AN IMPACT OF CLINICAL PHARMACIST IN IMPROVING MEDICATION ADHERENCE AND QUALITY OF LIFE OF PATIENTS IN RURAL AREA

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ARTICLE INFO	ABSTRACT
Article history Received 09/05/2017 Available online 31/05/2017 **Keywords** Clinical Pharmacists, Medication Adherence, Quality Of Life, Rural Area.	The patient-centered medication management program by the clinical pharmacist has been characterized as a model of health care delivery that improves the patient care. These services are intended to be continuous, team-based, and actively involve patients and their care givers. Despite the critical importance of medication, nonadherence to prescribed drug treatments has been recognized as a problem worldwide and may be the most challenging aspect of treating the patients. Nonadherence to medication has a negative impact on the course of illness resulting in relapse, rehospitalization, longer time to remission, and attempted suicide and also contribute to the already high costs of the disease to healthcare systems. The study aimed to assess the impact of clinical pharmacists in improving medication adherence and quality of life of patients in rural area. A prospective study was conducted in the community setting for duration of 6 months and subjects were recruited based on inclusion and exclusion criteria. Morisky 8-Item Medication Adherence scale was used to assess medication adherence of patients & WHOQOL-BREF questionnaire was used for assessing quality of life of patients. A total of 252 subjects were enrolled and relevant data was collected and assessed. Majority of the subjects were found to be medication non-compliant before counselling and were found to adherent after clinical pharmacists counseling, QOL of patients were also improved. Based on the results obtained this study emphasizes that clinical pharmacists counselling play a crucial role in improving medication adherence and quality of life of patients.

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INTRODUCTION

The patient-centered medication management program by the clinical pharmacist has been characterized as a model of health care delivery that improves the patient care. These services are intended to be continuous, team-based, and actively involve patients and their care givers. Despite the critical importance of medication, nonadherence to prescribed drug treatments has been recognized as a problem worldwide and may be the most challenging aspect of treating the patients. Compliance has been defined as, "the extent to which a person's behavior coincides with medical or health advice". The word compliance has been condemned over the past 20 years because it signifies an idea of a paternalistic relationship between the physician and the patient, and therefore adherence has been adopted as a more equitable term [1]. Nonadherence to medication has a negative impact on the course of illness resulting in relapse, rehospitalization, longer time to remission, and attempted suicide and also contribute to the already high costs of the disease to healthcare systems. Reducing nonadherence to medications has the potential to reduce morbidity and costs of care substantially. That would improve the welfare of patients and reduce the use of resources Therefore it is important to identify the key factors contributing to nonadherence and their consequences. In addition, assessing causes and consequences of nonadherence together may highlight the importance and complexity of adherence to medication. However, we are not aware of any comprehensive review of both the causes and consequences of nonadherence in. Furthermore, there is a need for a review that investigates whether the data allow for a quantitative assessment of the specific link between non adherence and hospitalization

FACTORS ASSOCIATED WITH NON-ADHERENCE & EVALUATION

Several factors are thought to contribute to non-adherence in patients. For example, the type of medication is thought to be important due to differences in the nature of side effects associated with each problems commonly experienced with typical, but many of the other side effects, such as weight gain and sedation are common to both classes of antipsychotics. Fenton et al (1997) categorise the range of factors affecting adherence into patient-related, medication-related, environmental factors, and psychodynamic considerations [2, 3, 4]. Direct method is detection of the drug or its drug metabolites (generally in serum or urine), Indirect methods include Tablet count, Electronic monitoring, Pharmacy records, Psychometric scales, Questioning the patient, Questioning the relatives, Clinical judgement. All the available methods have advantages and disadvantages. Detection and determinations of drug levels in serum or urine demonstrate whether the patient has taken the medication but are restricted to recent intake and influenced by inter-subject pharmacokinetic variations [7,8&9]. Furthermore, with novel antidepressant and antipsychotic drugs, such tests are not adequate to determine the amount of drug the patient has taken. Direct observation is difficult in the case of outpatients. Interviews can be easily conducted but their results depend on the skill of the interviewer, the way of questioning and the reliability of the patient. Tablet count is easy and cost free but offers no information on the adherence pattern; furthermore the amount of remaining tablets can be intentionally altered by the patient. Useful pharmacy records (new periodic dispensations) need to be complete and include all prescriptions and all pharmacies the patient Might access.

