

Factors associated with Non-adherence among Psychiatric patients at a Tertiary Care Hospital, Karachi, Pakistan: a questionnaire based cross-sectional study

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Abstract

Objective: To elucidate predictors of non-adherence among psychiatric patients presenting at a tertiary care hospital of Pakistan, for follow-up with consultant psychiatrist.

Methods: A convenient sample of psychiatric patients from Aga Khan University Hospital was enrolled between April and May, 2005. An interviewer assisted, standardized questionnaire was used for data collection. Patients with cognitive deficit or psychosis and those presenting for the first time were not included in the study.

Results: Out of 128 patients, those with co-morbidity (32.81%) were less adherent than those without co-morbidity (p-value:0.002). Adherence among depressed was 61.53%; psychotic was 58.82%; bipolar disorder was 73.91%. Reasons for non-adherence included sedation (30%), medication cost (22%), forgot to take medication (36%); and inability of the physicians to explain timing and dose (92%) or benefit of medication (76%).

Conclusions: Non-adherence is a common and important issue. Treatment cost and co-morbidity should be reviewed in order to keep the medication regime affordable and comprehensible (JPMA 58:432;2008).

Introduction

Adherence to medication regimens has been monitored since the time of Hippocrates.¹ It has become a focus of increasing concern in the treatment of psychiatric disorders in recent years.² Adherence to a medication regimen is generally defined as the extent to which patients take medications as prescribed by their health care providers.¹ It includes data on dose taking (taking the prescribed number of pills each day) and the timing of doses (taking pills within a prescribed period). Non-adherence to treatment is the degree to which a patient does not carry out the clinical recommendations of a treating physician.³ Non-adherence is a significant problem in all patient populations, from children⁴ to elderly.⁵ Adherence rates are typically higher among patients with acute conditions, as compared to those with chronic conditions.⁶ This tends to worsen the longer a patient continues on drug therapy.⁷

Medication adherence rates reported for populations with psychiatric illness ranges from 24 to 90 percent for patients treated with antipsychotic medication and 40 to 90 percent for patients treated with antidepressants.² Another set of patients will never start or will stop therapy completely within the first year, and only a minority will continue taking drugs as prescribed.⁷ An overview of the extensive literature on medication adherence found no differences in adherence rates between populations with physical disorders and those with psychiatric disorders.⁸

Adherence is a poly-faceted problem but a triadic model relating therapeutic relationship between the patient

and clinician, factors related to the medications and factors related to the patients and their illness help explain the non-adherent behavior.⁹ Physicians contribute to the non-adherence by failing to prescribe simple regimens, not explaining the benefits and side-effects of medication, not considering patients' lifestyle or medication cost involved and inadequately eliciting and rectifying the myths and beliefs held by patients.^{9,10} According to Cramer et al., typical reasons for not taking medications include forgetfulness, other priorities, decision to omit doses, lack of information, and emotional factors.¹¹ Supervision by a clinical trustee in cases of absence of insight on patient's behalf is a significant factor for adherence as well.¹²

Non-adherence also has economic implications. Poor adherence to medication regimens accounts for substantial worsening of disease, death, and increased health care costs in the United States.¹³ Of all medication-related hospital admissions in the United States, 33 to 69 percent are due to poor medication adherence, with a resultant cost of approximately \$100 billion a year.¹⁴ In less developed part of the world, cost of treatment and medications deserves greater attention as patients pay almost exclusively out-of-pocket in the absence of well developed public health care and insurance cover. A study from Pakistan reported that 16.32% (56/343) had stopped taking medication primarily because of inability to pay.¹⁵ Thus information about factors that influence adherence and methods for facilitating optimal use of medication are especially important.²

Advancements in the treatment of psychiatric disorders are limited by non-adherence, which steal power from even the most beneficial medications. The World Health Organization recognized the importance and magnitude of non-adherence and published an evidence-based guide to improve strategies of medication adherence.¹⁶

Data on the predictors of non-adherence from developing countries, especially Pakistan, is scarce. Information in this regard will help design effective interventions and therapeutic techniques for enhancing adherence behaviour among psychiatric patients. Better adherence will certainly translate in improved treatment efficacy, better intervention outcome and reduction of cost burden on health care.

The objective of this study was to elucidate predictors of non-adherence among psychiatric patients presenting at a tertiary care hospital of Pakistan.

