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PREVALENCE AND RISK FACTORS OF NON-ADHERENCE IN PSYCHIATRIC PATIENTS IN TAIF, SAUDI ARABIA

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ABSTRACT

Objectives: To estimate the prevalence of non-adherence to medication among and to explore the different reasons for drug non adherence among patient in mental health hospital in Taif city. **Subjects and methods:** It is a Cross-sectional descriptive study. The study included 255 patients who were following in Mental Health Hospital clinic. The total number was 255 patients, 233 patients were included in the study and 22 were excluded from the study according to eligibility criteria. The tool of the study was a self-administered questionnaire, which consists of three Parts: Demographic data, psychiatric diagnosis and reasons of not take the treatment. **Result:** Incidence of non-adherence was high (84.1%). The factors that increased the likelihood of non-adherence were absence of job, familial support and health education about medication use in addition to occurrence of side effects. **Conclusion:** The frequency of non-adherence is relatively high among the patients with psychiatric disorders in Taif city. Prevention strategies should focus on enhancing socioeconomic status (education and employment) and effective health education of patients to enable them to deal with adverse drug effects.

KEYWORD: prevalence, Non Adherence, Mental Health, Taif city.

INTRODUCTION

Background: Adherence is defined as "the extent to which the patient's behavior (in terms of taking medications, following diets, or executing other lifestyle changes) matches medical

recommendations jointly agreed between patient and prescriber".[1,2] Compliance is defined as "the extent to which the patient's behavior (in terms of taking medications, following diets, or executing other lifestyle changes) coincides with medical recommendations".[3] The terms adherence and compliance are used usually interchangeably. However, adherence indicates an active role of the patient during procedure of decision-making.[4] It is well agreed that adherence is an essential element for successful treatment of psychiatric patients and has a great impact on their health.[5,6]

In spite of continued progress in the treatment of psychiatric disorders, non-adherence constitutes a major problem in daily clinical practice. Its great predominance, potentially severe consequences and associated costs to the patient and society make the study of this phenomenon an important concern.[7] Non-adherence is a frequent cause of relapse, psychiatric emergencies, hospitalization, poor mental performance, longer time to remission, poorer prognosis, higher risk of suicide, loss of job, dangerous behavior, violence, and drug and alcohol consumption[8]

Despite the serious consequences of non-adherence, it is potentially preventable.[9] Identifying factors that aggravate the risk of non-adherence to treatment is essential to enable the design of appropriate intervention strategies to reduce it.[10, 11] Many studies investigated this problem in different populations and recorded variable prevalence rates and accused risk factors. Most of these studies contain methodological restrictions, especially concerning the evaluation methods of non-adherence.[10]

To the best of our recent knowledge, few previous studies were done in Saudi Arabia, but none of them investigated the non-adherence phenomenon in Taif city. So, the aim of this study was to estimate the prevalence and to identify common reasons and risk factors of non-adherence among psychiatric patients in Taif city. This study aims to estimate the prevalence of non-adherence to medication among patient in mental health hospital in Taif city and to explore the different reasons for drug non adherence among patient in mental health hospital in Taif city.

Rationale

Non-adherence is a common problem among psychiatry patient and has a great impact on their lives and society. We hope this study will help in assessing its prevalence and identify the common reasons of non-adherence.this study was never done in Taif city.

Specific Aim

The measure the prevalence and reasons of medication non-adherence among mental health hospital patient in in Taif city.

RESEARCH DESIGN AND METHODS

Study design

A cross sectional descriptive study.

Study population

The study included 255 patients who were following in Mental Health Hospital clinic.

Sample size

The total number was 255 patients, 233. patients were included in the study and 22 were excluded from the study according to eligibility criteria.

Time period

Two-week period in January 2017.

Inclusion criteria

All the patients, Saudi and non Saudi, males and females who follow in the Mental Health Hospital clinic in Taif at the time of the study were included.

Exclusion criteria

All patients who did not complete the form and who refuse to participate were excluded.

Data collection methods

A self administered questionnaire was used. The questionnaire was translated to Arabic language and necessary modification was made to meet the objectives then validated from two psychiatric consultant. It consists of three Parts: Demographic data, psychiatric diagnosis and reasons of not take the treatment. The questionnaires were distributed to participant patients by data collectors. Then, they waited them to fill all questions and they were collected again. Data were entered into personal computer using google drive online form and Microsoft excel.

Data analyses

Statistical Package for Social Sciences (SPSS) for windows version 16.0 was used for analysis. Chi-square tests ($\chi 2$) analysis was performed for the association and/or the difference between two categorical variables. For all statistical tests done, P value equal or less than 0.05 was considered statistically significant.

