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Factors affecting medication adherence in Lebanese patients with chronic diseases

Original Research

Factors affecting medication adherence in Lebanese patients with chronic diseases

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ABSTRACT[*]

Background: Non-adherence to prescribed medications represents an obstacle toward achieving treatment goals. This problem is more pronounced in patients with chronic illness.

Objective: To identify the extent of adherence in Lebanese outpatients with chronic diseases, and to suggest possible predictors of non-adherence in this population. The secondary objective was to assess if medication adherence affects patients' quality of life.

Methods: A questionnaire was administered face-to-face to a sample of Lebanese adults visiting the external clinics at two Tertiary Care Hospitals in Beirut. The level of adherence was assessed using the 8-item Morisky Medication Adherence Scale which was first validated. The health-related quality of life (HRQoL) of patients was measured using the EQ-5D. Linear regression and logistic regression analyses examined possible predictors of adherence.

Results: Out of the 148 patients included in this study, 42.6% were classified as adherent. In the univariate analyses, statistically significant predictors of high adherence included good physician-patient relationship (p=0.029) and counseling (p=0.037), a high level of HRQoL (p<0.001), and a high level of perceived health (p<0.001). Predictors of low adherence included a declining memory (p<0.001), anxiety/depression (p=0.002), little drug knowledge (p<0.001), and postponing physician appointments (p<0.001). The multivariate analyses revealed similar results. In the linear regression, the most powerful predictor of non-adherence was the disbelief that the drug is ameliorating the disease (beta=0.279), however, in logistic regression, patient who were willing to skip or double doses in case of amelioration/deterioration were found to be 7.35 times more likely to be non-adherent than those who were not (aOR=0.136, 95%CI: 0.037-0.503).

Conclusion: The findings of this study reassure the view that patients should be regarded as active decision makers. Patient education should be regarded as a cornerstone for treatment success. Additional studies as well are needed to test the practicability and effectiveness of interventions suggested to enhance adherence.

Keywords: Medication Adherence; Prevalence; Causality; Multivariate Analysis; Lebanon

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INTRODUCTION

Drug adherence in chronic illness has been the interest of researchers for many decades. It represents a crucial step in the success of a drug therapy and a major challenge to healthcare professionals. With increasing numbers of efficacious self-administered treatments, the need is apparent for better understanding and management of non-adherence.[1]

In developed countries, adherence rates vary from 0 to 100%, 50% on average and in developing countries the rate is even lower. This poor adherence is seen in different medical conditions and crosses all age groups.[2] In Lebanon, adherence rate in patients with chronic diseases was expected to be low to moderate.

The definition of the terms adherence and compliance, is a controversial issue among scientists, but in the recent literature, the terms 'adherence' and 'compliance' are becoming interchangeable.[3,4] However, medication compliance initially referred to the extent to which a patient acts in accordance with the prescribed interval and dose of a dosing regimen. The term 'adherence' has now replaced 'compliance', because it includes the responsibility of the caregivers. Adherence has been defined as 'the active, voluntary, and collaborative involvement of the patient in a mutually acceptable course of behavior to produce a therapeutic result'.[3,4]

The problem with drug non-adherence doesn't only lie in the failure to achieve treatment goals, as non-adherence has been associated with increased mortality, increased risk of hospitalization, and significantly increased medical costs.[5,6]

Addressing the issue of adherence focuses on three major issues: effective measurements of adherence, prevalence and predictors of adherence, and effective strategies for improving adherence.

Different studies targeted the issue of adherence predictors, seeking a deeper understanding of adherence barriers.[2,4,7] Predictors included patients' socio-demographics (sex, age, race, educational level, and marital and employment statuses), lifestyle, health awareness, and attitude towards the treatment. Drug and disease related factors include the type and severity of the pathology, the duration of drug treatment, the drug class, complexity of the regimen, and drug cost[7]; which varies among patients due to different refunding systems of chronic medications in Lebanon (National Social Security Fund (NSSF), private insurance, or paid by patients). The patient's relationship with the healthcare provider recently emerged as an interesting predictor of non-adherence.[8]

Drug adherence and HRQoL (Health Related Quality of Life) are inter-related rather than cause-effect-related. Patients who have a better HRQoL seem to adhere better to their medications, achieve better outcomes. While on the contrary, patients with low HRQoL adhere less to their medications, which leads to bad outcomes, which in turn makes their quality of life even more deteriorating.[1]

Effective strategies to improve adherence in patients with chronic disease is a relatively recent subject in drug research. Reducing drug cost[6], decreasing the frequency of administration[4,9,10], the use of fixed dose combinations[4,11], and the use of generic drugs[12,13] were found to improve adherence levels. Involving the patient in the treatment process and educating patients have been found to be effective measures in improving adherence.[4,8]

As this subject was not addressed by any Lebanese study so far, the primary objective of this study was to identify the extent of adherence in Lebanese outpatients with chronic disease, and to suggest possible predictors of non-adherence in this population. The secondary objective was to assess if medication adherence affects patients' quality of life.