Patients and Methods

This cross-sectional study was conducted at the out-patients services of psychiatry unit of Aga Khan University Hospital (AKUH). A convenient, non-probability sample of one hundred and thirty five follow-up patients between April 23 and May 11, 2005 were enrolled. All patients above the age of 18 years that had been previously seen by a consultant psychiatrist and were on prescription medications without any restriction of sex, marital status, educational level, socioeconomic status and place of residence were included in the study. Patients with cognitive deficit or acute psychosis and patients presenting for the first time (index visit at AKUH) were not included. An informed consent was taken from patients. An interviewer assisted standardized questionnaire was designed for this purpose which was administered by a group of fourth year medical students rotating through the clinical psychiatry clerkship. Standardized pattern of enquiry was devised in order to minimize interviewer bias.

Data was managed using SPSS for Windows Version 14. Frequency tables were obtained and chi-square analysis was done for the variables of interest.

A 19 item questionnaire was devised after thorough literature search, identifying key aspect of non-adherence. Questionnaire was pre-tested on small sub sample in order to identify any potential problems in data collection and to extend the list of reasons, beyond those already identified in literature, including any local/traditional factors. The final questionnaire included the traditional factors 'garam/thandi' and 'khushk/tar', in addition to list already in the initial questionnaire.

Final questionnaire inquired about demographic

variables, psychiatric diagnosis and medical co-morbidity, number of medications on daily basis and schedule, and supervision on administration. The questionnaire also inquired reasons for non-adherence based upon the proposed triadic model, including factors pertaining to physicians, patients and medications.

We adopted a modified version of the World Health Organization's definition as operational definition for non-adherence for our study. We defined non-adherence as 'missing medications three consecutive times, two times in a week, five times in a month or change in the dose of the medications without advice of the prescribing physician.

Results

We enrolled a total of 135 patients, seven out of them were excluded as they did not complete the interview process, thereby, leaving 128 in the final sample.

Mean age of patients was 39.49 years. Demographics of our study population are given in Table 1. Those who were employed included twenty-one professionals (16.40%), four skilled labourers (3.90%), three land-lords (2.34%) and sixteen were self employed (12.5%). Out of these, professional and land-lords showed highest adherence (76.19% and 80% respectively). Among un-employed forty-nine were housewives (38.28%), of which twenty-seven (55.10%) were adherent and twenty-two (44.90%) were non-adherent.

One of the significant findings of our study was non-adherence among those who had co-morbidity (Table 1). Out of a total of one hundred and twenty-eight, forty-two patients (32.81%) had some form of co-morbidity, with only eighteen (42.85%) being adherent patients. Out of eighty-six (67.19%) who did not have any co-morbidity, most (70.93%) were adherent (p-value: 0.002). Almost half of our study patients had depressive disorder (50.78%). Patients with psychotic disorders (26.54%) had least prevalence of adherence (Table 1). Eighty-six (67.19%) patients took their medications on their own, adherent being 54 (62.79%) and non-adherent being 34 (37.21%) while among forty-two patients who were given medication by their relatives (32.81%), twenty-four (57.14%) were adherent and eighteen (42.86%) were non-adherent. Most of the patients (89.84%) were in the practice of regular follow-up with their prescribing physician. Out of these, seventy-three (63.47%) were adherent and forty-two (36.53%) were not adherent to their medication.

Most patients identified factors related to physicians (Physician factors) as their reason for non-adherence. Figure 1 shows a detail of reasons identified by patients for their non-adherence.

Table 1 - Demographics, Diagnosis, Co-morbidity, Medication administration and Follow-up with prescribing consultant.

Demographics		Total	Adherent	Non-adherent	P-Value
Mean age (years)		39.49 ± 13.78	39 ± 13.74	40.26 ± 13.83	
Mean income (Rupees)		29.32 ± 3.67	26.48 ± 3.10	34.57 ± 3.37	
Mean illness duration (m)		56.05 ± 5.48	56.29 ± 6.05	55.67 ± 6.12	
Mean number of tablets		4.50 ± 1.08	4.40 ± 1.03	4.67 ± 1.12	
Mean duration since last visit (weeks)		7.72 ± 2.54	7.72 ± 2.40	9.51 ± 2.62	
Sex % (n)	Male	49.21 (63)	55.55 (35)	44.55 (28)	
	Female	50.69 (65)	66.15 (43)	33.85 (22)	
Marital status % (n)	Single	35.93 (46)	71.73 (33)	28.27 (13)	
	Married	64.07 (82)	57.33 (47)	42.67 (35)	
Employment status % (n)	Unemployed	54.68 (70)	60.00 (42)	40.00 (28)	
	Employed	28.90 (37)	59.50 (22)	40.50 (15)	
	Student	9.37 (12)	75.00 (9)	25.00 (3)	
	Others	7.02 (9)	66.67 (6)	33.33 (3)	
Diagnosis % (n)	Depressive disorder	50.78 (65)	61.53 (40)	38.47 (25)	
	Psychotic disorder	26.56 (34)	58.82 (20)	41.18 (14)	
	Bipolar disorder	17.96 (23)	73.91 (17)	26.09 (6)	
Co-morbidity % (n)	Yes	32.81 (42)	42.85 (18)	57.15 (24)	0.002*
	No	67.19 (86)	70.93 (61)	29.07 (25)	
Medication Administration % (n)	Self	67.19 (86)	62.79 (54)	37.21 (34)	
	Relative	32.81 (42)	57.14 (24)	42.86 (18)	
Follow-up with prescribing physician % (n)	Yes	89.84 (115)	63.47 (73)	36.53 (42)	
	No	10.15 (13)	85.71 (11)	14.29 (2)	

