WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 7, 1293-1299. Review Article ISSN 2277– 7105

# REVIEW ON MEDICATION NON-ADHERENCE METHODS TO IMPROVE MEDICATION ADHERENCE

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Article Received on
19 April 2022,

Revised on 09 May 2022,
Accepted on 29 May 2022,

DOI: 10.20959/wjpr20227-24428

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## ABSTRACT

Medication non adherence is a severe problem that impacts the patient health care and life. Patients who do not take their medications as prescribed have a significant worsening of their condition, increased health-care expenses and death.[1] A number of things are likely to have an impact on medication adherence called adherence barriers which could be handled in different ways. To increase drug adherence, it will be required to identify individual barriers for each patient and use appropriate ways to overcome them. Professionals in the medical field, such as Physicians, pharmacists, and nurses all play important roles in their patients' lives.

**KEYWORDS:** Medication adherence, Medication non adherence, Barriers.

## INTRODUCTION

Medication non adherence is a major public health issue that has a significant impact on health outcomes and overall health-care expenses. The consequence of non adherence is waste of medication, disease progression, reduced functional abilities, a lower quality of life,

increased use of hospital admissions. The extent of non-adherence varies widely, and in different studies it has been recorded as low as 10% and as high as 92%.

Medication adherence is defined by the World Health Organization as, the degree to which the person's behavior corresponds with the agreed recommendations from a health care provider. Factors affecting medication adherence are age, gender, income, education, patient intelligence, knowledge about disease. The effectiveness of a treatment depends on both the efficacy of a medication and patient adherence to the therapeutic regimen. Patients, health care providers, and health care systems, all have a role to improve medication adherence.

A systematic approach that could be instituted in improving medication adherence is as follows.[1]

1. Level of prescribing
2. Communicating with the patients
3. Follow –ups
4. Identify difficulties and barriers related to adherence,
5. Address the problem
6. Inform the patient accordingly how the problems have been addressed.

**STUDY ON MEDICATION NON-ADHERENCE**

**STUDY 1**

***Tadesse Melaku Abegaz et al.,*** Conducted a study on Anti-hypertensive drugs. Hypertension is prevalent and remains one of the most significant causes of mortality worldwide. Elevated blood pressure is a major risk factor coronary artery disease, renal insufficiency and blindness in diabetic patients. The risk of developing hypertension can be reduced by effective medication therapy and significant life style modifications. adherence to antihypertensive medications is the corner stone for achieving hypertension control. Non adherence to medication is a growing concern and is associated with adverse outcomes. Scale that used for study of adherence in anti hypertensive medications is Morisky Medication Adherence scale (MMAS-8).[5]

Through this study approximately one third (31.2%) of hypertensive patients with co morbidities were non adherent to antihypertensive drugs. The percentage of non adherence was noticeably higher in females than in males (53.9% vs. 46.2%). This study concluded that, to improve antihypertensive medication adherence, it is necessary to tailor interventions by

linking adherence behavior to daily habits, developing patient-specific interventions, providing motivational interviews, and actively engaging family members.

**STUDY 2**

***Abdullah M. Alqarni et al.,*** conducted a study on adherence to diabetic medication. Diabetes mellitus (DM), the most common disorder of the endocrine system, is a growing worldwide epidemic with the number of people with diabetes. Chronic hyperglycemia and other metabolic disturbances of DM leads to potential long-term complications including cardiovascular diseases, retinopathy, nephropathy, neuropathy, and diabetic foot disorder. Diabetes can be managed well by adherence to prescribed oral hypoglycemic agents and insulin. In this study 391 patients were studied in total.[3] According to the MMAS-8 scale, self-reported diabetic medication adherence was low for 25.4 percent of patients [95 percent CI: 21, 29], medium for 28.7 percent [95 percent CI: 24, 33], and high for 45.9% [95 percent CI: 41, 50]. The medium adherence group had 8.1 percent (2.0), while the high adherence group had 7.4 percent (1.6). This study concluded that, because the above risks are modifiable, improving service availability, improving family support, using more intensive communicative strategies, and providing better health education could improve adherence.

