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Assessing the impact of medication therapy management on health outcomes in underserved populations

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ABSTRACT

The medication therapy management service in collaboration with psychiatrist was initiated in order to enhance pharmacotherapy and the patient care process. The proactive role of the pharmacist in initiating and providing Patient medication review, Pharmaceutical care plan, Evidence based drug Information and intervention services under MTM services resulted in optimal clinical and economic outcomes for patients with depression, BPAD, ADS, and schizophrenia. Significant improvement in the clinical condition, medication adherence, quality of life and patient satisfaction was observed in test group patients compared to the control group. The pharmacist - psychiatrist collaborative approach helped in early detection and resolution of DRPs, provision of patient education and clinical care services that further resulted in improved clinical and humanistic outcomes besides reduction in economic burden. Patients with psychiatric illness are often has associated with drug related problems. Due to the rapid rise in psychotropic drugs and the increasing prevalence of concurrent medical conditions, pharmaceutical regimens are more complex and more likely to cause drug interactions, side effects, poor adherence, and higher costs. Pharmacists in multidisciplinary psychiatry team as educators, consultants, researchers, and Medication Therapy Management (MTM) services providers for nearly 40 years. To assess the impact of pharmacist-psychiatrist initiated medication therapy management services. The pharmacist - psychiatrist collaborative approach helped in early detection and resolution of DRPs, provision of patient education and clinical care services that further resulted in improved clinical and humanistic outcomes besides reduction in economic burden.

Keywords: *Pharmaceutical, medicine, healthcare delivery systems.*

1. INTRODUCTION

According to World Health Organization (WHO), psychiatric disorders are the serious public health concern (1). It encompasses a broad range of disorders ranging from asymptomatic levels to very severe disorders. Worldwide statistics estimates that 792 million individuals are suffering from psychiatric disorders (18). According to epidemiological study conducted in India, 9.5 to 102 per 1000 people are having mental and behavioural problems (11). The therapy for psychiatric disorders are generally not seen as urgent by patients or the caretakers when compared to other clinical conditions.(3). If psychiatric disorders are left untreated, these problems cause a huge toll in terms of suffering, incapacity, and economic loss for individuals aswell as their families (4). As a consequence of the high prevalence of psychiatric disorders, the rapid growth of the availability of psychotropic drugs, presence of other medical conditions have become increasingly complicated and these consequences raises the possibility of Drug-Related Problems (DRPs) in patients receiving psychotropic drugs.(2).(15). DRPs may interfere with the health-care outcome, raise healthcare costs, and result in significant patient morbidity and death, among other consequences of drug use. Health-related outcomes are secured with WHO.

(6). The findings of Kemel et al. revealed that 31.9 percent of patients were admitted to the hospital because of DRPs (5). Patients with a persistent psychiatric disorder have 2.22 times higher death rate than the normal people (16). The Adverse Drug Reactions (ADRs) of psychotropic drugs is another major factor in the expansion of health consequences in patients with psychiatric disorders (7). (12). The high frequency of various chronic medical conditions in the psychiatric patient population, which often go undiagnosed and untreated, is one possible risk factor for an elevated risk of mortality. Furthermore, numerous psychotropic drugs have been linked to weight gain. In those with major psychological disorders, weight gain can raise their chance of developing chronic illnesses like diabetes and heart disease, decreasing their lifespan and causing serious morbidity (13). An investigation among patients diagnosed with schizophrenia from the landmark Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) study, revealed that the rates of nontreatment for diabetes, hypertension, and dyslipidemia at baseline were 30.2%, 62.4%, and 88%, respectively (9).

