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RESEARCH PAPERS

FACTORS ASSOCIATED WITH NONCOMPLIANCE IN PSYCHIATRIC PATIENTS AN INDIAN EXPERIENCE

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ABSTRACT

Non-compliance is a common problem encountered in psychiatric patients and is one of the main reasons for the failure of treatment programs. The purpose of this study was to assess the prevalence, reasons and factors associated with noncompliance. 307 consecutive outpatients were evaluated in detail using a specially designed sociodemographic proforma, Socioeconomic Status Scale, Social Support Scale, Global Assessment of Functioning (GAF) Scale and a Non-compliance Reasons Checklist. The prevalence of non-compliance over a period of one month was 47.3%. Most of the patient/ illness/ treatment related and social variables could not differentiate compliers from non-compliers except longer duration of illness, lower social support and poor outcome. Frequent reasons reported for non-compliance were side effects with medication (20%), no apparent reason (18.65%), no need of taking drugs (16.6%) and medicine is costly (15.9%). Significantly more number of patients with lower education, staying alone, lower social support and longer duration of illness stopped medicines with out any specific reason. Non-compliers with longer duration of illness attributed drug stoppage to side effects of medication. Implications of these findings are discussed with special reference to Indian context.

Key words: Compliance, non-compliance, patient, illness, treatment

INTRODUCTION

Compliance is a major aspect in the treatment of psychiatric patients and one of the main reasons for the failure of treatment programs. It is defined as the systematic study of how people follow medical advice. Compliance is not only related to drugs but also means keeping appointments, interactions, what to do and what no to do, how to act and how not to act etc. An overall figure assessed from a number studies indicates that the level of non-compliance in psychiatric patients vary from 15-50% at any given time (Blackwell, 1995). Non-compliance to drugs can be incomplete or partial. Complete cessation of the drug is complete noncompliance where as the reduction in the dose is partial noncompliance. Another type is continuous versus transient noncompliance. Discontinuing drug for some time and resuming again is an example for transient noncompliance.

Compliance is a multifaceted issue and various factors related to the patient, illness, physician, social environment as well as the treatment itself are important. Some of the patient related factors associated with noncompliance are younger age (Agarwal et al, 1998), male gender (Miner et al, 1997), unemployment, lower education (Lim et al, 1995), rural status, non-availability of transport (Drake et al, 1991), and lower socio economic status (Shrivastava & Joglekar, 1999). Illness related factors negatively affecting compliance are the type of psychopathology mainly anger, paranoid delusions and hallucinations (Duncan & Rogers, 1998), shorter duration of illness and episodic course (Agarwal et al, 1998), co-morbidity (Miner et al, 1997), lack of insight and neuro- cognitive dysfunction (Cuffel et al, 1996). Physician related factors enhancing compliance include a warm and empathic relationship with patients and providing sufficient information about the effects and side effects of medications (Gaebel, 1997). Factors related to social environment like patients and family's negative attitude about treatment and their belief system also adversely affect drug compliance (Mantonakis et al, 1985). Therapeutic environment of the patient can also influence compliance. Inpatients are usually better compliers than patients living in the community

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(Blackwell, 1973; Hoge, 1990). Treatment related variables are the drug itself, type of application (oral versus parenteral), effects and side effects and the complexicity of drug regimens (Buchanan, 1992; Fawcett, 1995).

As there is no true "gold standard" for ascertaining medication compliance, it can be measured by a variety of indirect methods (e.g. self report, patient interview, therapeutic outcome, pill count and computerised compliance monitors) or direct methods (eg. biological marker, tracer compounds, biological assay of body fluid etc) (Bond & Hussar, 1991). Measuring non-compliance is not easy in India. Patient and their relatives find the doctor omnipotent and deny non-compliance out of fear. Under these circumstances the doctor has to ask the patient to show empty medication cartons or probe indirectly by asking what colour tablet patients takes and at what time.

There have been many studies conducted in the West regarding the issue of non-compliance in psychiatric patients (Fleischhacker, 1995). However, there are only few systematic studies available from India about the issue of non-compliance in psychiatric patients (Agarwal et al, 1998; Khalko & Khess, 1999). Considering the paucity of data from India and to improve drug compliance pertaining to Indian context, this study was conducted.