**STUDY 3**

***Deepak Jain et al.,*** chronic kidney disease is defined as abnormalities of kidney structure or function, present for 3 months with implications on health. In India the overall prevalence of chronic kidney disease is 17.2%. patients with CKD are required multifaceted and comprehensive treatment. Non adherence rates among CKD patients found in previous studies range from 2% to 98%.[9] Understanding medication non-adherence in a specific disease and researching the factors that influence it are essential. A total of 100 patients were selected according to inclusion and exclusion criteria and interviewed. There were 62 men and 38 women among the 100 patients. The study's findings revealed that, Adherence measured by different tools was comparable, and the study subjects' post total and sub-total adherence scores increased significantly (p 0.001). Patients with a higher socioeconomic status and a higher level of education adhered to their treatment more frequently. In our study, the most common reason for non-adherence was the high cost of drugs. In this study Morisky Medication Adherence (MMAS-8) scale is used for the questions asked to the patient. Adherence is graded as high, medium and low. This study concludes that, Poor adherence to treatment remains a major barrier to effective CKD patient management.

providing continuous education to chronic kidney disease patients would improve their medication knowledge and adherence to management.

**STUDY 4**

***Maithe Enriquez et al., 2011*** HIV (human immunodeficiency virus) is a virus that attacks the body's immune system. If HIV is not treated, it can lead to AIDS (acquired immunodeficiency syndrome). Over 80 million people have been infected with HIV. According to current estimates, 36.7 million HIV/AIDS patients receive antiretroviral therapy (ART). While antiretroviral medication has significantly improved the clinical state of many individuals with human immunodeficiency virus (HIV) infection, the focus is rapidly shifting to the prevention of HIV infection. While many HIV-infected people successfully take their ARV medications as prescribed, more than one-third (37%) of HIV-infected people in developed countries struggle to maintain adequate levels of adherence.[8] Although developing countries have reported lower rates of nonadherence, newer studies show that the problem is global. Nonadherence promotes drug - resistant mutations and necessitates the use of more complex ARV regimens. Individuals who do not take ARV medications have a weakened immune system and develop debilitating constitutional symptoms such as fevers, night sweats, weight loss, and diarrhea. Their risk of contracting potentially fatal opportunistic infections rises.

Treatment Adherence Approaches:

- Simplify and explain the treatment regimen
- Provide reminders
- Discuss what to expect in terms of side effects, with caution about self-fulfilling prophecy
- Provide social support: friends, family and health care team.
- Provide treatment of any concomitant psychological disorders/substance abuse.

This study concludes that despite the limits of treatment adherence measures, Adherence may be improved by treatments like as reminders, adjusting the regimen to the patient's lifestyle, and addressing difficulties linked to side effects, in addition to counselling.

**STUDY 5**

***Hyejin Lee et al., 2020*** Organ transplantation is the most effective treatment for patients with end-stage organ failure. It has been actively carried out all over the world. The purpose of this systematic review and meta-analysis was to compare the effects of eHealth interventions on

medication adherence in organ transplant patients to usual or conventional care alone.[10] The primary complication is graft/transplant rejection, which should be avoided by using immunosuppressants. Immunosuppressants are essential for preventing rejection and maintaining transplanted organs functioning normally. It has been established that non-adherence to immunosuppressant regimens is common. Organ transplant recipients must take immunosuppressants for the rest of their lives. Recently, eHealth interventions have been implemented to improve organ transplant and other patients' medication adherence or knowledge. Seven RCTs with a total of 759 participants met the inclusion criteria out of the 1,847 articles found. The assessment of the risk of bias revealed that the systematic error of participants and personnel was severe. Medication adherence (effect size = -0.18–1.30) and knowledge scores did not differ significantly between those who received eHealth interventions and those who did not. This study concludes that, Medication adherence in organ transplant patients can be improved with eHealth interventions. More research is needed to provide well-designed eHealth interventions to improve organ transplant patients' medication adherence and knowledge.

## METHODS TO IMPROVE MEDICATION ADHERENCE

### 1. LEVEL OF PRESCRIBING

Introduce a collaborative approach with patients at the point of prescribing; if possible, involve patients in medication decision-making so that they feel ownership and are partners in the treatment plan. At the first level of drug use, simplify medication administration by using the most simple regimen possible based on patient characteristics.[1]

### 2. COMMUNICATING WITH THE PATIENTS

### BEHAVIOURAL INTERVENTIONS

These interventions aim to change patients' attitudes about treatment. Cognitive–behavioural approaches and therapies focusing on dysfunctional emotions, actions, and cognitions are utilised in interventions with the goal of promoting healthy lives and positive changes in symptoms and treatment. Telephone follow-up and home visits, especially when combined with educational components, appear to be beneficial in terms of providing planning and support, as well as integrated pre- and post-discharge treatments.[11]