METHODS

Study Design

It is a cross-sectional pilot study assessing adherence in Lebanese outpatients. A convenient sample of patients was randomly selected from those visiting the external (outpatient) clinics at two Tertiary Care Hospitals. These external clinics include all common specialties. They are visited by patients coming from different Lebanese regions. The objectives of the study were explained to individual patient. Patients were asked if they have been taking any chronic medications for more than three months. Only those who were interested and who gave their voluntary informed oral consent to participate in the study were enrolled. Patients were assured of their anonymity and confidentiality of responses. The Institutional Review Board of the Lebanese University stated that an approval was not necessary since the study was an observational one and not experimental, clinical, or interventional. Data were acquired through a structured questionnaire filled by an interviewer and collected from the 2nd of May till the 15th of June 2013.

Inclusion criteria

Eligible participants were adult outpatients (>18 years). Patients should be diagnosed and treated for at least one chronic disease. Chronic disease was defined as any disease that lasts 3 months or more and thus requiring the administration of a chronic medication.

The questionnaire

The questionnaire consisted of dichotomous (Yes/No options), Likert (ordinal) scale, close-ended, and open-ended questions. It consisted of 8 sections and contained some of the intentional and unintentional barriers or reasons for non-adherence among patients taking chronic drugs. It obtained information on socio-demographic data, lifestyle data, patient's health follow-up and diet adherence, drug regimen (ex the number of drugs patient takes, the number of drugs the patient recalls their names, previous side-effects, etc.), patient's relationship with the healthcare providers (the physician and pharmacist), information about the patients' attitudes, behaviors, knowledge, and patients' opinions on some of the likely reasons for their non-adherence.

Scale validation

Patient adherence was assessed through self-report using MMAS-8 (8-item modified Morisky medication adherence scale)[14] in the seventh section. The scale is a widely used and validated method to assess patient adherence/non-adherence to drug regimen. The English version of the scale was translated to Arabic by a bilingual Lebanese researcher, then back-translated into English by another translator who has no knowledge of the English version. A similar translation was obtained. We checked for the Arabic version understanding in a small patient group and then the Arabic version was used in the questionnaires. The scale consists of 8 questions about intended and non-intended drug non-adherence. The first 7 questions are dichotomous (yes/no) while the last question is a 5-item Likert scale. It was dichotomized for the statistical analysis so the final score was 8. A score of 8 represents the perfect adherence, 7-6 represents medium adherence, and 5 and below represent low adherence.

In the last section of the questionnaire, EuroQol EQ-5D-3L[15] (European Quality of Life group 5-Dimensional questionnaire, 3 Level version) was used to assess the patients' health related quality of life. The Arabic version was requested from

EuroQol. The scale consists of 5 questions each answered by (no problems/some problems/severe problems). It assesses patient's mobility, activity, self-care, pain, and anxiety levels. It also includes a VAS (Visual Analogue Scale) on which the patient indicates how he/she perceives their own health status (0-100). The 5 questions are scored out of 3 (each) and the resulted patterns (ex: 12323) are transformed into a single summary index using specific value sets which transform every pattern into a single value, where 11111 is considered the perfect health status and is thus coded as 1. The value sets are specific for each country, but there is no specific set for Lebanon, so the UK TTO (United Kingdom Time Trade-Off valuation technique) set was used (the most robust value set). The resulted index varies between -1 and 1.

Data entry and statistical analysis

Data was entered and analyzed using SPSS version 20. No missing data were obtained (all patients replied to all questions).

The dependent variable was the medication adherence: An appropriate univariate analysis was done for every explanatory variable. The MMAS-8 score was the dependent variable: a continuous scale ranging from 0 to 8, and all other variables as explanatory variables. A p-value of 0.05 or less was considered to be statistically significant in all tests. Cronbach's reliability coefficient alpha was used for the internal consistency of the 8-items MMAS-8. Cronbach's alpha >0.7 was considered as reliable.

