Research Article

Treatment Compliance in Diabetics: Physician-Patient Relationship

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Abstract | Diabetes is a chronic disease and non-compliance attitude of patients poses a great challenge to the success of therapy. Multiple factors influence compliance among diabetics and other chronic diseases and non-compliance results in avoidable consequences and complications. In order to determine the magnitude and factors of non-compliance to physicians' advice in diabetics attending outpatients, a cross-sectional analytical study was conducted in outpatient diabetic clinics of Shaikh Zayed and Services Hospitals in Lahore. Results presented in this study are based on 177 patients investigated for 3 months (April 2014-June 2014). Subjects were conveniently enrolled after taking written informed consent using a self-constructed and structured questionnaire. Out of 177 participants, 55.36% were females and 51.41% participants were in the range of 52-75 years of age. Among 79 males, majority (45.6%) were employees, whereas 91.8% were housewives among females' participants,. Out of 177 diabetic patients, 42 patients (23.7%) were non-compliant and 135 patients (62.5%) were found to be compliant. The normal glucose level was observed in 120/177 (67.8%) of participants. Interestingly, 97.2% subjects revealed a good attitude as the main trait of a practitioner whereas 2.8% claimed good practice and competency. Conversely, 94.4% blamed bad attitude as a trait of bad doctor whereas 4.6% reported that the bad practice and incompetency is responsible for the negative trait. Taken together, compliance to physician's advice is better among diabetics attending tertiary care hospitals in current study. The study encourages our health care system to provide more awareness and obtain a deeper understanding of factors causing non-compliance. A positive relationship between patient and practitioners would positively impact on the clinical outcome of the ailments and their therapies.

Introduction

Compliance in healthcare is defined as "the extent to which a patient's behavior (in terms of taking medication, executing the lifestyle changes, undergoing medical tests or keeping appointments with the physicians) coincides with the healthcare provider's recommendations for health and medical advice" [1]. Poor congruence with physician's advice is non-compliance [2], and behavior poses a serious concern on the quality of healthcare and considered a challenge for successful healthcare delivery. Non-compliance to physician's advice is a prevalent problem in chronic diseases worldwide [3], which can affect negatively on the effective control of infectious and non-infectious diseases.

A positive correlation has been examined between

ineffective doctor-patient relationship and non-compliance amongst patients with diabetes. Verbal and nonverbal behaviors of the patient in chronic diseases during interaction with the doctor have found to be linked with favorable patient outcomes [4]. Diabetes is a challenging disease and is wide spread around the globe. Type 2 diabetes mellitus consists of a wide spectrum of dysfunctions, hallmark of which is hyperglycemia. Hyperglycemia is a result of combination of insulin resistance, inadequate insulin secretion, and inappropriate or excessive glucagon secretion. Although the therapeutic regimen is complex, still patients with good self-care can achieve desired glycemic control. However, many patients are unable to achieve adequate glycemic control, resulting in complications. Complications such as heart disease, renal failure, stroke, amputation, and blindness may result due to type 2 diabetes [5].

Several diabetic patients tend to be generally non-compliant. This non-compliance can result due to multiple factors related to the patient, health care delivery system or therapy [6]. Factors related to the patient can be demographic such as age, sex, education and marital status. Many psychological factors such as patients' beliefs and motivation, negative attitude, patient's knowledge, doctor-patient relationship and understanding of health issues can influence compliance [2]. The therapy-related factors influencing compliance include route and duration of medication, side effects and complexity of treatment. Many factors related to healthcare system are associated with poor compliance including availability, and accessibility of the doctor/physician. Non-compliant patients are more vulnerable to encounter complications and problems [7]. Non-compliance rate in chronic diseases patients is 50% in developed countries while this could be higher in developing world [8]. Death rate in a study found to be different in compliant and non-compliant diabetic and cardiac patients and found to be 40.7 per 1000 patient years and 52.9 per 1000 patient years, respectively [9]. Pakistan rank seventh in population of diabetes in the world, and will rise to fourth place by the year 2025 [10].