2. BACK GROUND OF THE STUDY

Medication Therapy Management is termed as a service or combination of services designed to improve the therapeutic results of individual patients. It has been shown that MTM services offered by pharmacist may significantly enhance clinical results and simultaneously minimizing the detrimental effects of drugs used to treat chronic conditions (28). Also, MTM services are essential to patients with numerous chronic diseases, many prescriptions, and high drug expenditures, which ensures that drugs are properly prescribed and administered.(8). In the United States, team-based Collaborative Practice Agreements (CPAs), is the suggested methods for enhancing pharmacists' care services, which enable pharmacists to fortify relationships with various healthcare teams in order to enhance patient care in the psychiatric department (29). The scope of practice for pharmacists has been jointly decided by the American Society of Internal Medicine and the American College of Physicians, which supports an enlarged role for pharmacists by including the collaboration agreements with physicians. In the United States, pharmacist collaboration with physicians is very common and psychiatric pharmacists have provided collaborative services as educators, advisors, researchers, and played a major role among the multidisciplinary treating team in the field of psychiatric care (30,31). In most emerging nations, including India, the idea of a pharmacist and psychiatrist collaborating is relatively novel (32). The clinical pharmacists in India are able to counsel patients, encourage them to take their medications as prescribed, educate patients about the complications associated with treatment cessation and other issues, and give information on drug administration. Hence, the purpose of this research is to provide the pharmacist-psychiatrist collaborative medication therapy management services among the patients with psychiatric disorders and evaluation of clinical, humanistic, and economic outcomes.

- To evaluate Pharmacist-Psychiatrist collaborative Medication Therapy Management services in a tertiary care hospital.
- To initiate Pharmacist-Psychiatrist Collaborative Medication Therapy Management services.
- To design and validate the patient education materials for selected psychiatric diseases.
- To assess the impact of collaborative Medication Therapy Management services on clinical, humanistic and economic outcomes.

3. METHODOLOGY

This study was conducted in a tertiary care teaching hospital, South India, over a period of three years from January 2019 to December 2021. This study had initiated and implemented medication therapy management services in patients diagnosed with Depression, Bipolar Affective Disorder (BPAD), Alcohol Dependency Syndrome (ADS) and Schizophrenia. The study evaluated the pharmacist-psychiatrist MTM services and the resultant outcomes including clinical, humanistic and economic outcomes in patients with psychiatric disorders.

3.1 3.1 Study Design

The study was carried out in the psychiatric department of JSS Hospital, Mysuru. It is an 1800 bed multispecialty tertiary care teaching hospital that serves the patients residing in and around Mysuru district. The psychiatric department has inpatient services comprising of two units and ambulatory care services. On an average 50-60 patients are being treated daily on ambulatory basis.(10) The patient care is being provided by multidisciplinary team comprising of six psychiatrists, four clinical psychologists, one psychiatric social worker, eleven psychiatric postgraduate students, one psychiatric nurse and one clinical pharmacist. This is a prospective, stratified randomized control study executed in two phases. Phase I comprised of initiation and implementation of collaborative MTM services and Phase II comprised of assessment of outcomes of collaborative MTM services.(14). This study was carried out over a period of three years from January 2019 to December 2021.

3.2 Study Population

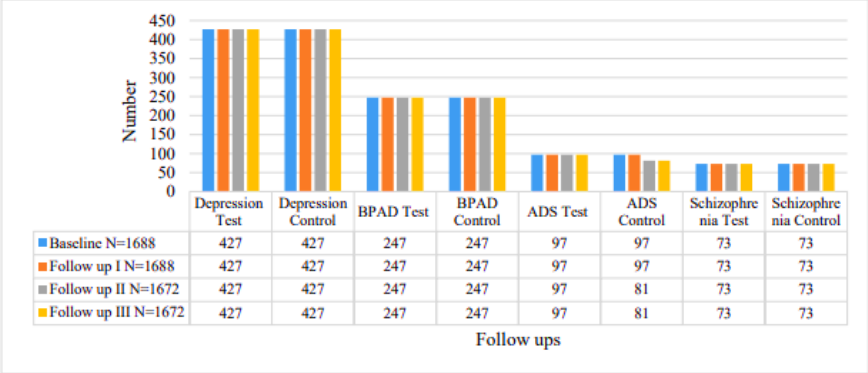
This study included all those patients presented with psychiatric disorders who visited and treated in the department of psychiatry on ambulatory care basis.

