz, 2005; Mahajan, 2011).

According to a study, in the United States of America, 1.5 million people suffer from MEs annually, which results in illness, death, and a cost of USD 3.5 billion in the form of productivity lost, health payment, and medical expenses (Bohand et al., 2009; Ferner & Aronson, 2000). The prevalence and potential harms of MEs to patients make them a valuable safety indicator in the health care systems, which should be reported and analysed reliably (Harding & Petrick, 2008).

Medication errors may result in serious complications that may cause high hospital admissions, long hospital stays, increased treatment costs, and high morbidity and mortality rates. Thus, the orientation of health care professionals has been based on preventing MEs (Kelishadi & Mousavinasab, 2012). The number of death cases due to MEs was higher in comparison to the number of death cases caused by car accidents, breast malignant tumours, human immunodeficiency virus/acquired immune deficiency syndrome, in USA (Fry & Dacey, 2007; Shahrokhi, Ebrahimpour, & Ghodousi, 2013). High-density population and limited health care professionals are the most significant challenges faced by health care systems in the determination and reduction of MEs in the Southeast Asian countries.

The World Health Organisation statistical analysis indicated 4.3 pharmaceutical personnel per 1000 population in the Southeast Asian countries, which is very low in