Multivariate analyses were done to adjust for potential confounders. Every variable with a p-value of less than 0.2 in the bivariate analyses was entered into the multiple regressions. The dependent variable in linear regression was the continuous variable MMAS-8 score. A forward stepwise LR logistic regression was also done. The outcome (MMAS-8 score) was dichotomized into adherent (6-8) and non-adherent (0-5) based on the median value which was 5. In addition, a linear regression with UK TTO as a dependent variable was executed.

RESULTS

Description of the study sample

All patients interviewed agreed to participate. One hundred and forty eight patients were included in this study. Mean age was 51.26 (SD=15.25) and ranged between 19 and 87 years. 48.6% were males and no significant age difference (p=0.35) was found between males (52.47 years; SD=16.46) and females (50.11 years; SD=14.05) (Table 1).

The majority of the study population was married (80.4%) and had an elementary education (35.8%). Sixty percent of the study sample was unemployed.

Only 12.8% of the studied sample had a caregiver at home. Around half of the population were non-smokers (46.6%), had a very stressful life (42.6%), and had moderate memory problems (46.6%). 43.9

% admitted not regularly monitoring important disease indicators (BP, BS, Cholesterol...) (Table 1).

On average, patients reported taking 3 medications (mean=3.14; SD=2.73). The number of drugs per patient ranged between 1 and 20. Patients recalled 74.8% (SD=33.53) of the names of their drugs (range 0-100%). Patients visited 1.72 (SD=1.21) physicians every 6.17 (SD=6.33) months.

Forty two percent experienced a previous drug-related side effects, half of whom stopped taking the medication without reporting to their physician. Most of the patients did not experience a change in their treatment plans in the past months (67.6%). Along with their chronic medications, 89.2% used OTC painkillers or other acute drugs.

Regarding the relationship with the care provider, 83.8% considered the physician (rather than the pharmacist) to be their primary reference regarding drugs and disease conditions. Only 75% reported that the physician explained the pathology and its severity. Around eighty percent of the patients reported that the physician has explained how to take their medications and 85.1% reported that the pharmacist did. Seventy nine percent admitted understanding physician's explanation which increases to 85% after pharmacist's explanation.

| Table 1. Sociodemographic and Lifestyle characteristics of the study population		
Characteristics	Frequency	%
Sex		
Males	72	48.6
Females	76	52.4
Marital Status		
Single	15	10.1
Married	119	80.4
Divorced	4	2.7
Widowed	10	6.8
Educational Level		
Illiterate	33	22.3
Elementary	53	35.8
Intermediate	11	7.4
Secondary	25	16.9
University	26	17.6
Employment Status		
Unemployed	90	60.8
Employee	31	20.9
Self-employed	27	18.2
Monthly Income		
[500,000-1,000,000 L.L.]	18	31.1
[1,000,000-2,000,000 L.L.]	30	51.7
[>2,000,000 L.L.]	10	17.2
Missing	90	
Smoking status		
Non-smoker	69	46.6
Ex-smoker	18	12.2
Smoker	61	41.2
Regular sports		
Yes	37	25
No	111	75
Levels of stress and anxiety		
None	35	23.6
Moderate	50	33.8
Severe	63	42.6
Memory (forgetfulness)		
Never	42	28.4
Sometimes	69	46.6
All the time	37	25
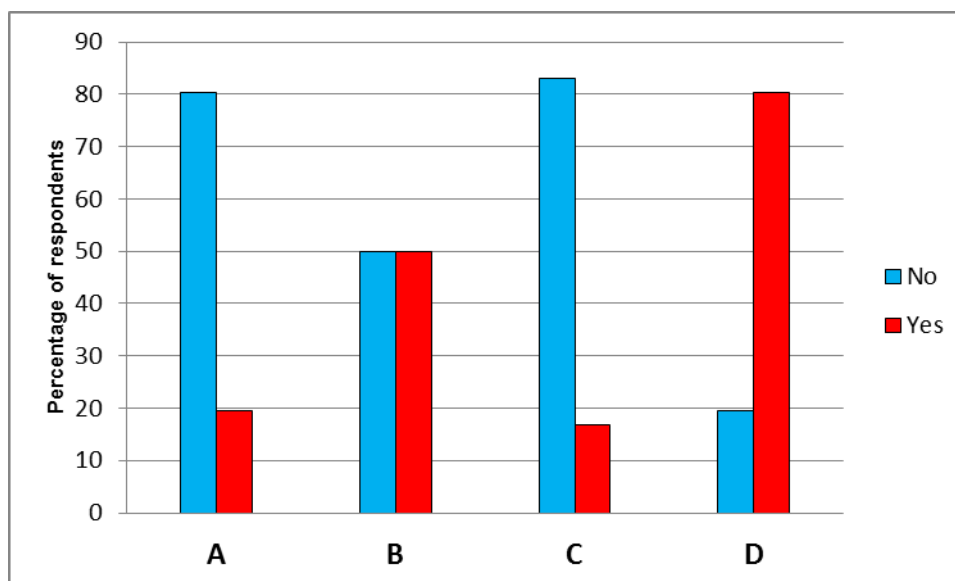
Figure 1. Patient knowledge and attitudes
A: A person can take double the dose to feel better or skip a dose if he feels worst.
B: Do you usually postpone physician's appointments?
C: If someone you trust advise you to stop your treatment, would you?
D: Do you believe that the drug therapy will improve your condition?