3.3 Statistical analysis

The continuous variables were presented as mean ± standard deviation (SD). Categorical variables (age, gender, education, occupation, income, socioeconomic status, family history of psychiatric illness, residency, comorbid condition) were presented as absolute numbers and percentages. (17). The chi-square test was used to determine the statistical differences in clinical outcomes (CGI-Severity, CGI-Improvement, Medication Adherence) and humanistic outcomes (quality of life and patient satisfaction) between test and control groups. Statistical significance was determined by the P value at the 95% confidence level being less than 0.05. Economic impact was assessed using cost effective analysis model between the test and control groups and demonstrated in incremental cost-effectiveness ratio (ICER). All statistical analyses were performed using Statistical Package for Social Sciences (IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY, USA: IBM Corp).

4. RESULTS

The enrolled patients were randomized using stratified randomization method and they were assigned to test (n=844) and control (n=844) groups. At baseline, of the 844 test group patients, majority of the patients were diagnosed with depression [n=427, 50.5%] followed by BPAD [n=247, 29.2%], ADS [n=97, 11.4%], and Schizophrenia [n=73, 8.4%]. Overall, 99% (n=1672) of the study population completed all the three follow ups. The details of the follow ups of the study patients are presented in Figure 1.



	Depression Test	Depression Control	BPAD Test	BPAD Control	ADS Test	ADS Control	Schizophrenia Test	Schizophrenia Control
Baseline N=1688	427	427	247	247	97	97	73	73
Follow up I N=1688	427	427	247	247	97	97	73	73
Follow up II N=1672	427	427	247	247	97	81	73	73
Follow up III N=1672	427	427	247	247	97	81	73	73

Figure 1: Details of follow ups of the study patients

The most common class of drug prescribed was sedatives & hypnotics [n=993, 21.74%] followed by antidepressants [n= 861, 18.8%], antipsychotics [n=819, 17.9%] and mood stabilizers [n=480, 10.51%]. The classes of psychotropic drugs prescribed are presented in Figure 2.

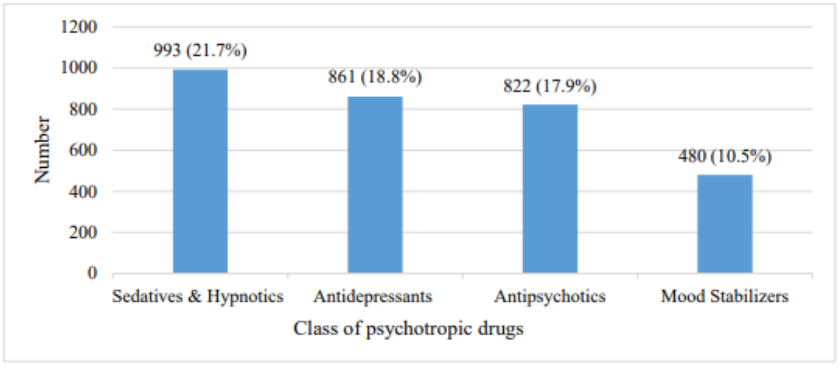


Figure 2: Classes of psychotropic drugs prescribed

The clinical pharmacist spent an average of 15 minutes with the test group patients in providing MTM services. Overall 3014 MTM services were provided among 844 test group patients. Of the 3014 MTM services, pharmacist interventions accounted for 59.5% (n=1795) while patient counselling and drug information services accounted for 28.1% (n=844) and 12.4% (n=375) respectively. The medication therapy management services provided to test group patients are provided in Figure 3.

