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Exploring Barriers to Medication Adherence Among Patients with Chronic Diseases

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Abstract

An concerning rise in the prevalence of chronic illnesses worldwide has coincided with rising life expectancy and global population ageing. Physical or mental disorders that endure longer than a year and necessitate continuous care are typically classified as chronic diseases. They jeopardise people's ability to perform both physically and socially, their quality of life in relation to their health, and the long-term financial viability of healthcare systems. Chronic diseases are currently a public health concern due to their extraordinary global prevalence in various populations. Medication adherence is the act of taking medication as prescribed by a medical professional. In order to increase medication adherence, a socio-ecological model was applied to this study, which identifies multilayer elements pertaining to medication adherence obstacles in chronic disease and furnishes data for the development of scientific health communication interventional techniques. Suboptimal drug adherence and discontinuations of therapy remain the most frequent reasons why various diseases are poorly managed in the population. The primary problem is that doctors don't have enough time or resources to identify patients who don't comply to their treatment plans. The purpose of this study was to investigate medication adherence difficulties in individuals with long-term illnesses.

Keywords: Medication Adherence, Socio-Ecological Model, Barriers of Medicaion Adherence.

1 INTRODUCTION

In order to lessen the effects of their ailments, enhance health outcomes, stop future disability, and save healthcare expenses, patients with chronic diseases must effectively manage their conditions (Bernell & Howard, 2016). One of the most important aspects of managing chronic diseases is adherence to treatment, or the degree to which patients are able to carry out the jointly agreed-upon recommendations for prescribed medicines with their healthcare provider (Clark, 2003). However, only half of patients with chronic diseases take their prescription drugs as directed, therefore improving medication adherence should be a top focus for public health initiatives. According to the World Health Organization (WHO), a set of criteria, rather than a single one, affect patient's capacity to follow treatment recommendations appropriately. Five dimensions form the framework in which these aspects interact and intensify each other's influence: societal and economic, condition-, therapy-, and patient-related, as well as related to the health care team and system. Figure 1 Showing the Factors Involving Barriers to Medication Adherence below.

Figure 1: Showing the Factors Involving Barriers to Medication Adherence

Finding the characteristics that influence adherence the most has been the subject of several initiatives in recent years. The WHO framework has not been taken into consideration, with the majority of studies concentrating on a single component, typically patient-related issues. Other research has concentrated on a specific medication therapy or a single disease, such as diabetes, heart disease, and asthma; this strategy limits the applicability of the findings to the condition being studied. It is essential to take into consideration more than one chronic condition and take into account the interaction of factors in a more comprehensive way in order to uncover adherence facilitators among patients with chronic diseases.

Potential Correlation between the Factors and Medication Adherence

The WHO multidimensional framework was utilised to examine the potential correlation between the following characteristics and medication adherence:

- Social and Economic variables: The following were included in the social and economic variables analysis: gender, age, immigrant status, household income (tertiles), living situation (alone vs. with someone), and greatest degree of education (primary school or lower, secondary school or higher) (Kilgore et al., 2016).
- Factors pertaining to the healthcare team and system - Data regarding the number of pharmacies used for prescription refills and the frequency of follow-up care that patients receive for chronic diseases (monthly or more frequently, quarterly, and biannually or less frequently) were taken into consideration (Lam & Fresco, 2015). A 5-point Likert scale was also used to assess patient-provider communication, the perceived quality of healthcare delivery, and the degree of treatment information received. A score of 1 represented extremely bad performance and a score of 5 represented very good performance. Respondents who received scores above "3" were classified as having good communication

with their providers, believing that healthcare is delivered in a high-quality manner, and receiving all relevant treatment information for each item.

- Condition-Related Factors: Information on condition-related factors included the quantity of chronic conditions, the Adjusted Morbidity Group (AMG), which was determined by classifying clinical risk groups, and lifestyle choices such alcohol and nicotine usage as well as physical activity levels. The AMG is a novel multi-morbidity risk adjustment measure that accounts for the severity of diseases, number of diseases, use of healthcare services, and challenges related to resource accessibility (Kvarnström et al., 2021).
- Factors related to therapy - Therapy-related criteria included the quantity of prescriptions, pills, and medication used in each participant's treatment, whether by injections (use vs. non-use injections) or by inhalers (use vs. non-use inhalers). Additionally, patients indicated on a 5-point Likert scale how much their everyday activities were affected with by their treatment, with 1 denoting no interference and 5 denoting significant interference. Treatment that respondents believed to be interfering with their regular activities was categorised using scores higher than a "3.".
- Factors connected to the patient - Data gathered regarding factors related to the patient that are represented in the functional independence of participants in daily living activities assessed using the Barthel Index: independent, somewhat dependent, moderately dependent, severely dependent, and totally dependent; the use of tools to help remember medication schedules (no alarms, phones, pillboxes, or reminders) (Jin et al., 2016); patients' perception of overmedication in their treatment (perception vs. No-perception of overmedication) and their knowledge of the medication regimen, including the precise amount, number, and frequency of doses (adequate vs. Inadequate knowledge). Alongside this, respondents self-reported their perceived quality of life on a 5-point Likert scale, where "1" denoted extremely terrible life and "5" denoted very good life. Respondents with scores higher than "3" were classified as having a high quality of life.