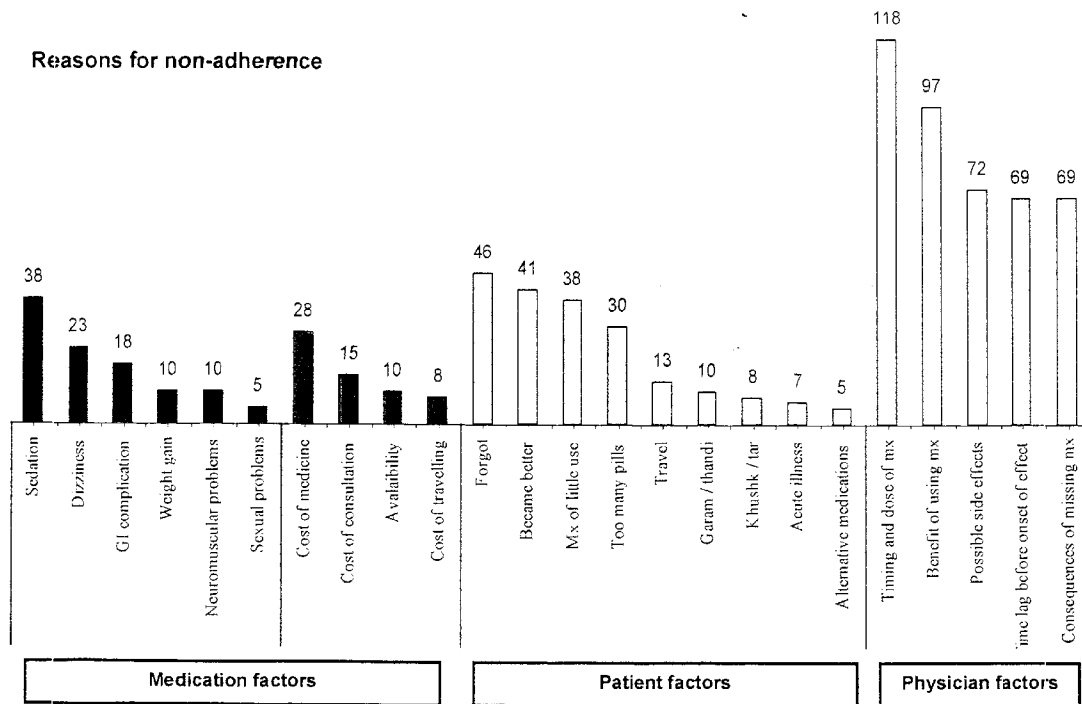


Figure 1. Reasons for non-adherence.

Discussion

Non-adherence to medication regimens is a serious problem. It has many serious effects on prognosis of the illness and overall effectiveness of health systems. Non-adherence may signal that patient and physician differ over goals and priorities regarding the treatment and its schedule.¹⁷ Non-adherent patients are more severely ill at the point of readmission to hospital, have more frequent readmissions, are more likely to be admitted compulsorily, and have longer inpatient stays.¹⁸ Increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments.¹⁹ Therefore, information regarding factors influencing optimal use of medications is vital.²

Various reasons for non-adherence came into view in this study including co-morbidity, type of illness, cost of treatment, a list of personal factors and side effects of medication being prescribed. Along with these reasons, various social and cultural myths and beliefs regarding psychiatric medication, use of alternative medicine and clinician-patient therapeutic alliance or relationship were also important factors contributing to non-adherence. Self reporting of non-adherence, the method we adopted in our study, has a sensitivity of 72.2 percent and specificity of 74.1 percent.²⁰ However, it underestimate the actual prevalence, proven by comparison with micro-electric monitoring, which usually shows 15-20 percent higher prevalence of non-adherence than self reporting.²⁰ It is safe to argue that, in our patients, actual prevalence of non-adherence is higher than 39 percent.^{2,15}

Among different psychiatric illnesses, patients suffering from psychotic disorders (41.18%) are the most likely not to comply, followed by those suffering from depressive disorders (38.47%) and those suffering from bipolar disorder (26.09%). This is in concordance with previous studies. Elixhauser et al.²¹ showed that 74 percent of outpatients with schizophrenia stop taking neuroleptics or antipsychotics within two years of leaving a hospital and 20 to 57 percent patients with bipolar affective disorder are non-adherent.