AIMS

1. Comparative analysis of patient / illness /treatment - related variables, social support and outcome in compliant versus non-compliant patients.
2. To find out the reasons for non-compliance
3. Assessment of the relationship between different reasons for non-compliance and patient/illness/ treatment related variables.

MATERIALS & METHODS

Consecutive patients attending the Outpatient Psychiatry Department of Government Medical College, Kozhikode during the period 1st November 1998 to 31st January 1999 formed the study sample. This hospital is a tertiary care centre in North Kerala, catering the needs of a wide catchment area including Kozhikode, Malappuram, Wayanad, Kannur, Palakkad and Kasargodu. The following inclusion criteria were applied for the intake of sample:

- Consent to participate in the study
- Patients only on oral medications
- Patient on medication for at least 2 weeks from this hospital.

Data regarding patient, illness and treatment related variables were recorded in a proforma specially designed for the study after detailed interview with the patient and accompanying relatives. The socioeconomic status was assessed by Social Score Method, which classified the socioeconomic status of the family as low, middle or high depending on the education of head household, occupation of head household, income (updated to the current money value) and housing (WHO, 1976).

The Social Support Questionnaire by Nehra & Kulhara (1987) was used for assessing the social support. This scale has 18 items, each having 4 options which range from no agreement to total agreement. Seven of the items are positively worded and 11 are negatively worded. Higher score indicates that more social support is available to the patients.

If the patient was found to be non-complaint two weeks after starting treatment the reason was entered in a non-compliance reasons checklist (Chakravarthy, 1997) after a semistructured interview. This checklist has been used in India to assess non-compliance in epileptic patients. Patient was considered non-compliant if the drug is completely stopped or dose is reduced for two weeks after starting treatment from the hospital. This definition for non-compliance has been used in many studies done in the West (Blackwell, 1992). A multi-source interview was conducted to detect non-compliance supplemented with pill count and prescription filling dates. It include interviewing the patient and accompanying persons about the number of tablets he/she has been taking, colour of tablets etc

Psychiatric diagnosis was based on DSM IV Diagnostic Criteria (APA, 1994). Outcome was assessed by Global Assessment of Functioning (GAF) scale (APA, 1994) at 4 weeks after starting treatment from the hospital.

The data were analyzed by means of Statistical Package for Social Scientists (SPSS) for windows version 7.0. To compare the means of two groups independent 't' test was used. For the comparison of means of more than 2 groups one way ANOVA test was performed. To compare the means of two groups when distribution was non-normal Mann-Whitney test with Z corrected for ties was done. To compare the means of more than 2 groups when distributions were

non-normal Kruskal Wallis one way ANOVA was performed. To compare the proportion across two groups Chi square (X2) test was used.

RESULTS

A total of 307 patients were included in this study. Of the total, 162 (52.7%) were compliant on medication and 145 (47.3%) were non-compliant on medication.

Table 1 shows the comparative analysis of patient/ illness/treatment related variables, social support score and GAF score of compliant versus non-compliant patients. Non-complaint group had significantly lower social support score and longer duration of illness compared to compliant group. The treatment outcome in compliant group was significantly better than the non-compliant group.

Table - 1

ANALYSIS OF PATIENT, ILLNESS AND TREATMENT RELATED VARIABLES OF COMPLIANT VERSUS NON-COMPLIANT PATIENTS.