The degree to which patients follow their doctors' suggested regimens is a determining factor in whether or not the intended advantages of their prescriptions are achieved. Adherence to medicine is critical for lowering healthcare costs. It has been demonstrated that patients' low levels of medication and treatment adherence are linked to higher rates of hospitalisation and higher healthcare costs (Choo et al, 1999). Numerous elements, including the peculiarities of diseases, the social context, the beliefs and traits of the patients, and service concerns, contribute to the complexity of patient adherence (Zeković et al., 2016).

2 LITERATURE REVIEW

According to Grahame Smith and Aronson (2002), patient adherence levels fluctuate widely, from as low as 10% to as high as 92%. The World Health Organisation (2003) reports that in industrialised

nations, patient adherence to medicine and treatment can reach 50% on average. About half of patients deliberately follow their doctors' prescriptions poorly, while other patients do so because they are unaware of how complicated the drugs are and how to take them (Ley, 1997). Other obstacles to the efficient use of medications include patients' lack of understanding about the drugs and how to use them, inadequate communication between doctors and patients, patients' dissatisfaction with the need for treatment, the negative effects of the drugs, long-term medical interventions, complicated prescription regimens with varying dosage schedules, and the expense of the drugs and treatment (Kvarnström et al., 2018).

Poor patient adherence leads to drug waste, a slow rate of disease progression, diminished capacities, a negative quality of life, and a rise in the use of medical resources such as hospital admissions, visits, and nursing homes (Martin et al., 2005). According to Anon's (2005) study, patients with diabetes, hypercholesterolaemia, hypertension, and congestive heart failure who did not follow their prescribed treatment regimens or medications had a greater risk of hospitalisation when compared to the general population. Inadequate medication adherence has detrimental effects for patients, healthcare providers, doctors, and medical researchers who collaborate to establish the population's demand for pharmaceuticals. Consequently, it is critical that patients with chronic illnesses take their prescriptions as prescribed in order to reduce the risk of serious worsening, medication resistance, and hospitalisation.

Review Based on Social and Economic Factors

Kalogianni (2011) looked into a number of issues, including unstable living situations, a lack of financial support from family members, the high cost of prescriptions, and busy schedules, that contribute to patients' poor adherence to their prescribed medications and treatment. The study carried out in India also revealed that patient adherence is impacted by the high cost of prescription drugs (Thakur et al, 2016). According to a different Indian study, high treatment costs prevent the impoverished from accessing the best medical facilities (Mekoth & Dalvi, 2015). Studies by Palanisamy and Sumathy (2009), Marshall et al. (2012), Maimaris et al. (2013), Mann et al. (2014), and Okoro and Ngong (2012) yielded similar findings.

A contributing cause to patients' low adherence rates is the unsteady living circumstances brought on by people's hectic daily routines. Long-term disease patients these days are unable to take time off from work to receive treatment, which results in a low adherence rate (Hernandez-Ronquillo et al, 2003; Neal et al, 2005; Okoro & Ngong, 2012). Thus, social support from friends and family encourages patients to continue taking their prescriptions and receiving their therapy, which helps to increase the level of adherence (Gonzalez et al, 2005; Nobre and Domingues, 2017). Researchers found that patients who received strong emotional support from friends and family were more likely to stick to their treatment plans and take their prescription drugs. (DiMatteo, 2004; Feinstein et al, 2005; Voils et al, 2005).

Lack of understanding of chronic drugs and diseases (Mekonnen and Gelayee, 2020; McKenzie et al, 2015; Jeragh-Alhaddad et al, 2015; Lopes et al, 2013) and cultural issues (Nobre and Domingues, 2017) produce poor care for patients in chronic disorders. Thus, these studies and associated factors highlight the significant impact that social and economic factors have on patients' adherence to medication and therapy (Pérez-Jover et al., 2018).