Ethical considerations

Before conduction of the study, all necessary approvals were obtained.

RESULT

In this study, 233 psychiatric patients were recruited. More than half of them (57.7%) were from Taif city. Males predominates females (72%). Their age ranged from 18-65 years with a mean of 39.36 ±11.03. The majority of them were single, educated to the primary and secondary level and had no job (47.4%, 80.2% and 70.1%) respectively (Table 1).

The rate of medication non-adherence in the studied patients was 84.1%. Non-adherent patients showed a statistically significant lower mean age than adherent patients (38.60± 10.93 and 43.35± 10.82) respectively. Additionally, there was a statistically significant association between the educational level and the medication non-adherence. Higher percentage (79.6%) of non-adherence patients had only primary and/or secondary education. No statistically significant association was found between sex, job or marital status and medication non-adherence (Table 1).

Table (2) shows no statistically significant association between the type of psychiatric disorder and the occurrence of non-adherence. But, higher incidence (92.8%) of non-adherence was observed among patients with neurosis and psychosis. In addition, there was no statistically significant association between the duration of the mental illness, smoking, drug dependence or rokia shareia on one hand and the medication non-adherence.

Table (3) demonstrates associations between treatment-related risk factors and non-adherence. The majority of the non-adherent patients (82.1%, 85.7%,83.7 % and 92.3% respectively) reported presence of Complexity in the medication schedule, occurrence of Side effects of drugs, Ineffectiveness of medications and absence of adequate Medication education with a statistically significant association between each of these risk factors and

non-adherence. Furthermore, absence of familial support was reported by 81.6% of non-adherent patients with a statistically significant relationship.

Among the studied physician-related and the psychological risk factors of non-adherence, table (4) illustrates that forgetfulness was reported in more than half (55.1%) of the non-adherent patients with a statistically significant association (p=0.003). a statistically significanthigher degrees of difficulty in remembering were detected in the non-adherent patients (p=0.011).

Tables (5 and 6) show the results of a stepwise binary logistic regression analysis that was performed to predict the occurrence of non-adherent from the studied variables. Among the studied variables, job, occurrence of side effects, education of medication use and familial support were found to contribute significantly to the model. The logistic regression model was statistically significant, $\chi^2 = 40.39$, $p<0.001$ .The model explained % 27.3 (Nagelkerke ^{2}) of the variance and correctly classified86.7% of cases. Sensitivity was 96.4%, and specificity was 35.1%. Absence of job, familial support and health education about medication use in addition to occurrence of side effects were associated with an increased likelihood of non-adherence to medications (odds ratios: 21.37, 5.342, 3.67 and 2.88 respectively).

Table 1: Associations between socio-demographic data and non-adherence in the studied patients.

			Groups			Tests of significance	
			Adherent =37	**Non-adherent = 196**	**Total = 233**	**Test statistics**	**P**
Age	Range		19.0-65.0	18.0-65.0	18.0-65.0	t = 2.42	.016*
	Mean		43.35	38.60	39.36		
	SD		10.82	10.93	11.03		
Sex	Female	N	8	57	65	X^2 =.89	.345
		%	21.6	29.2	28.0		
	Male	N	29	138	167		
		%	78.4	70.8	72.0		
Education level	Not educated	N	5	12	17	X^2 =5.92	.045*
		%	13.9	6.1	7.3		
	1 ry & 2 ry education	N	30	156	186		
		%	83.3	79.6	80.2		
	Higher education	N	1	28	29		
		%	2.8	14.3	12.5		
Job	Yes	N	11	52	63	X^2 =.010	.920
		%	30.6	29.7	29.9		
	No	N	25	123	148		

		%	69.4	70.3	70.1		
Marital status	Widow	N	1	1	2	X^2 =2.63	.429
		%	2.7	0.5	0.9		
	Divorced	N	18	82	100		
		%	48.6	42.9	43.9		
	Single	N	16	92	108		
		%	43.2	48.2	47.4		
Residence	Taif	N	25	88	113	X^2 =6.56	.010*
		%	78.1	53.7	57.7		
	Outside Taif	N	7	76	83		
		%	21.9	46.3	42.3		

*Significant at p <.05, t: independent T test, x^2: Pearson's Chi Square test

Table 2: Associations between the type and duration of the psychiatric disease, smoking, drug dependence and Rokia shareia and non-adherence in the studied patients.