Almost half of the study population reported postponing physician's appointments, and considered drug cost as the most important reason that would make them stop their medications (48%). The majority believed that they cannot skip or double doses on their own (80.4%), would not stop their treatment even if advised to do so (83.1%), and believed that their treatment is improving their condition (80.4%) (Figure 1).

A large percentage of the sample patients reported forgetting to take their medications sometimes (67.6%), and 56.1% having difficulty remembering to take all their medications. Surprisingly, one third of the patients reported cutting back their medications when they felt better or worse.

The mean MMAS-8 of the sample was found to be 4.88 (SD=2.29) and ranged from 0 to 8 with a median value of 5. 16.9% of the sample was classified as highly adherent, 25.7% of medium adherence, and 57.4% of low adherence (Table 2).

Cronbach's alpha of the model (MMAS-8) was 0.774. The removal of any item of the score was accompanied by decrease in the model's Cronbach's alpha (Table 3).

Patients placed themselves on different levels of the VAS but the average was 74.8 and varied greatly (SD=33.53). The UK TTO averaged 0.52 (SD=0.37).

Table 2. Results of the 8-item Morisky medication adherence scale (MMAS-8).		
Question	**Yes**	**No**
1- Do you sometimes forget to take your pills?	67.6 %	32.4 %
2- People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your medicine?	48.6%	51.4 %
3- Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it?	31.8 %	68.2 %
4- When you travel or leave home, do you sometimes forget to bring along your medications?	15.5 %	84.5 %
5- Did you take your medications yesterday?	79.7 %	20.3 %
6- When you feel like your disease is under control, do you sometimes stop taking your medicine?	31.8%	68.2 %
7- Taking medication everyday is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	40.5 %	59.5 %
	Sometimes/Often/Always	Never/Rarely
8- How often do you have difficulty remembering to take all your medications?	56.1%	43.9%

	Mean	SD	Median	Min-Max
MMMAS Total	4.8784	2.291378	5	0-8
	Adherent		**Non-Adherent**	
Dichotomized MMMAS	42.6 %		57.4 %	
	High adherence (=8)	**Medium Adherence (6-7)**	**Low Adherence (0-5)**	
MMAS-8 classes	16.9 %	25.7 %	57.4 %	

Table 3. Reliability analysis of the 8-item Morisky medication adherence scale (MMAS-8).

Item	Cronbach's Alpha if Item deleted
1- Do you sometimes forget to take your pills?	0.747
2- People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your medicine?	0.725
3- Have you ever cut back or stopped taking your medication without telling your doctor, because you felt worse when you took it?	0.749
4- When you travel or leave home, do you sometimes forget to bring along your medications?	0.770
5- Did you take your medications yesterday?	0.754
6- When you feel like your disease is under control, do you sometimes stop taking your medicine?	0.759
7- Taking medication everyday is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	0.770
8- How often do you have difficulty remembering to take all your medications?	0.716
Cronbach's alpha of the model = 0.774	

Around half of the population had moderate pain (56.1%) and mobility problems (45.9%). Only a few reported severe self-care (2%) or daily-activities issues (3.4%). Two thirds (68.9%) of the population had moderate or severe anxiety and depression (Figure 2).