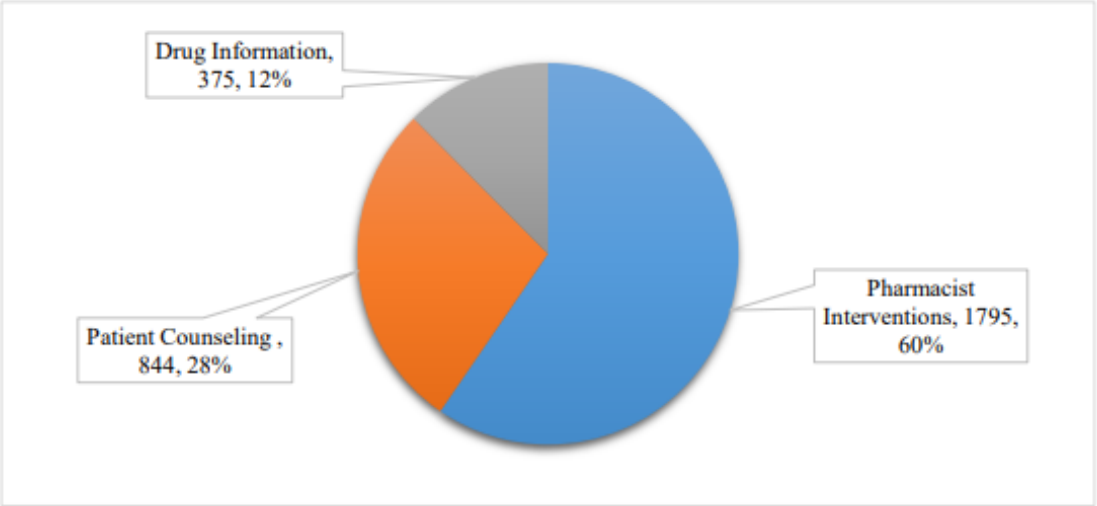


Figure 3: Medication therapy management services provided

Of the 1795 DRPs detected, majority of DRPs were related to adverse drug reactions [n=902, 50.2%] followed by drug duplication [n=210, 11.6%], sub-therapeutic dose [n=179, 9.9%], drug-drug interactions [n=164, 9.1%] and untreated indication [n=149, 8.3%]. The pattern of DRPs identified in test group are presented in Figure 4.

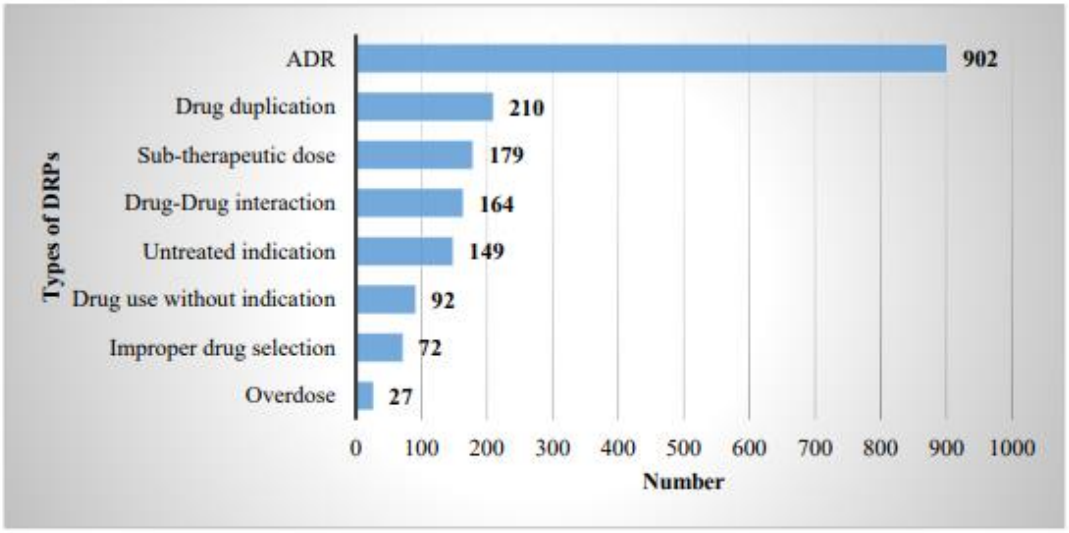


Figure 4: Pattern of drps identified in test group patients

Patient satisfaction on clinical care services was measured in all patients at each follow up. At baseline, only 6.2% (n=53) of patients each in test and control group were “extremely satisfied” on clinical care services. Over the follow ups, the rate of patient satisfaction among test group patients increased compared to control group patients. At follow up III, 82.8% (n=699) of test group patients responded that they were “extremely satisfied” on the clinical care services while in control group, only 12.2% (n=103) of patients responded that they were “extremely satisfied” on the clinical care services. The overall patient satisfaction on clinical care services are presented in Figure 5.