			Groups			Tests of significance	
			Adherent	**non adherent**	**Total**	**Test statistics**	**P**
Diagnosis	Epilepsy	N	0	1	1	4.022	.513
		%	0.0	0.5	0.4		
	Personality disorder	N	1	1	2		
		%	2.7	0.5	0.9		
	mental retardation	N	0	3	3		
		%	0.0	1.5	1.3		
	Substance abuse	N	0	9	9		
		%	0.0	4.6	3.9		
	Psychosis	N	17	89	106		
		%	45.9	45.4	45.5		
	Neurosis	N	19	93	112		
		%	51.4	47.4	48.1		
Duration Of disease (years)	Minimum- Maximum		2.0-23.0	.25-52.0	.25-52.0	Z_{mw} = 1.075	.088
	Median		7.00	6.00	6.00		
	IQR		5.0-12.5	2.0-12.0	3.0-12.0		
	Mean rank		131.08	110.78			
Smoking	Yes	N	23	105	128	X^2 = 1.61	.204
		%	65.7	54.1	55.9		
	No	N	12	89	101		
		%	34.3	45.9	44.1%		
Drug dependence	Yes	N	9	34	43	X^2 =1.07	.316
		%	24.3	17.3	18.5		
	No	N	28	162	190		
		%	75.7	82.7	81.5		
Rokia Shareia	Yes	N	8	26	34	X^2 =1.74	.187
		%	21.6	13.3	14.6		
	No	N	29	170	199		
		%	78.4	86.7	85.4		

*Significant at p <.05, Z_{mw}: Mann Whitney test, x^2: Pearson's Chi Square and Fisher's Exact tests.

Table 3: Associations between treatment-related risk factors and familial support and non-adherence in the studied patients.

			Groups			Tests of significance	
			Adherent	Non adherent	Total	Test statistics	P
Number of drugs	Range		1.00-4.00	1.00-9.00	1.00-9.00	Z_{mw} = 1.075	.088
	Median		3.00	2.00	2.00		
	IQR		2.00-3.00	2.00-3.00	2.00-3.00		
	Mean rank		127.88	114.34			
Complexity of medication schedule	No	N	17	35	52	X^2 =14.16	<.001*
		%	45.9	17.9	22.3		
	yes	N	20	161	181		
		%	54.1	82.1	77.7		
Discomfort daily dose	No	N	22	94	116	X^2 =1.37	.24
		%	59.5	49.0	50.7		
	yes	N	15	98	113		
		%	40.5	51.0	49.3		
Side effects of drugs	No	N	15	28	43	X^2 =14.26	<.001*
		%	40.5	14.3	18.5		
	Yes	N	22	168	190		
		%	59.5	85.7	81.5		
Ineffectiveness of medications	No	N	15	32	47	X^2 =11.33	.001*
		%	40.5	16.3	20.2		
	yes	N	22	164	186		
		%	59.5	83.7	79.8		
Adequate Medication education	Yes	N	10	15	25	X^2 =12.20	<.001*
		%	27.0	7.7	10.7		
	No	N	27	181	208		
		%	73.0	92.3	89.3		
Familial support	Yes	N	21	36	57	X^2 =24.82	<.001*
		%	56.8	18.4	24.5		
	No	N	16	160	176		
		%	43.2	81.6	75.5		
Conviction mental illness	Yes	N	11	64	75	X^2 =.122	.73
		%	29.7	32.7	32.2		
	No	N	26	132	158		
		%	70.3	67.3	67.8		

*Significant at p <.05, Z_{mw}: Mann Whitney test, x^2: Pearson's Chi Square test.

Table 4: Associations between physician-related and psychological risk factors and non-adherence in the studied patients.

