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View Point

Public Health Section

Factors Influencing Drug Adherence among Different Patient Populations in India

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ABSTRACT

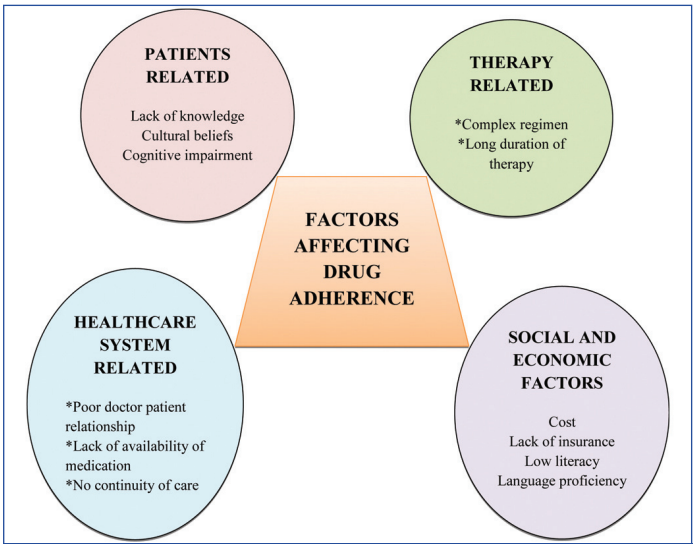
Drug adherence is an important problem faced worldwide by patients of all age groups. This article aims to address the factors hindering patient adherence to a proper medication regime. Numerous studies have demonstrated that complex dosing schedules and polypharmacy along with financial constraints are the main problems faced by patients. The problems also tend to vary among different patient populations such as diabetics, hypertensives, Chronic Kidney Disease (CKD) patients, and Chronic Obstructive Pulmonary Disease (COPD) patients, posing different challenges in each of the chronic diseases. Multifactorial solutions are needed to improve medication adherence including efforts to improve a patient's understanding of medication benefits, trust in their doctor and health system, and improving the physician's recognition and understanding of patients' beliefs, fears, and values to achieve increased medication adherence.

Keywords: Chronic disease, Financial challenge, Health system, Medication adherence, Polypharmacy

INTRODUCTION

The World Health Organisation (WHO) defines medication adherence as "the degree to which a person's behaviour aligns with agreed-upon advice from a healthcare practitioner" [1]. The medication adherence rate is 50% in developed countries and an even lower rate in developing countries like Sub-Saharan Africa, in which health resources are scarce [1,2]. Poor drug adherence severely compromises patient outcomes and increases patient mortality. Non adherence can limit the benefits of medicine and lead to multiple health and economic consequences. It results in wasted medication and further costs may arise if a patient's health deteriorates. Medication adherence is important for efficacy, favourable health outcomes, and lowering the economic burden on patients [3].

Drug adherence was found to be lower among patients of lower socio-economic status and lower racial/minority backgrounds. Low income, language barriers, and limited insurance coverage were also some of the important cultural factors in drug adherence [Table/Fig-1] [4].



[Table/Fig-1]: Factors influencing drug adherence.

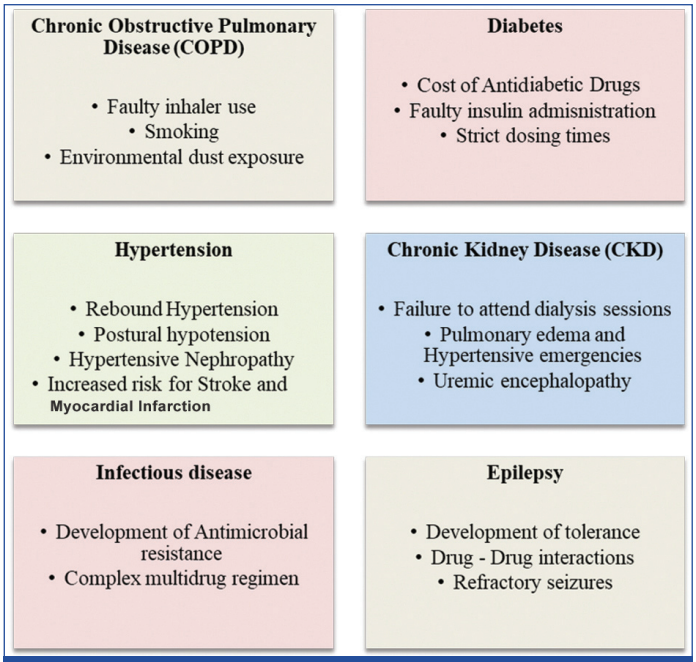
Polypharmacy is defined as "Co-prescribing multiple medications" and "simultaneous and long-term use of different drugs by the same individual" [5]. It is also a major factor affecting drug adherence where patients with multiple co-morbidities are prone to drug non adherence and drug interactions resulting in treatment failure. A systematic review done in India among the older population shows the prevalence of polypharmacy (concomitant use of 5-9 medicines) is 49% which is common in Northeast region and hyper polypharmacy (concomitant use of ≥10 medicines) 31% in south India [6]. The mean number of medications used by the elderly was approximately three. Complex dosing regimens such as Three times daily (TDS) and Four times daily (QID) have a higher risk of non adherence [7]. Old age, drug side-effects, and economic constraints are other important factors affecting medication adherence [8]. Adherence is inversely proportional to the number of medication doses per day. So, increasing the doses of medication adherence is affected. To overcome polypharmacy, all nursing home physicians should follow the Beers criteria before prescribing the drugs to patients and adopt the ARMOR (Assess, Review, Minimise, Optimise, Reassess) tool after the prescription of medication. It also incorporates making decisions on changing or discontinuing medications. Thereby reducing polypharmacy, healthcare costs, and hospitalisations [9].