SCALES

A number of scales were developed, aimed at assessing non-adherence some of them were validated some scales were designed to evaluate non-adherence itself; others were focused on related aspects such as the attitude toward medication. Since all adherence measures have strengths and weaknesses, selection and justification of assessment method should depend on several factors, such as type of adherence area to be evaluated (attitude vs adherence itself), type of adherence of interest (pattern of use vs discontinuation), time availability, or setting (clinical practice vs research study). Whenever possible, those scales with better properties should be the first choice.

MORISKY MEDICATION ADHERENCE SCALE [8,9]

The Morisky Medication Adherence Scale (MMAS) is a generic self-reported, medication-taking behavior scale, validated and used for a wide variety of medical conditions.

MMAS-8 consists of eight items with a scoring scheme of "Yes" = 0 and "No" = 1 for the first seven items and a 5-point Likert response for the last item. The items are summed to give a range of scores from low adherence to high adherence.

ADHERENCE	MMAS-8 SCORE
High adherence	0
Medium adherence	1-2
Low adherence	3-8

WHO QOL-BREF

In recent years there has been a broadening in focus in the measurement of health beyond traditional health indicators such as mortality and morbidity, and quality of life (QOL) has turned into an important outcome in clinical and interventional studies. Different definitions of QOL have been proposed by different researchers or Organizations. The World Health Organization (WHO) has defined "QOL" as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". Recently, many general instruments have been used to measure QOL in different groups (e.g., patients, workers, population and so on). One of these instruments is the World Health Organization QOL-BREF (WHOQOL-BREF) questionnaire which captures many subjective aspects of QOL. This questionnaire is one of the best known instruments that has been developed for cross-cultural comparisons of QOL and is available in many languages. This instrument, by focusing on individuals' own views of their well-being, provides a new perspective on life. The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment. The WHOQOL-BREF is a shorter version of the original instrument that may be more convenient for use in large research studies or clinical trials.

ROLE OF CLINICAL PHARMACIST [10-16]

Patients with Chronic conditions have problems with recurrent hospital visits, adherence to complex care plans, long-term disease and treatment monitoring, behaviour modification, and self-management. For the many patients with multiple co-morbidities , overlapping or diverging care plans may further complicate these processes. The patient-centered community medication management program by the clinical pharmacist has been characterized as a model of health care delivery that improves the patient care. These services are intended to be continuous, team-based, and actively involve patients and their care givers . Clinical pharmacists are responsible to conduct a complete patient interview on medical history, social and family history, history of allergy, use of Over The Counter drugs, dietary supplements and alternative systems of medicine.Clinical pharmacists perform review of drug therapy and gathers information from medication history interview which helps to recognize and resolve drug related problems such as medication use with out indication, untreated indication, improper drug selection , sub therapeutic dose ,over dosage, Adverse drug interactions, Dose/drug related issues, such as confusing dosage schedules, incomplete/missing directions, duplication of medicines, disposal of unwanted or expired drugs, storage issues, problems with brand substitution. Consumer medication management issues such as continuing ceased medications, incorrect medicine use ,signs of adherence issues, confusion or misunderstanding of medicine purpose. Identification of need for written/verbal information for the patient regarding the safe and effective use of medicines ,therapeutic devices, compliance aids.

Other Clinical pharmacist activities in the medication management programme [17-22]

•   Act as a Information resource for safe use of medicines.
•   Obtaining information regarding the Self-administration, Dose and frequency issues of the drugs, Storage of medicines, Use of non-prescription medicines, Conducting Medication review & Alteration of prescribed formulations.