Since Pakistan's health system is facing high burden of chronic diseases especially diabetes, our policies should be directed to handle this growing diabetic population. Self-care education and educating diabetics to comply with medicines, dietary and lifestyle modifications regimens is a valid measure to help combat this growing epidemic in Pakistan. Burden of non-compliance and factors responsible for poor compliance in Pakistani diabetics is important to measure our contextual setting, especially in people with unique and diverse socio-cultural background in Lahore. Current study aims to identify treatment compliance in diabetics attending outpatient departments of two tertiary care hospitals in Lahore.

Materials and Method

A cross-sectional analytical study was conducted in Diabetic Clinics of Shaikh Zayed Hospital and Services Hospital, Lahore. Two hospitals were purposely selected in Lahore and within each hospital patients were recruited in the study using convenience sampling technique. The sample size was 177 by using 95% confidence level and 5% margin of error with conservative approach by considering no-compliance rate of 50%. Patients with known diabetes of 5 years and more duration and between ages 25-70 years were included through diabetic outpatients. Structured questionnaires were prepared to interview subjects whose validity was checked via a pilot study. Data was analyzed using Chi-square statistical test. Assessment of compliance and non-compliance of patients was made using multiple questions and scoring system. Variables used for measuring compliance were self-reported including; cost of drugs/medicines, follow up visits, reminders for hospital appointment, presence of personal Glucometer, following physicians' instruction, forgetting medicines in last 6 weeks, and discontinued medicines in total treatment span. All areas/statements were assigned scores and total score was 17 (maximum compliance). The mean compliance score was 13.6±1.86, minimum score was 9 and maximum was 17. The score was further classified into containing score (1-9), non-compliant and containing (>9) compliant. Ethical issues were considered and addressed following ethical principles of Helsinki's declaration of informed consent, privacy and confidentiality.

Results and Discussion

Out of 177 diabetic patients, a total of 42 patients (23.7%) were found to be non-compliant and 135 patients (62.5%) were compliant (Figure 1). Among 177 participants surveyed in this study, 79 (44.63%) were male, 98 (55.36%) were females and 34 (19.2%) were between age group of 25-51 year and 91 (51.41%)

Table 1: *Predictors of non-compliance.*

| Predictors of non-compliance		Non-compliant n = 42	Compliant n =135	Total	P-value
Age	25-51	22(25.6)	64(74.4)	86	0.600
	52-75	22(22.0)	72(78.0)	91	
Gender	Female	22(22.4%)	76(77.6%)	98	0.723
	Male	20(25.3%)	59(74.7%)	79	
Occupation	employment	11(28.9%)	27(71.1%)	38	
	businessmen	5(25.0%)	15(75.0%)	20	
	housewife	19(21.1%)	71(78.9%)	90	0.770
	Retired	2(16.7%)	10(83.3%)	12	
	Laborer	0(0.0%)	01(100%)	01	
	unemployed	0(0.0%)	2(100.0%)	02	
How I can be more Compliant	By changing myself	24(23.3%)	79(76.7%)	103	
	Change in physician	13(30.2%)	30(69.8%)	43	0.253
	Both	2(9.1%)	20(90.9%)	22	
	I don't know	3(33.3%)	6(66.7%)	09	
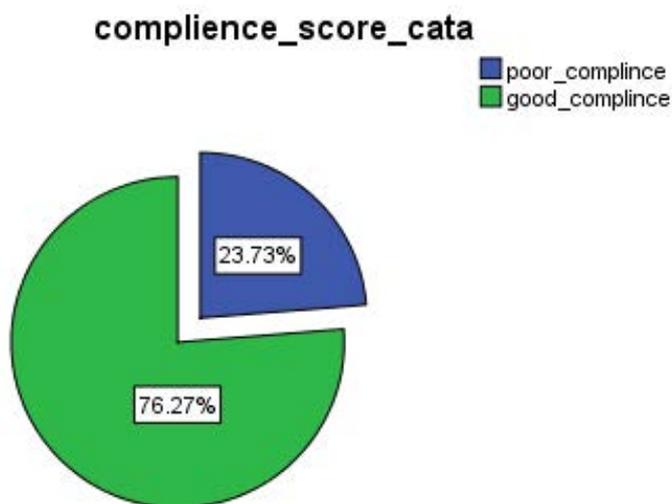
Figure 1: *Compliance among diabetics.*

were between age group of 52-75. Amongst males, 18 (22.8%) were businessmen, 36 (45.6%) employees, 14 (17.7%) laborers, 9 (11.4%) retired, 2 (2.5%) were unemployed. Among females, 90 (91.8%) were housewives. Amongst all of the patients, HTN alone was present in 19.9% diabetics and ischemic heart disease in 13.6% diabetics. Other co-morbidities were in combination with HTN, such as arthritis, CLD and dyslipidemias.