MEDICATION ADHERENCE IN SPECIFIC GROUPS

Medication adherence in the different patient group was low. The reason for poor adherence for these patients was cost of the drug or inadequate knowledge about the administration of drugs and complex dosing regimen the other risk factors for drug non adherence is explained in [Table/Fig-2] [10].

A. Medication Adherence in Diabetics

Medication adherence is an important aspect in the management of diabetes as it is necessary to achieve strict glycaemic control to prevent frequent fluctuations in blood glucose. Non adherence results in more frequent hospitalisation for diabetic emergencies like Diabetic Ketoacidosis (DKA) and hypoglycaemia and an increased risk of end-organ damage such as renal failure, retinopathy, neuropathy, and Coronary Heart Disease (CHD) [11]. The cost was the most important factor affecting adherence in diabetics [12].



[Table/Fig-2]: Reasons for non adherence to medication in specific groups [10].

Other reasons stated by the people were- lack of knowledge about diabetes, poor doctor-patient relationship, lack of adequate medical services, financial constraints, and polypharmacy [12].

B. Medication Adherence in Hypertensives

Suboptimal adherence to antihypertensive drugs resulted in an increased risk of ischaemic heart disease and stroke [2]. The main reasons for non adherence include frequent postural hypotension and pedal oedema with Angiotensin-Converting Enzyme (ACE) inhibitors and calcium channel blockers respectively. Abrupt withdrawal of hypertensive drugs, especially with beta-blockers resulted in acute hypertensive crisis and rebound hypertension [13]. A study revealed that the intervention which was done i.e., motivational interviewing and a multifaceted pharmacist intervention in a hospital setting improved medication adherence in hypertensive patients [14].

C. Medication Adherence in Chronic Obstructive Pulmonary Diseases (COPD) Patients

Although the management of COPD has advanced, non adherence to treatment regimens is a significant barrier to optimal management. This is primarily attributed to a lack of knowledge about the proper method to use metered-dose inhalers [15]. A study revealed that 60% of COPD patients were not adherent to the prescribed therapy. This resulted in frequent exacerbations, respiratory distress, increased hospitalisation, and mortality. Another factor for non adherence was the adverse effect profile of steroids taken in long-term COPD patients [16].

D. Medication Adherence in Chronic Kidney Diseases (CKD) Patients

CKD patients require both dialysis along with proper medication adherence to maintain their renal function. Complications include volume overload, pulmonary oedema, and hypertensive emergencies [17]. These complications can be prevented by strict compliance with CKD drugs and adopting a renal diet consisting of low salt and low protein. Early dialysis is to be considered in patients with frequent non adherence [18].

E. Medication Adherence in Infectious Diseases

Poor adherence to Highly Active Antiretroviral Therapy (HAART) is a major determinant of treatment failure, in Acquired Immune Deficiency Syndrome (AIDS) patients, it also leads to the emergence of the drug-resistant Human Immunodeficiency Virus (HIV), disease progression, hospitalisations, mortality, and elevated healthcare costs [19]. The causes of poor adherence to Antiretroviral Therapy (ART) include the complexity of therapeutic regimens (e.g., pill burden and dosing frequency), treatment side-effects, literacy, poor patient-physician relationship, and limited access to ART drugs. Fixed-dose combinations of ART drugs to reduce dosing complexity and patient education are important interventions to improve patient compliance [20].