Univariate analyses of adherence predictors

The Univariate analyses of adherence predictors are presented in Table 4. Many factors were associated with varying compliance in the univariate analysis. Sociodemographic characteristics did not seem to predict the variation of adherence, as none of which showed any significance. On the other hand, healthy lifestyle factors such as measuring important health indicators (p=0.003), and adherence to a healthy diet (p<0.001) were all found to be important predictors of high adherence.

Concerning patient's health status and quality of life, memory problems (p<0.001), mobility problems (p=0.001), self-care problems (p<0.001), activity problems (p=0.004), chronic pain (p<0.001), and anxiety/depression (p=0.002) were all highly significant predictors of drug non-adherence. Patient perceived health status (EQ VAS) and the actual HRQoL (UK TTO) were both highly correlated with MMAS-8 (r=0.45, p<0.001 and r=0.41, p<0.001 respectively).

Regarding drug related factors, the previous occurrence of a drug-related side-effect seems to be associated with lower adherence (p=0.012). Recent changes in treatment plans were suggested to negatively affect the adherence level as they were associated with lower scores (p=0.014).

With respect to patient beliefs, patients who thought they could skip and double doses (p<0.001), who usually postpone physician's appointments (p<0.001), and who do not think that the drug therapy is ameliorating their condition (p<0.001) were found to have significantly lower adherence rates.

On the other side, good drug knowledge, positive physician-patient relationships, and appropriate physician counseling were found to be predictors of good adherence. Patients who could recall the names of their drugs were correlated with a higher adherence rate (r=0.19, p=0.02). Patients who referred to the physician as their primary healthcare counselor had significantly higher adherence levels (p=0.029). Patients who understood how to take
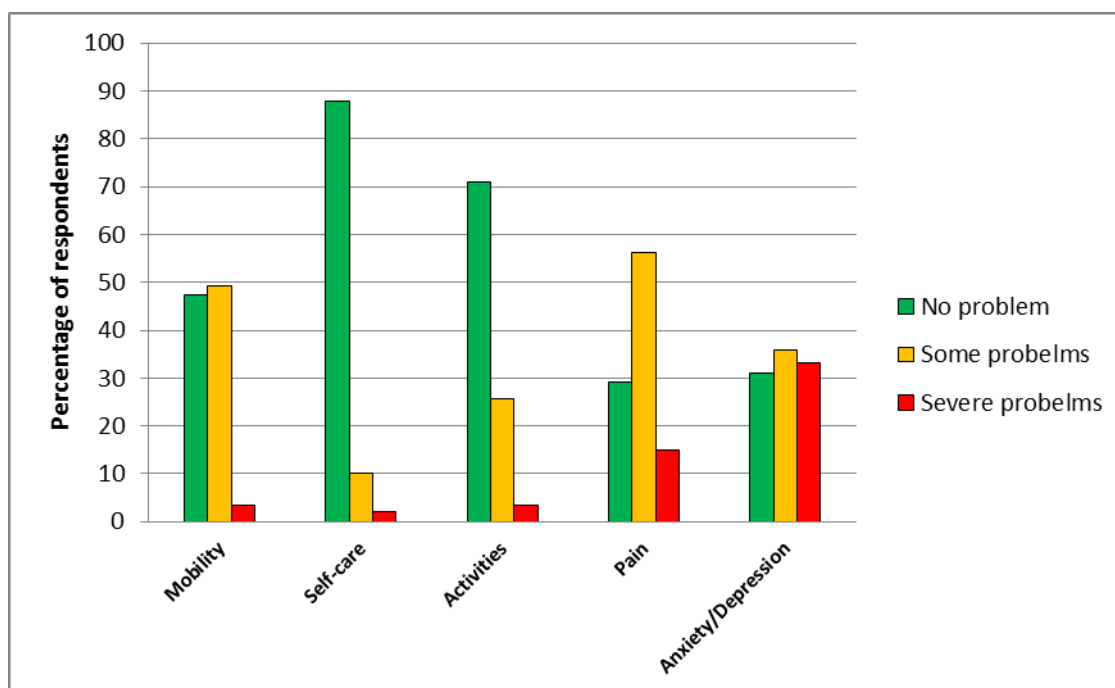

Figure 2. Mobility, Self-care, Activity, Pain, and Anxiety dimensions of EQ-5D,

Table 4. Univariate analyses of predictors vs. 8-item Morisky medication adherence scale (MMAS-8).as a continuous scale (Predictors of Adherence Levels)