Review Based on Health System and Healthcare Team Related Factors

When it comes to helping patients and increasing medication and treatment adherence, healthcare professionals are extremely important. According to reports, patients with a variety of chronic conditions have an erratic increase in their adherence rate when their doctors fail to provide appropriate follow-up (Bi et al, 2009; Hu et al, 2008; Li et al, 2009; Mauskop & Borden, 2011). Furthermore, Wei et al. (2013) found that patients who stopped taking prescription drugs had low levels of satisfaction with their physicians and a poor comprehension of the significance of adherence rates. Therefore, patients' degree of adherence to medicine and therapy is facilitated by doctors' flexible approaches and open lines of communication (Rashid et al, 2014; Khatib et al, 2014; AlGhurair et al, 2012). In the Indian setting, it was discovered that a major contributing factor to the decline in patients' levels of medication adherence is the inaccessibility of healthcare facilities (Brown & Bussell, 2011).

These days, insufficient adherence among patients to their treatment regimen is frequently caused by extended wait periods (Moore et al., 2004; Balkrishnan et al., 2003) and unsatisfactory hospital and clinic visits (Gascon et al., 2004; Lawson et al., 2005). In a similar vein, low patient adherence to medication and therapy is linked to hospitals' lack of access to pharmaceuticals and other associated amenities. (Thakur et al, 2016).

Review Based on Therapy Related Factors

Many research conducted between the 1990s and the present have revealed that patients are under pressure to adhere to treatment regimens not prescribed by medical professionals due to the severe adverse effects of drugs. According to Dusing et al. (1998), one of the main reasons why individuals with hypertension don't take their medications and treatments as prescribed is because of the negative effects. The results for other chronic illnesses were also similar, according to reports from Kim et al. (2002), Sleath et al. (2003), O'Donoghue et al. (2004), Thakur et al. (2016), Bowry et al. (2011), and Powers et al. (2012). Complicated medicine schedules were another factor that affected patients' adherence levels in cardiovascular illnesses. (Thakur et al, 2016; Mauskop and Borden, 2011 and Okoro and Ngong 2012; Palanisamy and Sumathy, 2009). As a result, patients experience undesirable side effects and a complex dosage schedule during therapy, which prompts them to schedule their own self-medication. It indicates that the patient will take the medications that they find most comfortable, or, to put it another way, the medications that they enjoy.

It has been very well noted that if the route of administration is uncomplicated then patients are more adherent towards their treatment procedure. Inhaled asthma treatments had a worse adherence

rate than oral asthma drugs, according to a study done on asthmatic patients (Nichols et al, 2000; Bender et al, 2005). In turn, this meant that the patient's health was at risk due to the treatment's intricacy. There is no relationship between the number of prescription medications and the adherence rate of patients (Iihara et al, 2004; Xu & Worden, 2016) rather it has the effect on the number of doses prescribed for hypertensive medications every day (Iskedjian et al, 2002) i.e. if the number of doses increases daily, the rate of adherence decreases. Therefore, it is crucial to simplify the treatment procedure in order to encourage patients to follow it through.

The length of the treatment is also related on the patients' level of adherence and pace. According to one study, adherence rates for acute illnesses are higher than those for chronic illnesses (Lemstra et al, 2012). Compared to patients with hypertension, Gascon et al. (2004) discovered that patients with acute illnesses had a higher degree of medication and treatment adherence. According to Dhanireddy (2005), a patient may jeopardise their adherence to a specified regimen if their treatment is prolonged. Social stigma associated with a certain drug has occasionally had a significant impact on patient adherence (Gautério-Abreu et al., 2016).

Review Based on Condition Related Factors

The degree of adherence to the doctor's suggested therapy and medications is closely correlated with the patient's condition or disease. When there were no symptoms or the condition was just getting started, patients with conditions including asthma and hypertension had low adherence rates (Lopes et al, 2013; Hungin et al, 1999; Vlasnik et al, 2005). In addition, the hypertension patients who saw symptom improvement also showed improved adherence to therapy (Lim et al., 1992). The Grant et al. (2003) investigation on diabetic people produced similar results. Patients with chronic illnesses need to receive extra care since they are more likely to have low medication adherence rates. Additionally, the patient's severity of disease and any reported drug side effects interfered with the course of care and treatment (Kvarnström et al., 2021). Similar to this, a typical barrier that significantly raises the low adherence rate to medicine and treatment is the mental health of the patients (Lemstra et al, 2014). The same outcome was observed in the Eze-Nliam et al. (2010) investigation conducted on hypertensive patients. In a similar vein, patients with acute myocardial infarction in the Rieckmann et al. (2006) research had poor adherence because of depressive symptoms.