Generally Non compliance in turn results in the worsening of patient condition and attenuation of symptoms. Suboptimal attitudes of the patients towards illness and a lack of confidence highlights the need for different educational approaches to provide clinical pharmacy services to the patients. Pharmacist has to Communicate with the patient and Prevents the polypharmacy which in turn decreases the rates of hospitalization and mortality. As experts in pharmacotherapy, pharmacists can provide complementary skills, knowledge and attitudes to other health care professionals within a multidisciplinary team context. Specifically pharmacists may contribute to health care teams by detecting and resolving or preventing drug related problems; helping to ensure the safe and efficacious use of medicines; providing comprehensive drug information to patients and other health care professionals, Promoting medication adherence; and quality use of medicines. Reinforcing primary prevention and health promotion and lifestyle modification activities in the community. The pharmacists were able to identify people who were at high risk of the disease who had previously gone undetected, screen them and refer on to appropriate health services if required. Pharmacist based intervention to improve adherence includes the use of unit-of-use packaging, a pharmacist education session, refills reminders and notification of clinicians when patients failed to fill prescriptions, medication reminder devices, and using one pharmacy for all prescriptions. Most importantly, pharmacists can assist patients with chronic diseases by showing empathy, providing encouragement and support, and reminding them that adhering to their therapy is the most effective tool in managing the disease. As one of the most accessible health care professionals, pharmacists can positively impact patient outcomes by stressing the importance of medication adherence, as well as encouraging patients to maintain regular visits with their primary health care provider. When counselling patients, pharmacists should remind them about the benefits of medication therapy and educate them regarding the potential adverse effects of the selected medication. Successful therapy starts when patients have a thorough understanding of their therapy and the importance of therapy adherence hence a study was designed to assess the impact of clinical Pharmacists.

AIM:

To assess the impact of clinical pharmacist in improving medication adherence and quality of life of patients in rural area

OBJECTIVE:

•   To find out clinical pharmacist role in improving medication adherence
•   To evaluate quality of life of patients

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STUDY METHODOLOGY:

A prospective study was conducted in the community setting for a duration of 6 months period i.e. from January 2016 to June 2016.Subjects of either gender of age above 18 years willing to participate and answer the queries were included in the study. Subjects below 18 years of age and unwilling to participate in the study were excluded. Morisky 8-Item Medication Adherence scale was used to assess medication adherence of patients. Scale consists of 8 questions of which for every "Yes" response score of 0 is given and for response of " No" a score of 1 is given . A total score of <6 represents low adherence, 6 to <8 represents medium adherence and 8 represents high adherence. For assessing quality of life of patients WHOQOL-BREF questionnaire was used which consists of 26 questions divided into four parts of which questions 1-2 represents about life in last four weeks a scoring of 1 for very poor to 5 for very good is used, questions 3-9 represents about how much you have experienced certain things in last four weeks a scoring of 5 for not at all to 1 for an extreme amount is used, questions 10- 25 represents about how completely you experience or were able to do certain things in last four weeks a scoring of 1 for very poor & very dissatisfied to 5 for very good & very satisfied is used and question 26 represents about how often you have felt or experienced certain things in last four weeks a scoring of 5 for never to 1 for always is used. The obtained results were tabulated and was assessed using suitable statistical software.

RESULTS

A total of 286 subjects were identified and were explained about the study, 34 of them refused to participate in the study. Study was carried out with 252 study participants.

TABLE 1
PATIENT CHARACTERISTICS

TABLE 1 depicts Age, Gender, Employment, Education, Income level/month, Family size, care giver status.

Parameter	No of subjects (N=252) n	Percentage (%)
Age		
18-30	37	14.6%
30-50	134	53.1%
>50	81	32.1%
Gender		
Male	138	54.7%
Female	114	44.2%
Employment		
Employed	152	60.3%
Unemployed	100	39.6%
Education		
Illiterate	79	31.3%
Primary	106	42%
Secondary	54	21.4%
Graduate	13	5.1%
Income level/month		
<10,000	155	61.5%
10,000-20,000	84	33.3%
>20,000	13	5.1%
Family size		
<3	95	37.6%
3-5	128	50.7%
>5	29	11.5%
Caregiver		
Parents	69	27.3%
Spouse	168	66.6%
Relative	15	5.9%

TABLE 2: COMPARISION OF MEAN SCORES OF MMAS-8 BETWEEN VISITS.

