

A study of drug attitude and medication adherence and its relationship with the impact of illness among the mentally ill

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Abstract

Background: Impact of illness may vary with the medication adherence which in turn may vary with the attitude towards drugs. There is a paucity of research examining relationships between these variables. **Objective:** To study the levels of drug attitude, adherence and its relationship with the impact of illness. **Methods:** A total of 279 participants with mental illness in remission were assessed with socio-demographic and clinical proforma, scales like Hogan Drug Attitude Inventory (DAI), Impact of Illness Scale (IIS), and Morisky Medication Adherence Scale (MMAS) were used. **Results:** Mean score on DAI, IIS, and MMAS were 2.38 (SD = 4.6), 25.88 (SD = 6.6), and 5.04 (SD = 2.2) respectively. On linear regression analysis ($R_2 = .122$, $DF = 2$, $F = 17.598$, $p < .001$) IIS Score was statistically significant but negatively associated with the score of MMAS ($p < .05$) and DAI ($p < .05$). **Discussion:** Impact of illness has an inverse relationship with the level of drug attitude and medication adherence. Improving drug attitude and adherence may buffer the impact of illness.

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Introduction

Mental illnesses often have direct or indirect consequences, leading to distress and disability that undermine the quality of life¹. Impact of mental illness includes feeling restricted, disrupted personal and family routine, problems in personal, emotional & social adjustment, financial strain, feeling overwhelmed and burdened². It is determined by severity of the symptoms, duration of the episodes, forms of the symptoms, treatment response, coping skills, stress load, comorbidity, and lifestyle. However, it remains unclear as to which factors best predict the quality of life³. Being a leading cause of DALY, and a neglected area of concern by the government like in India, and with a strong recommendation from World Health Organization for further research, it is important to explore the impact of mental illness among Indian population. To the best of our knowledge, no studies have explored the impact of mental illness in Indian population using standardised assessment tools. Mental illness results in adverse consequences⁴, hence there is a need to know the level of the impact of mental illness.

Exploring the patient's attitude towards medication is important as it helps to better understand the patients. Attitude of patients toward medication depends on multiple factors like overall perception of medications as good or bad, effect and side effects of the medication, and willingness to opt for medication⁴. More positive attitude towards medication and adherence has been associated with better insight (in the presence of a mental disorder) and sharing a good relationship with the treating physician. Predictors of positive attitude towards medication in mental illness includes insight into the need for treatment, a higher attribution of the symptoms to a disorder, experience of less negative side effects, presence of biological

causal beliefs, and less endorsement of psychological causal beliefs⁵. A positive attitude towards medication has a positive correlation with adherence^{6,7}. So far, no study has examined drug attitude among Indian population using standardised rating scale.

The WHO defines adherence in long-term therapy as “the extent to which a person's behaviour taking medication, following a diet, and/or executing lifestyle changes – corresponds with agreed recommendations from a health care provider”⁸ WHO also reported that only 50% of patients with chronic diseases adhere to treatment recommendations in developed countries and further quoted that “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”⁸. Attitude towards medication may directly or indirectly mediate the impact of illness. A negative attitude, delay or refusal of treatment may lead to higher impact of illness. Indirect evidence suggests that better attitude towards medication may alleviate the impact of illness⁹.

Keeping in view that mental illness is not only associated with adverse consequences which vary with the levels of adherence, but drug attitude may also influence the adherence, hence it may indirectly determine the impact of illness. There is a knowledge gap as to what are the levels and relationships of these variables. As per our knowledge, no study has examined the relationship between these variables which further warrants a need to examine these variables.

With the above background, this study was conducted to know the drug attitude and medication adherence and their relationship with impact of illness, among those with mental illnesses. We hypothesized that impact of illness has an inverse relation with level of drug attitude and adherence.



Methods

The study was hospital based cross sectional study and was conducted at the Outpatient Department of Psychiatry, JSS medical college, Mysore, India. The subjects were recruited from March 2018 till September 2018. Two hundred and seventy nine participants, who were living in the community after an episode of mental illness and attended outpatient department of psychiatry during follow-up, were recruited after obtaining an informed consent. Patients who were between age of 18-65 years of age, with at least one episode of mental illness in the past but currently in remission (as ascertained by the treating psychiatrist through a detailed clinical examination) were included in the study. Those who had chronic physical illness or disability (as it may influence the perception of impact of mental illness) were excluded from the study. Participants with psychiatric diagnosis of Mental Retardation and Dementia were also excluded due to reliability issue. Participants who met the selection criteria underwent further assessment with the following tools:

