Factors associated with Non-adherence in Chronic Patients with Multiple Comorbid Conditions

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Significance:
Pakistan is a developing country and the frequency of people living below the poverty line is high. In non-adherence to the drug among many factors, poverty has a significant role. In recent studies, age gender and socio-economic factors have been found significantly associated with non-adherence to the prescribed therapy. In this study, it was tried to determine the association of non-adherence to the different age groups and its associated sociodemographic factors.

ABSTRACT

Background: To determine the association of non-adherence to the various age groups and related sociodemographic factors, this study was conducted.

Materials and Methods: In different departments of Services Hospital Lahore, a cross-sectional survey was conducted. 370 patients voluntarily participated in the study. The data was collected using a questionnaire. The data was analyzed using chi-square. The level of significance was 0.05%.

Results: In this study, 33.3% of patients were below the age of 40 years and 46.3% of patients were above the age of 40 years and were not adherents because of the experience that they did not get benefit from the treatment. Similarly, 21.5% of patients below age 40 and 22.3% of patients above age 40 think that they do not need medicine. 38.5% of patients below age 40 and 54.3% of patients aged above 40 stopped medicine after becoming better.

Conclusion: None-adherence found more prevalent among elderly patients.

Introduction

The US healthcare system has $170 billion of expenses annually. There is a problem of failure to adhere to drugs. Non-compliance with prescription medicines will increase the burden of healthcare services. To ensure the effectiveness of medical care regimens and more desirable health results, it is extremely important to adhere to medications. Poor medication adherence is comparatively common. (1) There are multiple studies showed that 20-30% of prescribed medications were used and 50% of medications for chronic diseases advised by physicians were not used. It is challenging to measure adherence to medicine because adherence is a single patient behaviour. Medicine failure may occur in several ways, such as a non-completion of prescribed medicine; no medications whatsoever; a lack of dose; an error; medication being taken at the wrong time of the day, without prescription (for example, with or without food) or deliberately stopping it for a while.

(2) Non-adherence is defined as the *"The extent to which a person's behavior – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider."* (3)

Pakistan is a developing country and the frequency of people living below the poverty line is high. In non-adherence to the drug among many factors' poverty has a significant role. In recent studies, age gender and socio-economic factors have been found significantly associated with non-adherence to the prescribed therapy. (4)

In this study, it was tried to determine the association of non-adherence to the different age groups and its associated sociodemographic factors.

Materials and Methods

It was a descriptive cross-sectional study. The study was performed at the University of Health Science (UHS), Lahore (Department of Behavioral Sciences). Data was collected from various departments of the Services Institute of Medical Sciences (SIMS). There were 370 participants included in this study. Age of 18 years without any restriction of sex, marital status, socioeconomic status, place of residence, having two or more medical conditions lasting more than three months and have been on medication for more than three months (chronic) were selected. A structured questionnaire was used to collect the data. SPSS 21.0 was used for entering and analyzing data.

Results

In this study, 370 patients with chronic diseases were selected with mean age 40.37 ± 8.188: range of 24-64 years. 45.9% were males were and 54.1% were females. There was a ratio of 5:6 for male to female. Among the study subjects, most participants (75.40%) were enjoying family life and were married. The non-married individuals constituted a small proportion (16.8%) of the study participants.

Middle socioeconomic class individuals were present in the majority (i.e. 71.4%). Individuals belonging to higher socioeconomic classes were also present in a significant proportion (i.e. 21.6%). Individuals with hypertension reported most (i.e. n=212, 57.3%). After hypertension diabetes mellitus was the second common reported illness (i.e. n=198, 53.5%). 105 individuals (28.4%) reported with Arthritis and other joint pain-related illnesses. 101 individuals (27.3%) reported depression. 96 (25.9%) individuals were presented because of Ischemic heart disease and dyslipidemia. 81 (21.9%) individuals were presented with acid peptic disease. Total mean± SEM period of Comorbid conditions was 5.76 ± 0.229 years among

study participants. Mean ± SEM duration of diabetes mellitus was 8.74±0.485 years and longest among other common comorbid diseases. The acid peptic disease had a mean ± SEM duration of 1.84±0.169 years which was the shortest among the most common disease conditions. Durations of other diseases are given in Table 1.

Table 1. Duration of comorbid chronic diseases

Disease	Mean (Years)	Std. Err of Mean	Std. Deviation
Diabetes mellitus	8.74	0.485	5.130
Hypertension	5.26	0.364	4.089
Asthma/COPD	5.11	0.311	2.111
Depression	2.47	0.151	1.014
Ischemic heart disease	3.35	0.342	1.531
Arthritis	3.62	0.558	2.559
Acid peptic disease	1.84	0.169	1.119
Total	5.76	0.229	4.411

Because of financial difficulties around half of the patients were unable to adhere to the prescribed regimes. Their number was 177 (47.8%).