	Compliant Group N = 162 (52.7%)	Non-Compliant Group N = 145 (47.3%)	Significance
Age (Yrs)	37.3 ± 12.4	37.1 ± 13.1	t=1.18, df=304,NS
Sex			
Male	101	84	X^2 = 0.55, NS
Female	61	61	
Marital Status			
Single	60	48	X^2 = 0.47,df=1, NS
Married	102	97	
Religion			
Hindu	50	45	
Christian	70	68	X^2 = 0.79, df=2,NS
Muslim	42	32	
Education (yrs)	7.5 ± 3.8	6.8 ± 4.08	t = 1.62, df=304,NS
Employment Status			
Employed	62	51	X^2 = 0.24, df=1,NS
Unemployed	100	94	
Socio-economic Status			
Low	88	93	
Middle	50	40	X^2 = 3.75, df=2,NS
High	24	12	
Social Support Score	50. 3 ± 9.6	37.7 ± 8.5	Z = 2.06, P = 0.01
Staying Alone			
Yes	10	8	X^2 = 0.00, df=1,NS
No	152	137	
Distance to come for consultation (km)	36.6 ± 33.9	32.1 ± 25.1	Z = 0.20, NS
Family History			
Present	86	70	X^2 = 0.46,df=1, NS
Absent	76	75	
Duration of illness	76.6 ± 81.8	97.1 ± 105.7	Z = 1.66, P = 0.01
Outcome (GAF Score)	13.9 ± 2.43	8.8 ± 4.01	t = 2.39, P = 0.05
Number of tablets	4.08 ± 2.02	4.25 ± 2.03	t=0.72,df=304,NS
Number of medicines	2.64 ± 1.20	2.79 ± 1.13	t=1.10,df=304,NS
Psychiatric diagnosis			
Bipolar disorder	52	50	
Schizophrenia	44	49	
Depression	32	23	
Neurosis	16	12	X^2 = 1.77, df=3,NS
Psychosis NOS	6	4	
Alcohol or substance / abuse dependence	3	3	
Others	9	4	

Table - 2

REASONS FOR NON-COMPLIANCE

	Number	Percentage
Side-effects with medication	29	20.0
No apparent reason	28	18.6
No need of taking medicines	24	16.5
Medicine is costly	23	15.8
Forgetting	13	8.9
Choosing alternative treatments	10	6.9
Inadequate explanations given by doctor	9	6.2
Drug stoppage because of feeling bored	5	3.4
Because of no effect with treatment	4	2.7

Table 2 shows different reasons for non-compliance. Side effects with medication (20%) were the commonest reason followed by no apparent reason (18.62%), no need of taking medicine (16.65%), medicine is costly (15.9%) etc.

Table 3 shows the analysis of patient/illness/ treatment related variables in relation to different reasons for non-compliance. Only four reasons with number of patients more than twenty were selected for analysis. Reasons like no apparent reason and medicine is costly were significantly higher in less educated group. Reasons like no apparent reason and side effects with medication were higher in patients with longer duration of illness. Patients who had no apparent reasons for non-compliance had significantly lower social support score. Among the three religions, the reason that medicine is costly was significantly higher in Hindus. Patients who reported no apparent reason to stop medicine were more likely to be staying alone.

Table - 3

ANALYSIS OF PATIENT/ILLNESS/TREATMENT RELATED VAIABLES WITH DIFFERENT REASONS FOR NON-COMPLIANCE

	No apparent reason (n=28)	Side effects (n=29)	Medicine is costly (n=23)	No need of taking drugs (n = 24)	Significance
Age (yrs)	43.5 ± 14.64	39. 86 ± 14.2	37. 6 ± 12.1	35.1 ± 14.0	F = 1.75, df=4,NS
Sex					
Male	12	8	8	9	X^2= 1.40,
Female	16	21	15	15	df=4,NS
Marital Status					
Single	12	8	8	9	X^2 = 1.60,
Married	16	21	15	15	df=4,NS
Religion					
Hindu	4	7	15	9	X^2 = 18.40
Christian	13	14	4	10	df=8,P= 0.02
Muslim	11	8	4	5	
Education (yrs)	5.8 ± 3.1	7.1 ± 3.3	5.3 ± 4.1	7.1 ± 4.3	F=2.55 df=4261 P = 0.04
Socioeconomic status					
Low	18	19	19	15	X^2 9.56
Middle	8	8	4	7	df=8
High	2	2	0	2	NS