Thus, it is clear that conditions-related factors have a significant impact on patients' adherence levels. Reducing obstacles in the therapeutic process is crucial to increasing the rate of improvement for prescribed treatments and drugs (figure 2).

Figure 2: Percentage of Time Patients Take Medications as Prescribed

Review Based on Patient Related Factors

The term "patient related factors" refers to the variables that have an impact on the course of treatment. These variables can be further broken down into sub-factors, such as deficiencies in vision, hearing, cognition, swallowing, mobility, knowledge of the disease, expectations regarding medication, perceived benefit of treatment, motivation, fear of side effects, frustration with healthcare providers, psychological stress, anxiety, and anger, alcohol or other substance abuse, and demographic variables (Rolnick et al., 2013). To attain a healthy and fulfilling life, patients must prioritise the factors indicated above. Numerous studies have demonstrated that a major obstacle to treatment and drug adherence is patients' ignorance of their conditions and the medications they are taking. According to a recent Chinese study, low adherence rates are a result of patients' ignorance of diseases and drugs (Ni et al, 2019). Wang and Li (2014) instigated that lack of awareness of patients suffering from Coronary Heart Disease resulted in deprived adherence rate of patients. Li (2015) conducted an investigation into the potential impact of a patient's lack of awareness on adherence rates in patients with uncontrolled cholesterol levels. Similar findings were published in studies conducted by Zhao et al. (2015) and Ding et al. (2013).

When it comes to demographics, one of the main things influencing adherence is the patient's age. According to the study report by Degoulet et al. (1983), the rate of adherence rose with age, according to Christensen and Smith (1995) and Lacasse et al. (2005). Due to a variety of physical challenges, including trouble swallowing tablets, improper container handling, colour perception, and drug mark identification, older patients have demonstrated low rates of medication and treatment adherence (Davis et al., 2012). However, some research also claimed that a low adherence rate is not primarily caused by age (Wai et al, 2005; Wild et al, 2004). Reviews of medication and treatment adherence range throughout gender-related studies. According to several studies (Yang et al., 2012; Choi-Kwon, 2005; Fodor et al., 2005; Lertmaharit et al., 2005), women had higher levels of adherence than men did. However, other studies (Lewey et al., 2013; Caspard et al., 2005; Hertz et al., 2005) found the opposite to be true.

In the contemporary context, education is thought to be the most important factor that significantly affects patients' adherence rates. greater education levels are associated with greater levels of patient compliance with medicine and treatment, according to a study (Apter et al, 1998; Okuno et al, 2001; Ghods & Nasrollahzadeh, 2003; Yavuz et al, 2004). A number of the research (Spikmans et al, 2003; Kaona et al, 2004; Stilley et al, 2004) claimed that there was no correlation with the patients' educational attainment. In a few studies, it has also been demonstrated that patients with lower educational levels had higher adherence rates (Senior et al., 2004). This is because patients with lower educational levels depend more on their doctors, which contributes to their high adherence rates. Similarly, a patient's marital status has an impact on how well they follow to their treatment plan and prescription regimen. Because of their spouse's support, married patients showed higher levels of adherence to their treatments and drugs (Turner et al, 1995; Cooper et al, 2005).

Examining the healthcare beliefs has revealed how the patients' views have affected the degree of adherence. Patients' adherence rates to treatment and their beliefs about the reasons of their illnesses are correlated with their desire to take their drugs as prescribed and their perception of those causes (Kyngas & Rissanen, 2001). A concern of being dependent on long-term drugs is one of the other unfavourable aspects that affects the adherence rate (Bender & Bender, 2005).

Thus, it can be concluded that patient-related characteristics are also crucial when assessing how well patients adhere to their prescribed regimens for chronic illnesses.

3 BARRIERS TO MEDICATION ADHERENCE

People are becoming increasingly concerned with both curative and preventive health care these days. The current study has made it easier for payers and providers to grasp the significance of patient medication adherence and the factors influencing that level of adherence in order to achieve favourable health outcomes. Patients must increase their knowledge and understanding of chronic diseases in order to improve medication adherence, as a result of a paradigm change in the demand for a high-quality and healthy life. Health care providers and hospitals should hold health education sessions for patients with chronic illnesses and their families at different intervals. This will help patients feel more confident about their ongoing therapies and medications and may even help them develop a long-term adherence level to their treatment. Additionally, healthcare providers can offer patients regular counselling in groups or one-on-one settings during the therapy process (figure 3).

