

A COMPARATIVE STUDY OF ADHERENCE AND NON-ADHERENCE TO MEDICATION AMONGST PATIENTS OF DIFFERENT SYSTEM SPECIFIC DISEASES

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ABSTRACT

Objective: To elucidate the frequency of intentional and unintentional non-adherence to medication among patients of different systemic diseases.

Study Design: Comparative cross sectional study.

Place and Duration of Study: Pak Emirates Military Hospital and Combined Military Hospital Rawalpindi, from Nov 2018 to Jun 2019.

Methodology: A total of 80 patients belonging to 4 system specific diseases Asthma, Myocardial infarction (MI), Stroke, Chronic Kidney Disease (CKD) were recruited. Twenty patients in each group were taken for comparison of medication adherence in their respective disease. Diagnostic Adherence Medication Scale (DAMS) was used for the purpose of data collection.

Results: Overall there were 24 (30%) females and 56 (70%) were male patients. Diagnostic adherence medication scale revealed that 40% of the sample was non adherent and 60% were adherent towards their respective medication. Further in non-adherent 23.57% were un-intentionally non-adherent. Non adherence was found more in stroke patients. Chronic kidney disease patients were found most adherent towards medications (70%).

Conclusion: The present study highlighted unintentional medication non adherence as a significant barrier for providing complete medical care to the patients of the selected diseases.

Keywords: Chronic kidney disease, Diagnostic adherence medication scale, Intentional and unintentional non-adherence, Medication non-adherence.

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INTRODUCTION

Medication non-adherence has its roots originating from ancient history and was first noticed by the father of medicine, Hippocrates (around 400 BC). Hippocrates observed that patients did not take their prescribed medication and complained of treatment failure later on. Robert Koch stipulated that noncompliant patients of tuberculosis were "vicious consumptives"¹. Adherence to medication is the process by which patients take their medications as prescribed, is composed of initiation, implementation and discontinuation. Initiation: occurs when patient takes the first dose of a prescribed medication. Discontinuation: occurs when the patient stops taking prescribed medication, for whatever

reason. Implementation: is the extent to which a patients actual dosing corresponds to the prescribed dosing regimen, from initiation until the last dose. Persistence: is the length of time between initiation and the last dose, which immediately precedes discontinuation. Types of non-adherence include Intentional non-adherence can be described as a process in which the patient actively decides not to use treatment or to follow treatment recommendations. Patients beliefs and level of cognition play role as important factors and unintentional non-adherence refers to unplanned behavior and is less strongly associated to the patients personal beliefs and level of cognition as compared to intentional non adherence². Garfield *et al* in 2012 conducted a study to create a scale DAMS in order to evaluate non adherence to medication³. It was concluded that DAMS was developed for routine monitoring of adherence in clinical practice. It was acceptable to patients

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taking single or multiple medication and valid when tested against other adherence measures. However, 'when required' medication needed to be excluded. Further tests of the DAMS against objective measures such as MEMS were in progress and reliability needs to be established. Further investigation of the carers' version of the DAMS was also required².

This matter still stands as a major obstacle to adequate treatment and is common to all departments of medicine with the only difference being of "less" or "more". Enhancing our knowledge about the matter and comparison of the state of the problem in various departments of medicine would definitely assist the present and future doctors in treating their patients³.

The objective of this study was to elucidate the frequency of intentional and unintentional non-adherence to medication among patients of different systemic diseases.

METHODOLOGY

This comparative cross-sectional study was conducted from November 2018 to June 2019. Data collection sites included Combined Military Hospital, Rawalpindi and Pak Emirates Military Hospital, Rawalpindi. Participation was voluntary and informed consent was obtained from all

size was of 80, with 20 patients belonging to each group through consecutive sampling. Data was collected after the informed consent DAMS¹ a medication adherence scale was applied to each patient after permission of its respective authors that consisted of a total of 6 questions and was used to determine the level of compliance of each patient over the last 14 days. SPSS-20 was used for the analysis of the collected data.

RESULTS

A total of 80 OPD patients were enrolled in the study. They were divided into four groups, 20 in each group. Groups were based on 4 system specific disease.

With respect to gender distribution, out of 80 patients 56 were male and 24 were female patients. Comparison of the living area of the patients of Asthma, Stroke, MI And CKD were shown in table-I.

Forty nine (61.25%) patients were taking care of their medicinal regime themselves and remaining 31 (38.75%) were depending on their caregiver for following the medicinal regime. Disease specific findings obtained regarding the dependency status of the patients on others were as follows (table-II).

Out of 80 patients 48 (60%) were adherent to

Table-I: Comparison of the living area of the patients.