	No apparent reason (n=28)	Side effects (n=29)	Medicine is costly (n=23)	No need of taking drugs (n = 24)	Significance
Employment status					
Employed	10	7	11	5	X^2=5.94
Unemployed	18	22	12	19	df=4, NS
Staying alone					
Yes	4	0	1	1	
No	24	29	22	23	Data not analyzed
Social support					
Yes	21	27	20	21	X^2=10.8,df=4p=0.03
No	7	2	3	3	
Social Support Score (mean rank)	21.50	49.4	66.3	44.2	X2=74.61 P = 0.03
Distance to travel for consultation (Kms.)	30 .2 ± 20.8	32.4 ± 24.5	20.0 ± 11.6	34. 9 ± 39.1	X^2 = 6.32, NS
Family history					
Present	12	14	12	13	
Absent	16	15	11	11	X^2=1.33,df=4NS
Duration of illness (months)	99.3 ± 119.1	96.4 ± 116.1	79.8 ± 78.8	80.6 ± 86.7	t= 0.75, NS
No. of medicines/day	2.7 ± 1.1	2.6 ± 1.18	2.7 ± 0.9	3.1 ± 1.4	F=0.74 df=4261, NS
Treatment schedule					
Once daily	4	6	12	1	
Twice daily	18	15	16	15	
> Twice daily	6	8	5	8	X^2 = 5.31, df=8,NS

DISCUSSION

Compliance, also known as adherence, is the process by which a patient carries out the clinical recommendations of treating physician. It is a topic of natural interest to the contemporary psychiatrist, given the biopsychosocial complexity and the long-term outcome of psychiatric disorders. Compiling the results of many studies, Blackwell (1995) has reported that only 54% of patients comply with treatment at any given time. It has been reported that with oral antipsychotic therapy, 40-50% of schizophrenic outpatients and nearly 40% of day hospital patients fail to take medication (Bartko et al, 1988). In the present study, the prevalence rate of non-compliance 47.3% was comparable with the previous reports.

In this study, analysis of patient/illness/treatment related variables could not differentiate drug compliers from non-compliers except non-compliers having longer duration of illness, poor social support and poor outcome. In an attempt to understand why a high percentage of patients fail to comply regularly, researches have investigated more than 200 variables but failed to reveal any association (Blackwell, 1992). Ayd JR (1995) has reported that compliance is influenced by duration of illness, duration of treatment, number of times a drug must be taken, total number of tablets, total number of medicines and cost. Shastri (1997) also has reported a linear association between duration of illness and non-compliance. Schwartz et al (1962) and Stoudemire (1983) have observed that older patients have more problems with compliance that is often attributed to complicated prescription practices and memory impairment. Both these factors were not significant in the present study as majority of our patients were young, had less complicated drug regimen, had a mean number of only four tablets per day, and had only less than three type of medicines

per day. Blackwell (1995) have pointed out that patients will become non-compliant if they have to take more than three types of medications or if the medications must be taken more than four times per day.

This study reflects that "side effects with medication" was the most important reason reported for non-compliance especially in patients with longer duration of illness. Only few researches have systematically studied this aspect. Side effects generally reported to be associated with psychiatric treatment are extrapyramidal side effects, sexual disturbances and weight gain (Young et al, 1986). Van Putten (1974) was the first to show that extrapyramidal side effects, most notably akathisia significantly predicted non-compliance. Marder et al (1983) in a study failed to show a correlation between drug side effects and drug refusal but found enhanced compliance when side effects had been adequately explained to them. A better neurocognitive status has also been shown to correlate positively with compliance (Lime et al, 1995). This emphasizes that compliance can be improved when the physician explains about the side effects, the value of a particular treatment outcome, and the need to follow the recommendation to bring the desired outcome. Kemp et al (1996) have recently shown promising results of their method of "motivational interviewing" in enhancing compliance.

Another frequent reason reported for non-compliance was "no apparent reason". Patients with longer duration of illness, lower education, staying alone and poor social support reported this reason more. Lim et al (1995) have found that educated patients have better drug compliance. Agarwal et al (1998) in their study have shown that lack of a key relative is one of the reasons for non-compliance. In psychiatric disorders especially with psychosis of long duration there is always a chance to stop drugs without any specific reason unless somebody is there to supervise medications. Compliance is also in jeopardy when stopping a drug does not immediately lead to relapse as it is the case in schizophrenia, where relapses do not occur until 2-6 months after terminating medication (Kane & Borenstein, 1985). Further, a large number of patients consider continuous use of medication as an evidence of disability. The association with lower education, staying alone and poor social support necessitates the provision of simple, comprehensible disease education to the patient and involvement of psychiatric social workers and psychiatric nurses to enhance compliance. For such patients, friends also have a role in supervising the medication. Tertiary services, charitable organizations, self-help groups etc can also contribute to the improvement of compliance of such patients (Channabasavanna, 1977).