Predictor		Mean MMAS-8	p-value
Regular sports			0.03
	Yes	5.5405	
	No	4.6577	
Do you regularly measure your BP, BS, Cholesterol, etc?			0.003
	No	4.2615	
	Yes	5.3614	
Patient reaction after facing drug-related side effects			0.006
	Told Dr	5.0968	
	Stopped taking drug	3.5484	
Whom do you consult more regarding your drugs and disease?			0.029
	Dr	4.9758	
	Pharmacist	4.3750	
Did the Dr discuss with you the disease and its severity?			0.038
	No	4.1351	
	Yes	5.1261	
Did the Dr explain to you how to take your medications?			0.037
	No	4.1000	
	Yes	5.0763	
Did you fully understand how to take them?			0.04
	No	4.1290	
	Yes	5.0769	
If someone you trust advised you to stop your treatment, would you?			<0.001
	No	5.3252	
	Yes	2.6800	

their medications (p=0.04), whose physician(s) explained the disease to them (p=0.038), taught them how to take the drugs properly (p=0.037), had significantly higher adherence rates.

Multivariate Analyses

In the multivariate linear regression model estimating the predictor of low adherence (Table 5), understanding how to take medications after doctor explanation (standardized beta=0.453) was the strongest predictor of good adherence. Doubt in medication efficacy manifested as the disbelief that the drug is ameliorating the disease (p=0.035) was a powerful predictor of poor compliance, followed by forgetfulness (p=0.049). The logistic regression performed after dichotomizing the sample as adherent/non-adherent showed almost the same results of the linear regression (Table 6). Linear regression done considering UK TTO as a dependent variable showed MMAS-8 score (p<0.001) and suffering from severe stress

(p=0.003) to be predictors of HRQoL (Table 5).

DISCUSSION

Our study aimed to assess the level of adherence in Lebanese adult outpatients and to identify some of its predictors. Also it aimed to assess if medication adherence affects patients' quality of life. Healthcare provider-patient relationship, forgetfulness, drug side effects were associated with medication adherence. Similarly, HRQoL showed a positive and significant association with adherence score. Overall, the percentage of patients classified as adherent was 42.6%. This percentage is similar to that in many developed and developing countries.[2,4]

Yet the analysis of the possible predictors highlighted many major issues. None of the socio-demographics significantly affected the adherence level; many previous studies have found similar results.[8,16]

Table 5. Linear regression: MMAS-8 and UK TTO (scoring of EQ-5L-3L) as dependent variables and predictors as independent variables

	Variables	Beta	Standardized Beta	Significance	95% CI
MMAS-8[a]	Did you fully understand how to take them after Dr explanation?	2.535	.453	0.001	1.054;4.015
	Do you think the drug is ameliorating your disease?	1.529	.293	0.035	0.114;2.944
	Forgetfulness	-1.217	-.239	0.049	-2.429; -0.004
UK TTO[b]	MMAS-8 (Morisky Score)	0.092	0.542	<0.001	0.05;0.134
	Having severe stress	-0.301	-0.380	0.003	-0.496; -0.106

[a] Adjuster R² = 0.475 / p-value of the model's ANOVA <0.0001
[b] Adjuster R² = 0.405 / p-value of the model's ANOVA <0.0001
Variables excluded: *Total number of chronic drugs, Number of drugs patients recalls their names, Durations since the administration of the first prescribed chronic medication, Monthly cost of drugs in LL (after insurance if any..), Number of Drs patient visits (related to their chronic condition), PercentRecall, Sex, Regular Sports, Do you regularly measure your BP, BS, Cholesterol?, Medical Insurancs or NSSF, Do you have difficulty paying for your drugs?, What did you do?, Did your treatment plan change a lot recently?, Do you take any acute drugs (pain killer, ATB, etc), Whom do you consult more regarding your drugs and disease?, Did the Dr explain the disease?, Did the Dr ask about previous medications before prescribing new ones?, Did the Dr explain to you how to take your medications?, Did you fully understand how to take them (Dr), Patient attitude: do you think you are over medicated, Can a person miss a dose or double a dose if better/worse, Do you postpone Dr appointments?, Would you stop your drugs if a person you trust advised you to?, Do you think the drug is ameliorating your disease?, adherence To DIET(dicho), forget, cost, complicated, married, divorced, widowed, Forget To Take Medication Sometimes, Forget Always, Education Level Elementary, Education Level Intermediate, Education Level Secondary, Education Level University, employee, self-employed, Moderate Stress, Age.*