Disease		Asthma	Stroke	Myocardial Infarction	Chronic Kidney Disease
Area	Urban	11 (55%)	19 (95%)	7 (35%)	7 (35%)
	Rural	9 (45%)	1 (5%)	13 (65%)	13 (65%)

Table-II: Dependency of patients on others for their medication.

Disease		Asthma	Stroke	Myocardial Infarction	Chronic Kidney Disease
Responsible for medication	Independent	16 (80%)	8 (40%)	14 (70%)	11 (55%)
	Ddependent	4 (20%)	12 (60%)	6 (30%)	9 (45%)

subjects. Study design and ethical aspects were approved by the ethics review committee of Army Medical College, Rawalpindi. The study consisted of recruiting data from patients belonging to four different disease categories namely stroke, Myocardial Infarction (MI), Chronic Kidney Disease (CKD) and asthma. Total sample

medications and 32 (40%) of the remaining were non adherent. Non adherence was found more in stroke patients ie 10 (50%) of the stroke patients were nonadherent. CKD patients were found most adherent towards medications ie 14 (70%) of CKD patients were adherent. Further findings a described below (table-III).

Over all out of 80, 49 (61.25%) were adherent and non-intentional non-adherence was more as compared to intentional non-adherence as described below (table-IV).

Table-III: Comparison of adherence and Non-adherence.

		Non Adherence	Adherence
Disease	Asthma	8 (40%)	12 (60%)
	Stroke	10 (50%)	10 (50%)
	Myocardial Infarction	8 (40%)	12 (60%)
	CKD	6 (30%)	14 (70%)

Table-IV: Overall level of adherence, intentional non-adherence and unintentional non-adherence.

Adherence	Frequency
Unintentional Non-adherence	19 (23.75%)
Intentional Non-adherence	12 (15%)
Adherence	49 (61.25%)

Lastly the reason skipping highlighted non intentional non-adherent patient "I forgot to take" , "unable to take" and intentional non-adherence "I decided not to take " is described as follows (table-V).

Table-V: Reason of skipping.

		Reason of Skipping		
		I Decided Not To Take It	I Forgot To Take It	I Was Unable To Take It
Non Adherence	Unintentional	-	10	10
	Intentional	12	-	-
	Total	12	10	10

DISCUSSION

In this research we studied and compared non-adherence towards medicine of patients belonging to four different system specific disease i.e Stroke, Myocardial infarction (MI), Chronic Kidney Disease (CKD) and Asthma population in Military Hospital Setups. Data was taken using DAMS i.e Diagnostic Adherence to medication scale. As 80 patients were taken for the study in which 20 belonged to each group. Overall Stroke was found to have most non complaint subjects towards the medication i.e about 50%. Non compliance to the medication in Stroke population was also highlighted in a study

conducted by Cheiloudaki and Alexopoulos in 2019 that was around 31.4% of stroke patient found to have sub optimal compliance however in this study they also highlighted factor affecting the compliance in stroke patients those were patient mental state, doctor- patient relationship and patients perception about the medication necessity^{4,8,9}.

In this study non adherence was also found in MI that was about 40%. Non Adherence in MI has been also previously highlighted in various studies such as Choudary and Winkelmayr gang (2008) were they also considered the clinical and economical impact of non adherence and also suggested adherence intervention in the concerned population and concluded it is that no size fits all as every patient has his or her own sets of reason for not following the prescribed medication^{5,10-12}.

Asthma also found to have shown 40% of non compliant subjects in the study, poor adherence to treatment of asthma was also cited in a systemic review by Engelkes *et al* 2014 were

good adherence in asthma was related to fewer severe asthma exacerbations and vice versa^{6,13-14}.

In the study CKD shown the least non adherence towards medication about 30% and in a systemic review conducted by Nielson *et al* 2017 it was highlighted that nonadherence in this population was associated with barriers like cost of medicine and inability to understand indication and effect of medicine^{7,15-18}.

It was also noticeable in this present study that overall unintentional nonadherence (23.75%) was more as compared to intentional non adherence (15%). Reason Skipping was " I forgot to take it " in unintentional nonadherence and "I

decided not to take it " " I was unable to take it " in intentional nonadherence.

Subjects who claimed that they decided not to take it quoted, 'They believed that certain medication were causing side effects like blood vomit , headache , nausea.' Subjects who claimed that they were unable to take it quoted, 'Soldiers mainly because of lack of availability of drug in the area they were posted to-however for some of them the matter was taken care of by shifting them to a better region', Dose given to them finished before their next with the associated factor of having to travel from a far off region to have a check up.

CONCLUSION

The present study highlighted unintentional medication nonadherence as a significant barrier for providing complete medical care to the patients of the selected diseases.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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