The clinician-patient therapeutic relationship acts as a vehicle of change and adherence to medications. This relationship includes incorporation of the patient's perspective into a relationship-centered medical paradigm,²² time given by physician in explaining the effect and side effects of the medications, explanation given regarding the lag in the efficacy and relief of distressing symptoms of the illness. This also includes eliciting various myths and beliefs held by patients and rectifying these ideas with objective scientific information and explanations. Lastly, explanation by the physician on the consequences of missing the

medication is also included in the physician-patient therapeutic relation. Our study showed that the most common reason for non-adherence was failure of clinician-patient therapeutic relationship. Ninety-two percent of the non-adherent patients reported that their physician did not explain the timing and dose of their medication adequately or completely. Physicians also failed to adequately explain the benefit of prescription, possible side effects, time lag before onset of treatment response and consequence of non-adherence.

There was a strong correlation between presence of a co-morbidity and non-adherence among the patients in our study. Co-morbidity is likely to increase the number of medications being taken by the patient. This increase makes the medication regimen complex, costly and cumbersome for the patients to follow or incorporate into routine. Also, co-morbidity means more logistic problems in seeking medical advice from more than one treating physician, keeping appointments or getting the medication refills on time.

We came across the following common self-reported personal factors of the patients: 'I forgot to take medication' (36%), 'I thought I am better now and do not need to take medication' (32%), 'treatment was of little benefit' (30%) and 'I had to take too many pills' (24%). These personal factors may have a causal relationship with inability of the physician to communicate effectively the timing, dose of medication (92%) and consequence of missing a dose (54%), explaining total duration of therapy and consequence of non-adherence, inability to communicate side effects related with the medication being used, time lag before onset of treatment response and strong correlation between non-adherence and co-morbidity, respectively. It is worthwhile to note that high emphasis on timing and dose is ineffective without patient education. It is imperative for the physician to establish a successful clinician-patient alliance/relationship, as it is the vehicle of change and adherence. In non-adherent patients', lack of treatment response can lead to their being switched from one drug to another, with little success because they do not take the drug as prescribed.²

Psychotropic medications commonly used for treatment of psychiatric illnesses have a well demonstrated and documented number of unpleasant side effects, ranging from restlessness to sedation, tremor, dry mouth, constipation, impotence, weight gain, missed menstrual cycles and many others. Our study showed that the side effect of psychotropic drugs is a common reason for non-adherence with sedation (30%) being the leading cause.

Unlike previous studies from Pakistan,^{15,23} our study did not show cost of treatment, consultation or travelling to seek medical advice as the most common reason for non-adherence. Possible explanation includes the highly effective

patient welfare programme, at the hospital where study was done, which takes care of non-affording patients. This could also be due to the belief that a big proportion, not a majority, of patient population presenting at the clinics belong to higher socio-economic stratum of the society.

Considering the realisation of importance of treatment most of the patients stop medications because of illiteracy or lack of insight. This behaviour is further precipitated by the stigma to psychiatric illnesses, treatment from quacks and traditional faith healers and hostility, non-cooperation or inaccessibility of some doctors (3%).²³ Our study failed to acknowledge these factors as reasons for non-adherence, which could be due to a positive impact of treating physicians in this regard. However, some participants of our study reported 'garam/thandi' or 'Khushk/tar' as their reason for non-adherence. These are common traditional myths that are prevalent in the local society especially in relation to psychiatric medications and stem from the traditional/alternative medicine practiced in our society. 'Garam/thandi' literally means 'hot/cold' and it is believed that some constituents of the medications have hot or cold effect on the body, which results in a number of side effects including hypertension, diarrhoea, sexual problems etc. 'khushk/tar' literally means 'dry/wet' and it is believed that some constituents of medication makes the body, especially the mind, dry and others wet that in turn makes a person vaguely similar to cyclic manic-depressed. This myth extends to include a number of illnesses, including the common cold, as dry or wet effect of the medication. These myths are believed to be prevalent across all socio-economic divides independent of the level of education.