### EDUCATIONAL INTERVENTIONS

Patients can be educated to improve medication adherence by adequately describing how to take a medicine, raising and discussing any reluctance to take medicines, and discussing their

attitudes and knowledge about their health and associated therapies with them. It is critical to offer patients with information about their disease and treatment falls, as well as the need of embracing patient- centered care and sharing decision-making principles, in order to improve adherence.[11]

**TECHONOLOGICAL REMINDER INTERVENTIONS**

Even if the patients are fully educated, motivated and supported by the family and the health systems, remembering to take medications every day and multiple times a day can be difficult. Therefore, many trails have been focused on interventions that remind patients to take their medications. Traditional pill boxes are useful in improving adherence, additional technologies have been studied for their ability to improve adherence, including watches with alarms, pill box timers, phone apps and "smart pill" containers. These strategies should be used only by people who have trouble remembering to take their drugs and are comfortable with technology.[6]

**3. FOLLOW-UP**

• **Schedule appropriate follow up**: Monitoring the medication adherence should also be a criterion while scheduling patient follow up.

• **Assess adherence during consequent follow ups**: Adherence can be measured in a variety of ways, depending on the patient and pharmacological features. Examine the efficiency of any medication adherence aids that were used. Physicians and pharmacists should collaborate on this.

4. Identify difficulties and barriers related to adherence

5. Address the problems

6. Inform the patient accordingly how the problems have been resolved.[1]

**CONCLUSION**

Medication non-adherence is a common issue in the patients with long-term medications globally resulting in worsening or complication of present illness. Hence there is a need of improving medication adherence by practically possible strategies to both patients and providers such as, adequate patient education, scheduled follow up etc., all the barriers to medication adherence needs to be addressed in order to improve adherence and quality of life and decrease worsening of health, medical and economic burden.

**ACKNOWLEDGEMENT**

We are gratefully acknowledged Vijaya Institute of pharmaceutical Sciences for Women for support and valuable guidance.

**CONFLICT OF INTEREST**: We declare that we have no conflict of interest.

**REFERENCES**

1. Beena Jimmy, Jimmy Jose et al., Patient medication adherence measures in daily practice, 09 Apr 2011, vol. 26.
2. Kumaran Kolandaivelu, Benjamin B. Leiden, Patrick T. O Gara, and Deepak L. Bhatt et al., non-adherence to cardiovascular medications, 29 Sep 2014, vol 34.
3. Abdhullah M Alqarni, Tahani Alrahbeni, Ayidh Al Qarni, Hassan M Al Qarni et al., Adherence to diabetes medication among diabetic patients – a cross sectional study, 2019, vol 13.
4. Beena Jimmy, Jimmy Jose et al., Patient medication adherence measures in daily practice, 09 Apr 2011, vol. 26.
5. Tadesse Melaku Abegaz, Abdulla Shehab, Asim Ahmed Elnour et al., Non adherence to antihypertensive drugs, A systematic review and meta-analysis, 21 Nov 2016, vol 96.
6. Steven T Simon, Vinay Kini, Andrew E Levy, P. Micheal Ho et al., Medication Adherence in cardiovascular medicine, 11 Aug 2011, vol 10.
7. Edwin J.M. Oberj, Reina J. A. de Kinderen, Silvia M. A. A. Evers et al., Cost effectiveness of medication adherence- enhancing interventions. A systematic review, 13 Nov 2013, vol 31.
8. Maithe Enriquez, David S Mc Kinsey, et al., Strategies to improve HIV treatment adherence in developed countries: clinical management at the individual level, 2011, vol 3.
9. Deepak Jain, H.K. Aggarwal, Subash Meel et al., Assessment of medication adherence in chronic kidney disease patients: A tertiary care experience, Nov 2018, vol. 8.
10. Hyejin Lee, Byung-Cheul Sin, Jin Min Soo et al., Effectiveness of eHealth interventions for improving adherence to organ transplant patients: A systemic review and meta-analysis, Nov 5 2020, vol 15.
11. Lut Berben, Christiane Kugler, Sabina De Geest et al., Interventions used by health care professionals to enhance medication adherence in transplant patients: a survey of current clinical practice, Dec 4 2011, vol 21.