Cost factor was the next common reason reported for non-compliance. There are plenty of studies showing that poverty and high cost of drugs can affect compliance (Baldessarini & Cole, 1988). A large number of prescriptions are often not respected as they end up putting immense financial burden on the patient (Shastri, 1997). For a developing country like ours where majority of the population belongs to the lower socio economic class, affordability of medicines is a significant issue. The belief that taking medicine was unnecessary was another reason for non-compliance emerged from this study. In fact, the specific issue relating to compliance in psychosis is the awareness of illness commonly called as insight. Lysaker et al (1994) in a study examining the relationship between insight and compliance reported a positive correlation between poor insight and non-compliance. This becomes more important when we consider that 70% of the present study group was comprised of psychotic patients. In psychotic patients especially those with poor insight, compliance can only be improved by an integrated, intensive treatment approach preferably in inpatient setting envisaging various issues like interpersonal problem solving, social skills, verbal communication and social perception like destigmatisation of mental illness etc.

In the present study relatively small proportion reasoned non-compliance for trying other systems of treatment like Homeopathy, Ayurveda, Sidha, magicoreligious healing etc. The modern psychiatric treatment is influenced by the patient's and relative's attitude, previous experiences, religious beliefs, mass media and others (Mantonakis et al, 1985). India is unique in its cultural diversity and the availability of variety of healing practices including Ayurveda, Sidha, Unani, Homeopathy and Magico-Religious treatments. It takes little time and is very advisable to ask the patients their general attitude towards taking drugs. If a patient believes in faith healer it would be better to say that he can go to him but do not stop taking drugs. On dissuading him from going to faith healer, he may

not take medicines. That way it would be better to be neutral to the patient's beliefs rather antagonizing it.

Only an insignificant proportion of our patients reasoned drug stoppage blaming inadequate explanation given by the doctor. Likewise, reasons like so many medicines, no effect with treatment were less frequent. None of our patients stopped drugs contemplating marriage or due to the fear of teratogenicity. Perhaps this reflects the good prescription practice and good patient education in this hospital.

Before concluding some of the methodological limitations of this study need to be considered. Non-compliance was measured only by indirect method. Accuracy of assessment non-compliance also needs direct measuring like biochemical assay, which was not done due to practical difficulties. Reasons for non-compliance were assessed using a checklist. The psychometric properties of this checklist have not been estimated. Lastly, an important aspect namely physician related variables were not addressed in this study. Though this has not been specifically addressed in most of the studies, a good relationship between the patient and physician is a prerequisite in enhancing drug compliance.

Based on the findings of this preliminary investigation several steps need to be considered to improve compliance in psychiatric patients. Sufficient information in simple comprehensible language about the illness, treatment plan including effects and potential adverse effects should be imparted to the patient and family without antagonizing their belief system. Whenever possible limit the complexity of prescription with simple dosage schedule and drugs with affordable cost. Patients with poor insight need an integrated, intense treatment program. Treatment emergent side effect should be taken seriously and treated rigorously. Patients with poor social support require widening of their social network.

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APPENDIX

NON-COMPLIANCE RASONS CHECKLIST

1. Forgetting to take medicine.
2. Fed up with drug intake.
3. No specific reason.
4. Due to side effects of medicine
5. Planning to marry.
6. Planning for pregnancy and hence to avoid damage to the baby.
7. Medicine is expensive
8. Tried other treatment methods (Ayurveda / Homeopathy/ Naturopathy/ Sidha/ Unani/ Religious treatments).
9. Thinking that there is no illness that needs medicine.
10. No effect with medicine.
11. Doctor has not explained about the medicine's effect and side effects, mode of administration and the duration of treatment.
12. Other reasons (specify).