The study was limited by the following facts: The setting of study is confined to an affluent hospital of Pakistan which may not necessarily represent the general population of the country, sample size is small, use of self-reporting methods which are inferior to more sophisticated micro-electric monitoring, and recall bias associated with self-reporting.

Conclusion

Non-adherence is a common, prevalent and important issue in the treatment of psychiatric illnesses. Efforts are needed to improve the adherence among patients. We recommend that psychiatrists should work towards better clinician-patient relationship. More emphasis should be laid on patient education which should include effective advocacy, better explanation of dose, timing and duration of use of medication, associated side effects and lag before the onset of effect of treatment as well as elaborately discussing consequences of non-adherence. We also recommend that overall cost of treatment should be kept in view and low cost alternatives or generic should be prescribed without compromising the efficacy of treatment. Psychiatrists, as well

as other physicians, should be observant on co-morbid and number of drugs in use in order to keep the medication regimen simple.

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References

- Osterberg L, Blaschke T: Adherence to medication. *N Engl J Med* 2005, 353: 487-97.
- Cramer JA, Rosenheck R: Compliance with medication regimens for mental and physical disorders. *Psychiatr Serv* 1998, 49:196-201.
- Kaplan HI, Sadock BJ. Kaplan and Sadock's Synopsis of psychiatry. 8th ed. Baltimore: Lippincott Williams and Wilkins; 1998. Pages 940-41.
- Matsui DM: Drug compliance in pediatrics. *Clinical and research issues. Pediatr Clin North Am* 1997, 44:1-14.
- Spagnoli A, Ostino G, Borgia AD, D'Ambrosio R, Maggiorotti P, Todisco E, et al. Drug compliance and unreported drugs in the elderly. *J Am Geriatr Soc* 1989, 37: 619-24.
- Haynes RB, McDonald HP, Garg AX: Helping patients follow prescribed treatment: clinical applications. *JAMA* 2002, 288: 2880-83.
- Morris LS, Schulz RM: Patient compliance--an overview. *J Clin Pharm Ther* 1992, 17: 283-95.
- Blackwell B: From compliance to alliance. A quarter century of research. *Neth J Med* 1996, 48: 140-49.
- Golin CE, Liu H, Hays RD, Miller LG, Beck CK, Ickovics J, et al. A prospective study of predictors of adherence to combination antiretroviral medication. *J Gen Intern Med* 2002, 17: 756-65.
- Black HR: Will better-tolerated antihypertensive agents improve blood pressure control? JNC VI revisited. *Am J Hypertens* 1999, 12: 225S-30S.
- Cramer JA, Spilker B (eds): Patient Compliance in Medical Practice and Clinical Trials. New York, Raven Press, 1991. pp 175-86.
- Taj R, Khan, S, Khanum SA. Non-Compliance to treatment in Schizophrenic patients *J Pakistan Inst Med Sci* 2002, 13: 691-3.
- McDonnell PJ, Jacobs MR: Hospital admissions resulting from preventable adverse drug reactions. *Ann Pharmacother* 2002, 36:1331-6.
- Senst BL, Achusim LE, Genest RP, Cosentino LA, Ford CC, Little JA, et al. Practical approach to determining costs and frequency of adverse drug events in a health care network. *Am J Health Syst Pharm* 2001, 58: 1126-32.
- Rana NH, Ayub, M.: Non-compliance to medication in psychiatric patients. *Pak J Med Sci* 2002, 18: 52-4.
- Sabaté E: Adherence to long-term therapies : evidence for action. Geneva: World Health Organization; 2003.
- Weiden PJ, Shaw, E. , Mann, J.: Causes of neuroleptic non-compliance. *Psychiatric Annals* 1986, 16:571-75.
- Soumitra RP, Carol P. Psychotropic drug treatments. *ABC of mental health.* 1998; pp 71.
- Haynes RB, McDonald H, Gary AX, Montague P. Interventions for helping patients to follow prescriptions for medications. *Cochrane Database Sys Rev* 2002.
- George CF, Peveler RC, Heiliger S, Thompson C: Compliance with tricyclic antidepressants: the value of four different methods of assessment. *Br J Clin Pharmacol* 2000, 50: 166-71.
- Elixhauser A, Eisen SA, Romeis JC, Homan SM: The effects of monitoring and feedback on compliance. *Med Care* 1990, 28: 882-93.
- Roter D: The enduring and evolving nature of the patient-physician relationship. *Patient Educ Couns* 2000, 39: 5-15.
- Taj R, Khan S: A study of reasons of non-compliance to psychiatric treatment. *J Ayub Med Coll Abbottabad* 2005, 17: 26-8.