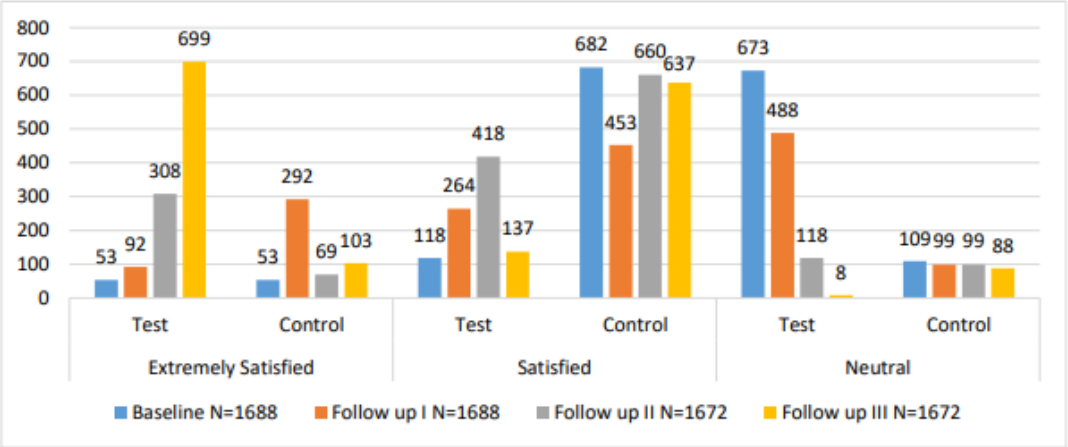


Figure 5: Overall patient satisfaction on clinical care services

Medication therapy management services, is a standard of care in which all medications for an individual patient are assessed to determine appropriateness, effectiveness, safety, adherence also beneficial in long-term follow-up at outpatient settings. Furthermore, adhering to MTM-based practices were addressed the requirements of patient and build proficient association among the health care professionals. The collaboration between a psychiatrist and pharmacist can provide comprehensive medication therapy management services, as direct patient care to patients with psychiatric disorders. Drug-related problems were common in patients taking psychotropic medications due to the association of multiple comorbidities and related polypharmacy. In the current study, patient related and drug related factors were the major causes of DRPs. Medication non-adherence was common among the patients with psychiatric disorder due to the myths and misconceptions, lack of insight on disease and long-term therapy. In the current study, patient related and drug related factors were associated with medication non-adherence.

5. CONCLUSION

The medication therapy management service in collaboration with psychiatrist was initiated in order to enhance pharmacotherapy and the patient care process. The proactive role of the pharmacist in initiating and providing Patient medication review, Pharmaceutical care plan, Evidence based drug Information and intervention services under MTM services resulted in optimal clinical and economic outcomes for patients with depression, BPAD, ADS, and schizophrenia. Significant improvement in the clinical condition, medication adherence, quality of life and patient satisfaction was observed in test group patients compared to the control group. The pharmacist - psychiatrist collaborative approach helped in early detection and resolution of DRPs, provision of patient education and clinical care services that further resulted in improved clinical and humanistic outcomes besides reduction in economic burden.

REFERENCES

[1] Okolo CA, Arowoogun JO, Chidi R, Adeniyi AO. Telemedicine's role in transforming healthcare delivery in the pharmaceutical industry: A systematic review. World Journal of Advanced Research and Reviews. 2024;21(2):1836-56.

[2] Hua ZL. Elucidating the Role of Cytochrome p450 Enzymes in Drug Metabolism and Interactions. Clinical Journal for Medicine, Health and Pharmacy. 2024 Sep 30;2(3):1-0.

[3] Kala T, Jayabal R. Use and user perception of library collection and services by the Cherraan's College of Nursing students, Coimbatore, Tamil Nadu. Indian J Inf Sources Serv. 2019;9(2):34-7.