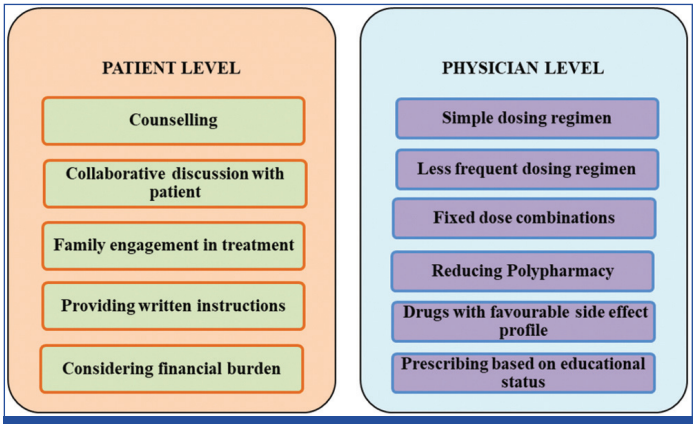
Incomplete adherence to Tuberculosis (TB) treatment raises the likelihood of delayed culture conversion, which leads to community transmission, treatment failure, relapse, and medication resistance [19]. The Revised National Tuberculosis Control Programme (RNTCP) with Directly Observed Treatment Short-Course (DOTS) and RNTCP with non DOTS had cure rates of 80% and 66%, respectively, for TB [21]. When compared to the non DOTS regimen group, the DOTS therapy exhibited a higher cure rate for radiologically positive and sputum-positive cases. Adverse effects of Anti-tubercular Treatment (ATT), such as loss of appetite, nausea or vomiting, red urine, jaundice, tingling and numbness, weakness, easy bruising or bleeding, and vision changes are the main reasons for TB patients to stop therapy [22].

F. Medication Adherence in Epilepsy Patients

Early diagnosis and intervention with adequate dosing are important factors to prevent seizure recurrence in epileptics [23]. Being depressed or anxious, uncontrolled recent seizures, frequent medication dosage times, and poor physician-patient relationships are some of the factors affecting adherence. Antiepileptic Drug (AED) non adherence impacted negatively the quality of life as a result of poor seizure control [24].

RECOMMENDATIONS FOR IMPROVING DRUG ADHERENCE

Improving the drug adherence in the two modalities (i.e., patient level and physician level). Patient-physician interaction is very much important in improving drug adherence. The physician have more responsibilities for giving the information on the correct dose regimen, side-effects of drugs, a complication of the condition (if there is poor follow-up) and giving counselling to family members for drug adherence [Table/Fig-3] [9,17,24].



[Table/Fig-3]: Recommendations for improving drug adherence [10].

At the patient level [18]

1. Counselling regarding the advantages and disadvantages of each prescribed drug during the patient's consultation is found to be the basis for the improvement of drug adherence.
2. Having a collaborative discussion with the patient in deciding the treatment plan.
3. Family engagement in ensuring patient compliance by reinforcing the importance of adherence, reminding them to take medications at home/work/even during travel and motivating them to avoid harmful habits like tobacco

chewing, and alcohol intake can interfere with drug adherence.

4. Providing written instructions to patients and making it easier for patients by colour coding the drugs to identify and follow the schedule.
5. Use digital apps in monitoring patient adherence and have them reminded through the phone at a fixed time routinely.
6. Consideration of financial burden on the patient drugs must be given based on necessity.

At the physician level [25]

1. Simpler and less frequent dosing regimens can be used by the physician to increase drug adherence.
2. Fixed-dose combinations (polypills) are given to reduce the number of tablets taken by the patients thereby making it easier to carry and store.
3. Dose-dispensing of medicine such as the use of time-specific packs.
4. Reducing polypharmacy in elderly as it is difficult for them to remember and take the medications even if one follow colour coding and dose dispensing method.
5. Prescribing drugs with a more favourable side-effect profile thereby avoiding the fear of taking the medications among the population.
6. To prescribe based on the patient's educational status as they will be self-motivated by recalling the possible complication of non adherence.

CONCLUSION(S)

Drug non adherence is a major cause of morbidity, especially in the elderly population. The main reasons for non adherence are complex treatment regimens, polypharmacy, financial constraints, and lack of adequate family support. This results in poor long-term health outcomes, especially in diabetics and hypertensive patients, leading to end-organ damage and mortality.

The physician, along with the paramedical force has an important role in ensuring patient compliance with the medications prescribed. Forming better doctor-patient relationships and including patients to participate in their treatment plan which form the cornerstones of good patient compliance. It is the responsibility of the treating doctor to take into account the socio-economic status, age, literacy, cultural beliefs, family support, and co-morbid conditions before prescribing and using drugs with a more favourable side-effect profile and if possible, a fixed drug combination to ensure patient comfort.

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