Table 2: Treatment vs age

	40 & below	More than 40 Years	p-value
I did not get any benefit from the treatment	65(33.3%)	81(46.3%)	0.014
I did not think medicine was needed	42(21.5%)	39(22.3%)	0.900
I stopped medicine after feeling well	75(38.5%)	95(54.3%)	0.002

In this study, 33.3% of patients were below the age of 40 years and 46.3% of patients were above the age of 40 years and were not adherents because of the experience that they did not get benefit from the treatment. Similarly, 21.5% of patients below the age of 40, and 22.3% of patients above the age of 40 think that they do not need medication. 38.5% of patients were below the age of 40 and 54.3% of patients have above 40 years of age stopped taking medicine after feeling well.

Discussion

Non-adherence is strongly associated with poor health in chronic patients. This study was conducted to find a link between demographic factors and non-adherence. Non-adherence was more frequent among the participants of above 40 years of age. Factors that belong to the treatment adherence have been linked with the increasing age as per various studies published in literature[5]. The factors that were described behind this non-adherence are

sociodemographic factors. Literature also suggested that old age patients are more non-persistent as compared to non-adherence. Studies have also shown that people who have undergone low-dose or standard-dose treatments that have taken several drug combinations have an increased risk of becoming non-persistent with treatment. (5)

Better adherence was documented by older patients diagnosed with chronic diseases such as hypertension, diabetes, ischemic heart disease, and chronic airway disease. (6) Similar results were reported in a recent study conducted in Kenya. Age in this study was not identified as significantly linked to non-compliance. While the prevalence of diabetes mellitus has been shown to increase with age in Kenya, the adherence to the medication showed either that the patient is not impacted by age or that the patient is improving by age. In this study, most participants were over 50 years of age and likely would live with children or members of the family. The protecting effect of these families could improve drug adhesion. In comparison, younger, professional-active patients have demonstrated greater risks of skipping their medication and non-compliance. (7)

Diabetes is estimated at 108 million in 1980 by the World Health Organization (WHO), and this number was estimated to be four-fold in 2014. The IDF estimates the world prevalence for 2000 at 151 million, for 2003 at 194 million, for 2006 at 246 million, for 2009 at 285 million, for 2011 at 366 million, for 2013 at 382 million and for 2015 at 415 million. Every estimation was based on the most recent data. (8)

Pakistan was ranked second in 21 countries in the Middle East and North Africa region by IDF diabetes atlas 2017. Statistics indicate that between 20 and 79 years of age there have been 7.5 million diabetes cases. With these figures, Pakistan has reached 18 out of 21 countries with 6.9% of the prevalence of diabetes among people aged 20 to 79. In Pakistan for the period 2016–17, the prevalence of diabetes was estimated at 27,4 million (every 20 years) cases of NDSP-II(9). According to the preliminary findings of Pakistan's 6th population and housing census in 2017 (excluding AJK and GB), there are estimates of around 100 million people residing in Pakistan, or 49% of the total 208 million. (10)

20% of people were reported to be diabetic and these individuals were of 40 years of age. Studies performed in Pakistan demonstrated 27 percent and 25 percent respectively for depression and ischemic heart disease(11).So, we could also compute that in our study diabetes mellitus and hypertension were more frequent and due to which nonadherence was more common among the elderly. Education also played an important role in treatment adherence. Those individuals who were educated they have better treatment adherence in contrast to non or less educated participants. (10)

World Health Organization (WHO) also identified various factors related to the drug adherence. WHO

identified five different variables. Among these variables are the variables related to the medical field itself, patient-related variables, various socioeconomic variables, variables related to the healthcare team, and healthcare system. (12) The explanations for non-consistency are complex and include psychosocial factors (e.g. drug usage, depression, stigma), systemic obstacles (e.g. distance from hospitals, costs for medication), linked to treatment (e.g. toxicity), and the obstacles associated with health services (e.g., lack of counseling, inadequate healthcare user experience). (13) Studies have shown that patients have little adherence to drugs and their perception of their disease.

In over 50 percent of reports, a poor understanding was reported as the explanation for non-compliance, followed by 30 percent adverse attitudes to medications and close to 15 percent cognitive impairments. Chronic disorder patients for example those with hypertension (50 percent in Pakistan) and those with hypercholesterolemia are more likely to be non-compliers. (14) Increasing therapeutic programs that do not cure conditions tends to deter patients understandably. The non-consistency ranged from 6 to 55 percent in elderly patients who are on multiple drug regimes. Patients with chronic conditions tend to stick to prescription schedules more often than once a day. Medication adherence has been correlated negatively with strong caregivers, hearing impairment, reduced cognition, and elevated medication numbers in the elderly. (15)

Conclusion

Non-adherence influenced by age, gender, socioeconomic status, and educational level of the participants. Increasing age is highly related tonon-adherence.

Conflict of interest: Authors do not have any conflict of interest to declare.

Disclosure: None

Human/Animal Rights: No human or animal rights are violated during this study.

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