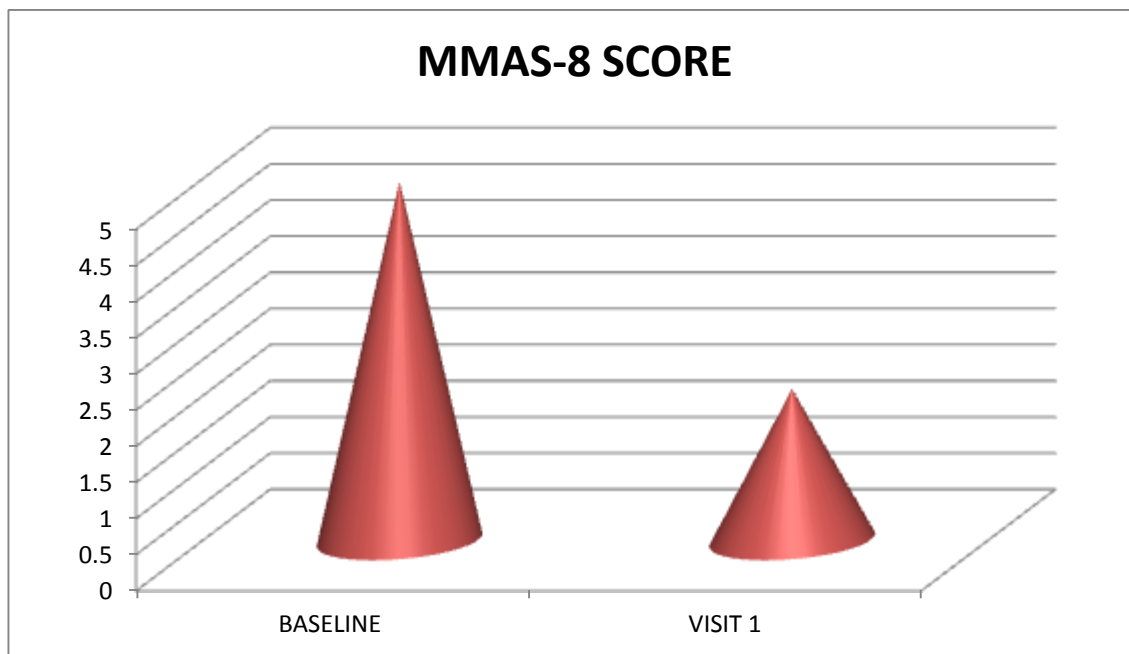| ASSESSMENT PARAMETER	BASELINE	VISIT-1	P-VALUE
MMAS-8 SCORE	4.96 ± 1.83	2.09 ± 1.39	< 0.0001****

FIGURE 1: COMPARISION OF MEAN SCORES OF MMAS-8 BETWEEN VISITS.

TABLE 3: COMPARISION OF MEAN SCORES OF WHO-QOL BETWEEN VISITS.

WHO QOL	BASELINE	VISIT 1	P-VALUE
DOMAIN 1	8.0 ± 1.69	10.86 ± 1.80	< 0.0001 ***
DOMAIN 2	7.87 ± 1.90	9.65 ± 2.55	< 0.0001 ***
DOMAIN 3	8.20 ± 2.48	11.36 ± 2.29	< 0.0001 ***
DOMAIN 4	7.78 ± 1.58	10.64 ± 2.30	< 0.0001 ***