- 1) Socio-demographic and clinical Proforma – which included age, gender, marital status, education, religion, occupation, domicile status, socio-economic status, medication preference, use of self-medication and diagnosis.
- 2) Drug Attitude Inventory (DAI) – To assess the attitude towards medication, DAI was used after translating it to Kannada language. This tool was initially developed in 1983². This self-administered tool has 30 items with true/false response options. Each correct answer is rewarded with 1 point while for a wrong answer, 1 point is deducted. It has good internal consistency ($\alpha = 0.88$), test-retest reliability ($r = 0.99$, $p < 10$) and inter-rater reliability ($ICC = 0.99$)⁴.
- 3) Impact of Illness Scale (IIS) – This scale was developed by Klimidis *et al.* in 2001, to assess impact of illness¹⁰. The IIS is a short, easy to administer scale, and has a high internal consistency coefficient alpha of 0.93. It has been used in diverse socio-cultural settings to measure the illness impact. The scale assesses areas of relationship, work, joy & recreation, social & religious obligation, family obligation, routine chores, daily needs, mobility, and participation. Studies suggest that IIS is a reliable and gives valid measure of psychosocial impact of illness that may be applicable in a wide range of socio-cultural settings¹⁰. In our study this scale too was administered after translation to Kannada.
- 4) Morisky Medication Adherence Scale- This is a self-reporting scale and has 8 items with yes/no response options. Correct response is given 1 point, while incorrect response is scored 0. Score of < 6 indicates low adherence, score of 6-8 indicates medium adherence, and a score of ≥ 8 indicates high adherence. This scale has a sensitivity and specificity of 93% and 53% respectively, and Cronbach's alpha value of 0.83¹¹. A translated Kannada version was used in this study.

The data was analyzed using SPSS version 21. Descriptive statistics were used to analyze demographic and clinical features. Exploratory analysis was done to the find out the relationships between DAI, MMAS and IIS score with socio-demographic and clinical variables, while linear regression analysis was done to know the relationship of score on DAI and MMAS with the score on IIS.

Results

In this study, the majority of subjects were educated, married, unemployed, from a rural background, Hindus, from low socioeconomic status, had preferences for modern treatment, had a history of self-medication in the past, and had a past episode of mood disorder (Table 1).

Mean age of participants was 38.42 (SD = 12.6) years. Mean score on DAI, IIS, and MMAS were 2.38 (SD = 4.6), 25.88 (SD = 6.6), and 5.04 (SD = 2.2) correspondingly (Table 2). On the score of DAI, no statistically significant group difference was observed among socio-demographic variables except for domicile status (MU

= 5571.50, $Z = -1.86$, $p < .05$) and education ($\chi^2 = 6.771$, $DF = 2$, $p < .05$) (Tables 3 and 4).

Similarly on the IIS score, no statistically significant group difference was observed among socio-demographic variables except occupation (MU = 6.88, $Z = -2.02$, $p < .05$) and diagnosis ($\chi^2 = 8.92$, $DF = 2$, $p < .05$) (Table 3 and 4).

On the score of MMAS, statistically significant group difference was observed for demographic variables – Gender (MU = 7104.50, $Z = -2.23$, $p < .05$), Medication Preference (MU = 1302.00, $Z = -1.98$, $p < .05$), and Self-Medication ($\chi^2 = 17.36$, $DF = 2$, $p < .001$) (Tables 3 and 4).

On linear regression analysis ($R_2 = .122$, $DF = 2$, $F = 17.59$, $p < .001$) IIS Score was statistically significant but negatively associated with the score of MMAS ($p < .05$) and DAI ($p < .05$) (Table 5).

Table 1. Socio-demographic and clinical characteristics

Variables	n	%
Gender		
Male	144	49.8
Female	145	50.2
Occupation		
Employed	128	44.3
Unemployed	161	55.7
Education		
Uneducated	34	11.8
Primary	57	19.7
Up to PUC	173	59.9
Graduate	25	8.7
Residence		
Rural	204	70.6
Urban	85	29.4
Religion		
Hindu	267	92.4
Muslim	19	6.6
Christian	3	1.0
Socio-economic status		
Low	201	69.6
Middle	83	28.7
High	5	1.7
Marital status		
Single	69	23.9
Married	220	76.1
Medication preference		
Allopathic	272	94.1
Ayurvedic	17	5.9
Self-medication		
Never	84	29.1
Some time	171	59.2
Frequently	34	11.8
Diagnosis		
F 10	52	18.0
F20	14	4.8
F30	187	64.7
F40	36	12.5

Table 2. Socio-demographic and clinical characteristics

Variables	Minimum	Maximum	Mean	Std. deviation
Age	15	73	38.26	12.48
DAI Score	-10.00	10.00	2.38	4.46
IIS Score	.00	36.00	25.88	6.59
MMAS Score	.00	7.00	5.04	2.23

Table 3. Level of group difference of socio-demographic variables on DAI, IIS and MMAS Score