Table 6. Multivariate Analysis: Binary logistic regression: dichotomized MMAS-8 as dependent variable and predictors as independent variables

Variables	Adjusted Odds Ratio	95% Confidence Interval		Significance
		Lower	Upper	
Can a person miss a dose or double a dose if he feels better or worse?	0.142	0.030	0.680	0.015
Do you think the drug is ameliorating your disease?	16.579	1.802	15.253	0.013
Forgetfulness	0.069	0.017	0.285	<0.001

Nagelkerke R Square = 0.457
Omnibus Test <0.001
p-value for Hosmer and Lemeshow Test = 0.900
Variables excluded: *Age, Number Of ChronicDrugs, Duration Drugs, Education, Education Elementary, Education Intermediate, Education Secondary, Education University, Sports, Memory, Memory Sometimes, Memory Always, Follow Up, Insurance, Side Effect, Change Drugs, Acute Drugs, Postpone Appointments, Stop Drug Advice, adherence To DIET(dicho).*

Even though half of the patients considered that drug cost was the major barrier towards adherence, this presumption did not stand upon data analysis. Neither drug cost per patient, nor the presence of a medical insurance could predict the adherence outcome in our patient group. This finding is supported by results from literature where drug cost fails to be a major predictor relative to other more important criteria.[17]

On the other side, a good physician-patient relationship and proper counseling by the physician had a significant effect in increasing the level of adherence in chronically ill patients. This result is concordant with much recent evidence from literature that suggests that this counseling is the corner stone of patient adherence.[4,8,18,19] Data suggest that the patient should be 'engaged' in the treatment plan rather than just 'counseled' about their drugs. It is very crucial that the physician takes into account the individual's preference of patients when prescribing new medications and to involve the patient in the decision-making. This communication is especially important in older patients with multiple diseases and hence multiple drugs or 'poly pharmacy'.[4,8,18,19] Physician counseling has a direct effect on patients' knowledge as it was found to decrease the risk of non-adherence by two folds.[20,21]

Declining memory was found to be one of the four major predictors of adherence in our sample. This can be associated with the idea that in older patients, declining cognitive function plays a major role in their drug intake.[1] These patients are more likely to forget to take their medications and also forget the physician's instructions. So even if proper counseling is assumed, it will have a transient effect because none of the information will be retained by the patient. This problem can be overcome by the use of different aids. The use of clear labels and encouraging the patient to use reminders are helpful techniques to combat this problem. The physician should work with the patient on simplifying the drug regimen. Blistered medications which divide doses over the day and week can help a great deal in remembering to take medication in appropriate doses and time-intervals. The physician should also work on simplifying the drug regimen through omitting any unnecessary medication. The number of pills per day and dose frequency can be reduced by using fixed dose combinations.[4,9] A meta-analysis on the use of fixed-dose combination concluded that a 26% decrease in the risk of non-adherence is associated with the use of these combinations.[11] Overall, it is believed that patients adhere better to once-daily medications rather than three or four-times-daily drugs, as they find it more convenient and appropriate with their daily activities.[10]

The perception of overmedication and previous experience of side-effects were significantly related to low adherence levels. A study done in 1998 suggested that when patients believes they are taking 'too much drug', this belief is associated with a 1.5-2 fold decrease in adherence.[22] Drug related side effects were also associated with lower adherence. The experience of side-effects not only encourages patients to stop the drug on their own, but also affects their faith in the therapy's success, which was found to be a powerful predictor of drug adherence in our study. A study done in UK stressed the importance of patients' medication beliefs in predicting future adherence.[16] Patients who do not believe in the efficacy and necessity of their medications, along with those who have side-effects concerns, are more likely to be less adherent.[16] Different studies showed that the poor perceived need of medication was strongly associated with low adherence.[16,23]

In our study, all of the 5-dimensions of the HRQoL score, regular sports, healthy diet, high perceived health status, and proper measurement of disease indicators (follow up) where associated with higher levels of adherence in the sample. These findings further support the concept of 'healthy-adherer'[24], where high adherence is considered as a marker of an overall healthy behavior. Also, a positive and significant association between HRQoL score and adherence score was demonstrated. As HRQoL encircles a complex web of psychosocial characteristics that can impact patient's ability to manage their chronic disease and does not depend on a single factor, medication adherence is an important component of disease state management[25] and thus can affect HRQoL. In a broader context, medication adherence is a transitional outcome variable while HRQoL is an ultimate outcome representing conclusions following a course of care.[26] This entails that a change in adherence is likely to occur first, which is subsequently followed by a change in HRQoL while assessing treatment or interventional outcomes.[27] Therefore, it can be predicted that patients who adhere to their treatment regimen should experience improvements in HRQoL and vice versa.