		Groups						Tests of significance	
		Adherent		Non adherent		Total			
		N	%	N	%	N	%	x^2	P value
Change the therapist	No	31	83.8	178	90.8	209	89.7	.99	.319
	Yes	6	16.2	18	9.2	24	10.3		
Physician attitude	No	32	86.5	180	91.8	212	91.0	.532	.466
	Yes	5	13.5	16	8.2	21	9.0		
Forgetfulness	No	7	18.9	88	44.9	95	40.8	8.67	.003*
	Yes	30	81.1	108	55.1	138	59.2		
Sometimes forget taking medications	No	9	24.3	78	40.6	87	38.0	3.50	.061
	Yes	28	75.7	114	59.4	142	62.0		
Difficulty in remembering	No	8	21.6	73	37.2	81	34.8	3.35	.067
	Yes	29	78.4	123	62.8	152	65.2		
Degree of difficulty in remembering	.00	7	18.9	73	37.2	80	34.3	15.40	.011*
	.25	2	5.4	22	11.2	24	10.3		
	.50	14	37.8	37	18.9	51	21.9		
	.75	8	21.6	24	12.2	32	13.7		
	1.00	2	5.4	29	14.8	31	13.3		
	2.00	4	10.8	8	4.1	12	5.2		
	3.00	0	0.0	3	1.5	3	1.3		
Stop medication when improved	No	28	75.7	120	68.6	148	69.8	.73	.392
	Yes	9	24.3	55	31.4	64	30.2		
Stop medication because of distress without informing the physician	No	16	43.2	114	59.1	130	56.5	3.16	.75
	Yes	21	56.8	79	40.9	100	43.5		
No medications in the last two days	No	15	40.5	86	44.8	101	44.1	.227	.63
	Yes	22	59.5	106	55.2	128	55.9		
took medications yesterday	No	17	45.9	71	36.2	88	37.8	1.25	.263
	Yes	20	54.1	125	63.8	145	62.2		
Forget taking medications in travelling	No	16	43.2	98	51.0	114	49.8	.755	.385
	Yes	21	56.8	94	49.0	115	50.2		

*Significant at p <.05, x^2: Pearson's Chi Square and Fisher's exact tests

Table 5: Binary logistic regression predicting occurrence of medications non- adherence in the studied patients.

Chi square test		Nagelkerke R^2	Percentage accuracy in classification	Variables	Exp (B) (Odds ratio)	P value
X^2	P					
40.39	<.001*	.273	86.7	Job (no)	21.37	.011*
				Side effects of drugs (yes)	2.88	.028*
				medication education(no)	3.67	.047*
				Familial support (no)	5.342	<.001*
				Constant	.226	.046

*significant at p<0.05

Table 6: Classification table based on the binary logistic regression model showing number and percentage of observed and predicted cases of medications non-adherence.

Original observations		Predicted		
		Patients		Percentage Correct
		Adherent	Non-adherent	
Patients	Adherent	13	24	35.1 (Specificity)
	Non –adherent	7	189	96.4 (Sensitivity)
Percentage accuracy in classification				86.7

DISCUSSION

Non-adherence to prescribed antipsychotic medications places patients with psychiatric disorders at a greatly increased risk of illness exacerbation and readmission to hospital. Identification of risk factors for non-adherence is an initial step toward designing effective interventions.[12] Improving adherence of patient to prescribed treatment is essential in the field of clinical psychiatry. Psychiatrists should build a good physician - patient relationship, understand the patient needs and accustom treatment accordingly.[7]

The rate of medication non-adherence in the studied patients was 84.1%. Similarly, non-adherence rate in Kuwaiti patients with major depressive disorder was found to be 88%.[13,14,15]

However, other studies reported less non-adherence rates. The frequency of non-adherence was reported to be 20%–60% in patients with bipolar disorder (mean rate 40%)[16] and nearly 50% in patients taking antidepressant medication during the first month.[17] In addition, the frequency of patients with major depression who had an adequate dosage and duration of

therapy was only 40%.[18] Lacro et al. (2002b) stated that about 50% of schizophrenic patients in their study were non-adherent to depot neuroleptic drugs (with a wide range from 4% to 72%).[12] Novak-Grubic (2002)found that 53.6% of patients who had with a first psychotic episode of schizophrenia, schizophreniform disorder or schizoaffective disorder ceased to administer the treatment during the first year.[19] Kamali et al. (2006) reported that one-third of patients admitted with first psychotic episode of schizophrenia were non-adherents 6 months afterwards.[20] Alhulwah et al. (2011) stated that 40% of depressed patients did not adhere to their psychiatric clinic visits.[21] Tesfay et al. (2013) found that 41.2% of adult psychiatric out patients were non-adherent to medication.[22] Al Jumah et al(2014) reported that 52.9% showed non-adherence to antidepressant medications.[23] Mert et al. (2015) found that 48.8% of their patients were non-adherent.[24]

This discrepancy between the present study and other comparable studies may be attributed to the variability in defining non-adherence and criteria used to determine it, methods for evaluating non-adherence and observation period. Studies that evaluated the effect of observation period on non-adherence rates found that adherence may vary during the patient's evolution; being usually good after discharge from hospital then was inclined to decrease with time.[25,12] It was reported that 28% of patients cease to take medication after 1 month, and this rate increased to reach 44% to 52% after 3 months.[26,27] Moreover, the accuracy of self-reports of adherence to treatment depends on the patient's intellectual abilities, and attitudes towards the treating physician.[11]