Variables	N	Mean Rank	M U	Z	p
Residence* DAI Score					
Rural	204	135.18	5571.50	-1.864	.050
Urban	85	115.75			
Occupation *IIS Score					
Employed	128	139.83	6.88	-2.029	.042
Un-employed	161	121.02			
Gender *MMAS Score					
Male	144	119.94	7104.50	-2.239	.025
Female	145	18437.50			

Table 4. Level of group difference of socio-demographic variables on DAI, IIS Score and MMAS Score

Variables	N	Mean Rank	df	p
Education* DAI Score				
Primary	34	131.91	2	.034
Up to PUC	57	110.06		
Up to graduate	173	96.00		
Diagnosis* IIS Score				
F10	52	122.02	3	.030
F20	14	156.62		
F30	187	134.92		
F40	36	97.44		
Self-medication* MMAS Score				
Never	84	143.77	2	.001
Some time	171	132.85		
Frequently	34	83.68		

Table 5. Relationships of drug attitude and medication adherence with impact of illness

Model		Unstandardized coefficients		Standardized coefficients	95% confidence interval for B		t	Sig.
		B	Std. Error	Beta	Lower bound	Upper bound		
1	(Constant)	10.200	.408		28.205	33.022	24.986	.001
	DAI Score	-.082	.034	-.171	-.436	-.037	-2.424	.016
	MMAS Score	-.218	.069	-.223	-1.062	-.248	-3.157	.002

R2: .122; df: 2, F: 17.598; p: .001; Dependent Variable: IIS Score; Predictors: MMAS Score, DAI Score.

Discussion

The demographic and clinical characteristics were similar to the previous studies conducted at the same centre¹². The study centre is a charitable trust catering services to both rural and urban population who are mostly Hindu by religion, and under privileged. In our study, we observed a positive attitude towards drugs (mean of 2.38 out of maximum score of 10). The study centre offers evidence based modern treatment that is supposed to be effective. Consistent to our previous reports, in this study also, the majority of the participants (94%) preferred modern treatment, compared to other methods such as Ayurvedic medications. This could also be partially due to the higher prevalence of medical model of illness among participants attending study centre.

High mean score on 25.88 (maximum possible score 27) indicates a high impact of illness on the participants. Mental illness is known to affect interpersonal relationships, working capacity, leisure and recreational activity, familial obligation etc. Mental illness is also known to affect the quality of life of the affected.

Consistent with previous reports, we observed low levels of medication adherence. Medication adherence is usually poor in subjects with mental illness and many etiological factors play a role such as patient related factors, medication related factors and illness related factors.

Similar to our findings, other reports revealed varying levels of drug attitude, depending upon occupation in patients with schizophrenia¹³. Employed status makes people to have a rational view about medication in order to be fit for occupation and free from illness. Those who were employed were more likely to have higher levels of education than those without employment. Similarly those with mood, anxiety and other non-psychotic disorders may had a favourable attitude towards medication than those with psychotic illness. Research has revealed a disparity between men and women in their medication adherence, as observed in this study; that may require more personalized drug selection and therapeutic management to improve the outcome of an illness¹⁴.

Most participants had a preference for modern, mainstream treatment. This was congruent with the fact that modern medication offers evidence based remedy to the patients; hence better adherence was observed in comparison to those that preferred other methods such as Ayurvedic. There are reports that concordance depends on the patient, illness and clinician factors and patient choice is the final common pathway that may be operative in a modern treatment method¹⁵.

We observed a better adherence of medication with lower level of self-medication. Such observation has been made among non-psychiatric populations with less severe illnesses¹⁶. The commonest

cause of self-medication is usually symptomatic improvement and is often the main reason for poor compliance¹⁶.

Consistent with our hypothesis, we observed an inverse relationship between IIS score with DAI & MMAS score. Lower positive drug attitude is associated with higher impact of illness, has been reported earlier¹⁷. Observed inverse relationship in this study did not appear to be mediated through compliance and illness remedial behaviour. Negative drug attitude is known to be a predictor of poor compliance and may aggravate the persistence of symptoms, negative effect of illness and psychosocial dysfunction such as social isolation, loss of employment, and loss of role and status. The pharmacophobic (those with a negative drug attitude) are often introverted and more likely to be sensitive and relatively less judgmental as compared to the pharmacophilic¹⁸. On the other hand, a positive drug attitude favours greater shared decision making and self-efficacy that are helpful in reducing impact of illness¹⁹.

With the findings of this study, it can be concluded that negative attitude towards medication, low medication adherence and high level of impact of illness presents in mental illness in remission. Impact of illness has an inverse relationship with level of drug attitude and medication adherence. Improving drug attitude and adherence may buffer the impact of illness. The findings of this study should be interpreted with caution, as it was constrained by its cross sectional study design, lack of control group, lack of assessment of insight, and for not using structured instruments for the assessment of the diagnosis. Further research is needed for addressing the limitations of this study.

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