[4] Al-Worafi YM. Pharmacy Education, Practice, and Research in Mexico.

[5] Aminabee S. The future of healthcare and patient-centric care: Digital innovations, trends, and predictions. InEmerging Technologies for Health Literacy and Medical Practice 2024 (pp. 240-262). IGI Global.

[6] Hui H, An X, Wang H, Ju W, Yang H, Gao H, Lin F. Survey on Blockchain for Internet of Things. J. Internet Serv. Inf. Secur.. 2019 May;9(2):1-30.

[7] Al-Worafi YM. Pharmacy Education Training in Developing Countries. InHandbook of Medical and Health Sciences in Developing Countries: Education, Practice, and Research 2024 Mar 20 (pp. 1-17). Cham: Springer International Publishing.

[8] Pieters W. Representing humans in system security models: An actor-network approach. J. Wirel. Mob. Networks Ubiquitous Comput. Dependable Appl.. 2011 Mar;2(1):75-92.

[9] Alsharyah IH, S Zudaid HM, Alyami SS, Alyami AH, M Alzabaid HS, Hussain Alsleem MH, Zabid DJ, Alzubaidi SS. Multidisciplinary Collaboration for Enhanced Public Health Response: Insights from Pharmacy, Epidemiology, Emergency Care, and Social Services. Journal of International Crisis & Risk Communication Research (JICRCR). 2024 Jul 1;7(2).

[10] Mirzaei MR, Ajdari A, Woo SP. Spatial and temporal distribution pattern and biomass trend of flathead slipper lobster, Thenus orientalis (Lund, 1793) from Gulf of Oman. Int J Aquat Res Environ Stud. 2023;3(1):27-36.

[11] Alemede V, Nwankwo EI, Igwama GT, Olaboye JA, Anyanwu EC. Pharmacists as educators: Enhancing patient understanding and access to specialty medications through community workshops. Magna Scientia Advanced Biology and Pharmacy. 2024;13(1):1-9.

[12] Yoshikawa R, Mogouie HM. Studying the relationship of parenting styles and the life quality factors among the Islamic Azad University students – Roodehen campus, considering their population characteristics. Int Acad J Soc Sci. 2017;4(1):27-45.

[13] Ijiga AC, Enyejo LA, Odeyemi MO, Olajide FI, Olajide FI, Daniel AO. Integrating community-based partnerships for enhanced health outcomes: A collaborative model with healthcare providers, clinics, and pharmacies across the USA. Open Access Research Journal of Biology and Pharmacy. 2024;10(2):081-104.

[14] Alharbi NS, Alharbi SM, Alsharekh AA, Al Bawardi S, Al-Nasser NS, Alhoureny S, Altwejry A, Alqahtani SF, Al-Rashid BM, Alsalloum SA. Pharmaceutical Sciences and Social Dynamics: Bridging Medication Practices, Public Health Challenges, and Everyday Lives. International journal of health sciences.;8(S1):1690-712.

[15] Moghaddam AM, Aasi A, HusseinFallah M. Psychology and mental health promotion of patients with Type 2 diabetes. Int Acad J Humanities. 2017;4(2):161-6. Available from: https://iaiest.com/iaj/index.php/IAJH/article/view/IAJH1710037

[16] Ajegbile MD, Olaboye JA, Maha CC, Igwama GT, Abdul S. The role of data-driven initiatives in enhancing healthcare delivery and patient retention. World Journal of Biology Pharmacy and Health Sciences. 2024;19(1):234-42.

[17] Agarwal TK, Tiwari M, Lamba SS. Modified histogram based contrast enhancement using homomorphic filtering for medical images. In2014 IEEE International Advance Computing Conference (IACC) 2014 Feb 21 (pp. 964-968). IEEE.

[18] Al-Worafi YM. Quality and Accreditation in Developing Countries: Pharmacy Education. InHandbook of Medical and Health Sciences in Developing Countries: Education, Practice, and Research 2024 Mar 21 (pp. 1-32). Cham: Springer International Publishing.