As regards patient related factors, Non- adherent patients showed a statistically significant lower mean age than adherent patients. This result agrees with previous report by Hui et al. (2006).[28] This may be attributed to the distrust of young patients, in the first stages of disease, of the diagnosis and their need for treatment. However, other studies stated that older patients are at increased risk of non-adherence due to age related factors such as working-memory loss and impaired executive performance, in addition to their administering multiple medications.[29, 23]

In the current study, there was a statistically significant association between the educational level and the medication non-adherence. Higher percentage (79.6%) of non-adherence patients had only primary and/or secondary education. This finding goes hand in hand with that stated by Nakonezny and Byerly (2006).[36] However, Al Jumah and his colleagues

(2014) reported a lack of association between educational level and non-adherence to antidepressant drugs.[23]

In the present study, significant association was not found between sex, job or marital status and medication non-adherence. This is in line with Lacro et al. (2002a).[12] However, some studies reported that men had more non-adherence frequencies than women.[30,31,23] This study did not demonstrate a significant association between smoking, drug dependence on one hand and the medication non-adherence on the other hand. Similarly, many recent studies[32. 33, 31] declined such association, in contrast to previous suggestion of its being a major risk factor in previous studies.[12, 30, 34,35]

Considering factors related to psychiatric disorder, no statistically significant association between the type of psychiatric disorder or its duration and the occurrence of non-adherence was found in the current study. Meanwhile, higher incidence (92.8%) of non-adherence was observed among patients with neurosis and psychosis. Other studies.[36, 33] reported the absence of association with type of disease. On the contrary, Mert et al. (2015) found that non-adherence rate was significantly higher in patients with bipolar disorder when compared to other types.[24] Remington et al. (2007) found an association between higher non-adherence and longer length of illness.[32]

On evaluating medication-related factors, this study found that there was a significant association between the complexity of medication schedule, side effects of drugs, ineffectiveness of medications on one hand and non-adherence on the other hand. Similarly, ineffectiveness of medication against psychotic or negative symptoms[31] and side effects[30, 37, 38] were identified as risk factor This sensation of ineffectiveness of antipsychotic drugs is due to their delayed onset of the therapeutic effects (while adverse effects appear earlier).[30]

The role of complexity of medication schedule, as a risk factor of non-adherence was a subject of controversy between the different studies. Its association with non-adherence was found in this study and some others[12,30,39,40] while some studies didn't prove it.[36; 33] Additionally, Al Jumah et al. (2014) found no significant association between the number of medica¬tions per prescription, or the pharmacological group of the antidepressant medication with adherence.[23]

Among the studied psychological risk factors of non-adherence, forgetfulness was reported in the present study in 55.1% of the non-adherent patients. Moreover, significant higher degrees of difficulty in remembering were observed in the non-adherent patients.

Considering the physician role in non-adherence, this study found no significant association between Physician attitude or change of therapists and the non-adherence. However, defects in medical education were significantly associated with non-adherence and it is a physician's responsibility and a patient's right to had all necessary information about his/her treatment and adequate health education. Lacro et al. (2002a) reported that poor physician-patient relationship, and inadequate planning of the post-discharge period were reported as risk factors for non-adherence.[12]

As regards environmental factors, the present study found that absence or defective familial support was significantly associated with non-adherence and was identified as a risk factor that increases its likelihood. This is in accordance with results of other studies in patients with schizophrenia[12] and patients with a first psychotic episode.[41, 42] Moreover, Living alone was identified as a risk factor in schizophrenic patients.[43] Additionally, distressing personal relationships maybe a risk factor.[30]

In the present study, stepwise binary logistic regression analysis showed that absence of job, lack of familial support and deficient health education about medication use in addition to occurrence of side effects were associated with an increased likelihood of non- adherence to medications. Other studies showed some similarities and differences of the risk factors. Velligan et al. (2009) identified a highest risk profile of patient with a psychiatric illness as being a male, young patient with low socioeconomic status.[31] Tesfay et al. (2013) reported that the most common reasons for non-adherence were forgetting to take medication and feeling better or healthy.[22] Other associated factors included irregular follow-up, lack of family/social support and complex drug regimen. Mert et al. (2015) found that irregular follow-up attendance and diagnosis contribute significantly to non-adherence while age, sex, marital status, education status, smoking, living with others, and place of residence had no significant effect.[24]

CONCLUSIONS

In this study, the prevalence of non-adherence to psychiatric medications was found to be high. The most common reasons for non-adherence in this study were absence of job, familial

support, health education about medication use and adverse drug effects. Recommended measures that may decrease the rate of non-adherence among patients with psychiatric disorders are making medication regimens as simple as possible and promoting social support is necessary.

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