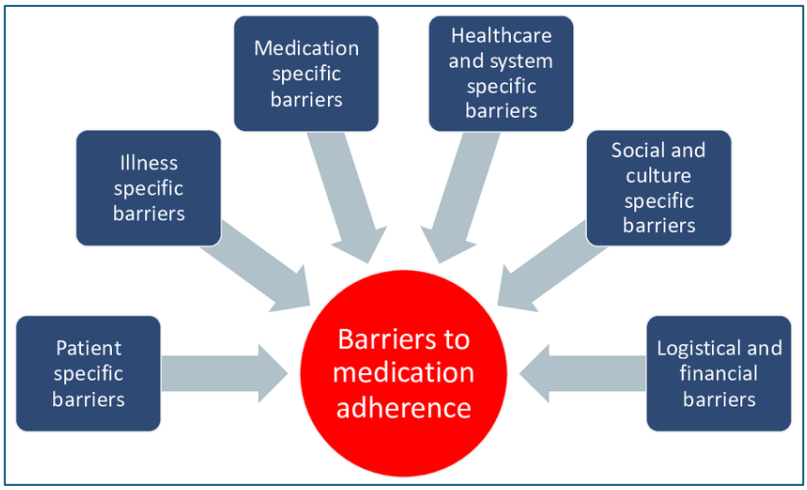

Figure 3: Barriers to Medication Adherence

Patients are encouraged to take greater responsibility for their health by adhering to prescription regimens and other preventive measures that are advised by their healthcare providers during counselling sessions. Patients are demanding improved healthcare services, and as a result, providing patients with chronic illnesses with adequate treatment options may prolong their lives in good health. Patients' hectic lifestyles these days result in irregular drug ingestion patterns. Consequently, physicians should refrain from prescribing patients difficult medications since this could result in a low degree of patient adherence to their treatments and medications. Additional research endeavours may be undertaken to investigate other pertinent variables that influence the degree of medication compliance among individuals afflicted with particular illnesses. In the future, additional measures like the Morisky Medication Adherence Scale-8, the Hill Bone Compliance scale, the Brief Medication Questionnaire, and many more can be used to better understand the level of patient adherence. Statistical tools can also be incorporated to understand the level of patient adherence in a detailed manner.

4 DISCUSSION

The purpose of the study was to better understand how patients with chronic illnesses might live healthier and more fulfilling lives by adhering to their medication regimens. It focuses on perspective of patients and professionals towards adherence level of medications and treatment. Understanding the obstacles affecting patients' daily drug adherence for chronic illnesses has been greatly aided by researching these two patient and physician groups. The analysis's findings also included recommendations for how to help individuals adhere to their prescription regimens better. The study makes it easier for the researcher to give adequate advice to all parties (important players) involved in raising patient medication adherence, including physicians, patients, the pharmaceutical industry, the government, and hospitals. The purpose of the study was to better understand how patients with chronic illnesses might live healthier and more fulfilling lives by adhering to their medication regimens. It focuses on perspective of patients and professionals towards adherence level of medications and treatment. Understanding the obstacles affecting patients' daily drug adherence for chronic illnesses has

been greatly aided by researching these two patient and physician groups. The analysis's findings also included recommendations for how to help individuals adhere to their prescription regimens better. The study makes it easier for the researcher to give adequate advice to all parties (important players) involved in raising patient medication adherence, including physicians, patients, the pharmaceutical industry, the government, and hospitals. The degree of medication adherence among patients can also be improved by the calibre of engagement and communication provided by healthcare providers. Patients are better able to discuss their conditions, associated treatments, and prescription drugs when they have excellent communication with medical providers. Consequently, in order to increase the degree of medication adherence among patients with chronic illnesses, our findings recommend raising patient education and understanding of diseases, associated medications, and related treatments.

5 CONCLUSION

Long-term adherence and tenacity are major obstacles that patients with chronic diseases must overcome if they are to have effective disease control and, more crucially, avoid consequences, including death. Although doctors are generally aware of the significance of medication adherence in the care of chronic patients, their ability to identify and diagnose noncompliant patients is somewhat restricted. Moreover, they have often no time to commit to this issue. Therefore, it is imperative to create new adherence-supporting strategies. This can be accomplished by utilising contemporary technologies as well as by involving other healthcare professionals more—such as nurses, psychologists, or pharmacists—as they may have the time and expertise to identify the obstacles and pharmacological problems that hinder adherence and persistence. In collaboration with doctors, they might also help get a deeper understanding of patients' beliefs and motives.

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