It is important to note that this study has several limitations. The method of drug adherence was self-report which suggests a possibility of recall bias. Self-report when compared to other methods of drug adherence assessment is generally believed to overestimate adherence level.[28,29] But yet self-report is still believed by many to be equally precise as other physical methods such as pill-count or electronic monitoring.[30] Also the influence of the interviewer on patients' answers can be added as an another limitation in such type of studies.

Another limitation is that the study did not compare between patients according to disease severity, disease type, or drug class. These factors were recently believed to be less significant when compared to other patient related factors such as patient attitudes or beliefs.[31,32]

CONCLUSIONS

This study highlighted several issues regarding drug adherence in Lebanese outpatients. The findings of this study reassure the view that patients should be regarded as active decision makers and should be engaged in their treatment plans making. Patient education should be regarded as a cornerstone for treatment success. Physicians and pharmacists shall encourage patients to use memory aids to help them take their medications sufficiently and on time.

Additional studies that assess adherence levels and predict factors affecting it are needed to provide strong evidence on those barriers. Additional studies as well are needed to test the practicability and effectiveness of interventions suggested to enhance adherence.

CONFLICT OF INTEREST

No potential conflicts of interest were disclosed.

FACTORES QUE AFECTAN A LA ADHERENCIA A LA MEDICACIÓN EN PACIENTES LIBANESES CON ENFERMEDADES CRÓNICAS

RESUMEN

Antecedentes: La no adherencia a la medicación prescrita representa un obstáculo hacia la consecución de los objetivos terapéuticos. Este problema es más grave en pacientes con enfermedades crónicas.

Objetivo: Identificar la proporción de adherencia en los pacientes ambulatorios libaneses con enfermedades crónicas y sugerir posibles predictores de adherencia en esta población. El objetivo secundario fue evaluar si la adherencia a la medicación afecta a la calidad de vida de los pacientes.

Métodos: Se administró presencialmente un cuestionario a una muestra de adultos libaneses que visitan las consultas ambulatorias de dos hospitales terciarios de Beirut. El nivel de adherencia se midió usando la Morisky Medication Adherence Scale de 8 ítems, que fue primeramente validada. La calidad de vida relacionada con la salud (HRQoL) de los pacientes se midió usando el EQ-5D. Análisis de regresión lineal y regresión logística examinaron los posibles predictores de adherencia.

Resultados: De los 148 pacientes incluidos en este estudio, el 42,6% fueron clasificados como adherentes. En el análisis univariado, entre los predictores estadísticamente significativos se incluían la buena relación paciente-médico (p=0,029) y el asesoramiento (p=0,037), un elevado nivel de HRQoL (p<0,001), y un elevado nivel de salud percibida (p<0,001). Los predictores de baja adherencia incluían el descenso de la memoria (p=0,002), bajo conocimiento de los medicamentos (p<0,001), y posponer las citas con el médico (p<0,001). El análisis multivariado reveló resultados similares. En la regresión lineal, el predictor más potente de no adherencia fue la falta de confianza en que el medicamento mejoraba la enfermedad (beta=0,279), sin embargo en la regresión logística, los pacientes que estaban dispuestos a doblar o saltarse la dosis en caso de mejora/empeoramiento aparecieron con 7,35 veces más probabilidad de ser no adherentes que los otros (ORa=0,136, 95%CI: 0,037-0,503).

Conclusión: Los hallazgos de este estudio refuerzan el hecho de que los pacientes deben ser considerados como decisores activos. La educación de los pacientes debería ser considerada como un elemento clave del éxito del tratamiento. Deben realizarse estudios para probar la efectividad y práctica de las intervenciones propuestas para mejorar la adherencia.

Palabras clave: Adherencia a la medicación; Prevalencia; Causalidad; Análisis Multivariado; Líbano

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