Knowledge about the normal glucose level was correct in 120 (67.8%) out of 177 participants whereas 57 (32.2%) were unaware about the normal glucose levels. Opinions about a good doctor were variable among participants. A total of 172 (97.2%) participants indicated that good attitude is the main trait of a good doctor while 5 (2.8%) revealed that good prac-

tice and competency is the main trait. Opinion about bad doctor's qualities was taken and 167 (94.4%) said that it is bad attitude and only 10 (4.6%) said it is about bad practice and incompetency.

The perception of participants was taken into account and how they can be more compliant was assessed. A total of 103 (58.2%) investigated subjects hinted the changing patient's behavior, 43 (24.3%) raised that changing the physician, 22 (12.4%) proposed that changing the behavior of patient and physician can impact the therapy. A total of 9 (5.1%) offered no opinion on the perception.

Amongst 177 patients who were surveyed, the knowledge of normal glucose level was not found to be significantly associated with poor and good compliance (p=0.737). Additionally, age, gender and occupation were insignificantly associated with compliance. (Table 1).

Results of the presented study identified a total of 67.8% patients that were familiar with the normal body glucose levels whereas 32.2% lack such information. These findings coincide with an epidemiological study conducted in India on knowledge about different aspects of diabetes [11]. It is also found that improvement in level of knowledge of patients about managing diabetes is associated with better glycemic control [12]. In our study, patients were mostly from Lahore and were more familiar with health related issues due to better exposure and awareness. Additional

reason for better knowledge could be the fact that we included patients with 5 years or more known diabetes. These patients might have acquired awareness with the progression in time.

Perceptions about a good and a bad doctor were relatively unexpected. According to 97.2% patients, a good doctor is of good attitude while 2.8% said that good practice and competency is the main trait. Opinions about bad doctor's qualities showed that 94.4% think bad attitude to be important and only 4.6% said that it is about bad practice and incompetency. Doctor-patient relationship is a complex phenomenon[13]. Patient satisfaction is linked to attitude of doctors higher than their competency [14]. Quality of care in hospitals is very well reflected through perceptions and experiences of patients as mentioned in a study from Pakistan [15]. Literature supports that physicians empathy influences patient's compliance [16]. These findings are similar to our results and our patients perceived empathy and healthy behavior of doctor the same way.

In our study, a total of 23.7% were non-compliant while 62.5% were found to be compliant. There is a positive correlation between ineffective physician-patient relationship and non-compliance in diabetic patients in literature [4]. Different studies have reported non compliance rates varying from 36 to 93 percent among diabetic patients in a systematic review performed in 2004 on adherence with medications [17]. A similar study was conducted by Lizbeth *et al* in Mexico reported overall frequency of non-compliance to be 39%, more than non-compliance rate of 23.7% in this study [5]. In literature, patient compliance was found to be improved by fixed dose combination [18], by giving scheduled appointments [19] and adherence of doctors with interdisciplinary guidelines [20].

Our study has the limitation of being a two centered study and few other predictors of non-compliance could not be included in this study. It is recommended to conduct further population-based studies on diabetics to obtain a deeper understanding of factors influencing compliance and non-compliance rates in general population of diabetics.

Conclusions

Our compliance rate was found to be better and higher, however, no specific predictor of compliance was identified. Patients' perceptions regarding good and bad doctors are very clear. The study encourages the health care system to provide more awareness and look deeper into factors causing non-compliance. The awareness of the disease must be addressed to both families as well as individuals.

Authors Contribution

All authors contributed equally.

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