P-value of < 0.0001*** represents highly significant.
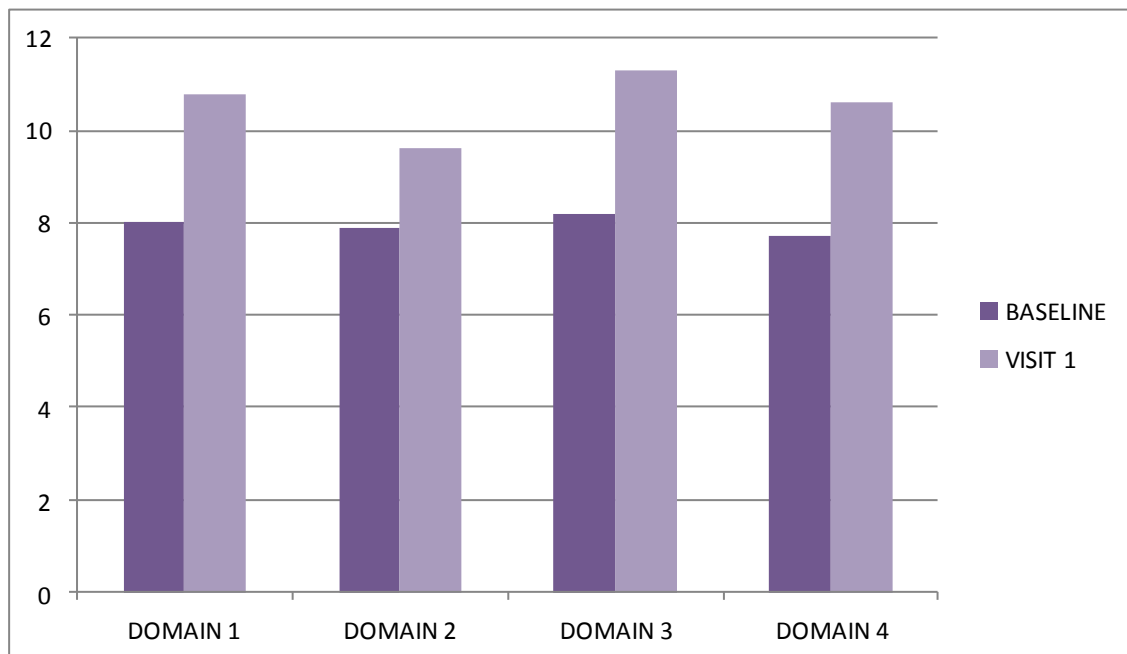

FIGURE 2: COMPARISION OF MEAN SCORES OF WHO-QOL BETWEEN VISITS.

DISCUSSION

Out of 252 subjects enrolled majority of the subjects were within the age group of 30-50 yrs, and were males, employed, had primary education, income level per month was <10,000, family details were 3-5 in no and majority subjects care givers were spouse. Initially at base line the MMAS-8 score was high after effective patient counseling the score was reduced which strongly indicates that counseling increased the adherence of patients. This study was in concordance with study done by Pei-Xi Zhao et al 2012[23] on "If pharmaceutical care could Improve antihypertensive medication adherence and BP control, especially by clinical pharmacists interventions" and concluded that pharmacists can effectively participate in health education and promotion to improve blood pressure control. Quality of life of patients were also improved after patient counseling as measured using the WHO QOL, patients condition improved by each visit. P-value was calculated by using unpaired t-test and the results are found to be statistically highly significant ($p<0.0001***$). This study was in concordance with study done by Dixon Thomas et al[24]2009 on "Effect of Patient Counseling on Quality of Life of Hemodialysis Patients In India which concluded that patient counseling is an effective way to improve health-related QOL and awareness

CONCLUSION

This study concludes that clinical Pharmacists can positively impact patient outcomes by stressing the importance of medication adherence, Specifically pharmacists may contribute to health care teams by detecting and resolving or preventing drug related problems; helping to ensure the safe and efficacious use of medicines; providing comprehensive drug information to patients and other health care professionals, Promoting medication adherence; quality use of medicines and quality of life of patients. Recommended Future Research.

LIST OF ABBREVIATIONS:

QOL   : Quality of Life
MMAS   : Morisky Medication Adherence Scale
WHO   : World Health Organization
WHOQOL-BREF   : World Health Organization Quality-of-Life Scale
OTC   : Over the counter

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CONFLICTS OF INTEREST:

None

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