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Satisfaction with Healthcare Services and Adherence to Antiretroviral Therapy among Patients with HIV Attending Two Public Institutions

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ABSTRACT

Background: Discontinuation of antiretroviral therapy has adverse consequences in HIV patients and is a major public health problem. We analyzed the relationship between satisfaction with healthcare services and adherence to antiretroviral therapy among patients with HIV in Mexico City. **Material and Methods**: We conducted a cross-sectional study with patients with HIV (n = 557) who were treated in two public institutions. An *ad hoc* questionnaire was used to assess perceived satisfaction with healthcare services (i.e. physician/patient relationship, performance of services, and administrative aspects with focus on specific areas) and adherence to HIV treatment (i.e. failure to take antiretroviral therapy on previous day, week, and month). **Results**: The higher prevalence of non-adherence to antiretroviral therapy was during the previous month (23.5%). Dissatisfied patients with the relationship with their physician were more likely to have low adherence during the previous month (OR: 1.90; $p < 0.05$). Those who were dissatisfied with the care provided in specific clinical areas had low adherence (OR: 1.67; $p = 0.051$), but the difference disappeared (OR: 1.26; $p = 0.443$) after adjusting for satisfaction with physician/patient relationship. **Conclusions**: The quality of the relationship between physician and patients is an aspect that impacts on adherence to antiretroviral therapy. It is necessary to promote effective communication between health personnel and patients with HIV. (REV INVES CLIN. 2015;67:80-8)
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Key words: Patient satisfaction. Adherence. Health service. HIV. Physician-patient relationship.

INTRODUCTION

HIV infection remains a prevailing public health problem worldwide[1]. In Mexico, 160,864 cases of HIV/AIDS were reported in 2012, with men being more affected (82%)[2]. The AIDS mortality rate in 2011 was 4.6 per 100,000 inhabitants, and although there has been a steady decline, it is still high relative to the proposed goal of ≤ 3.5 for 2015[3]. In the world, the decline in mortality from AIDS is largely due to increased access to antiretroviral therapy (ART)[4]. In Mexico, ART coverage is 85%, one of the highest rates in Latin America and the world[3].

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Disease prognosis has radically changed since the development of ART due to the suppression of viral replication; damage to the immune system is delayed and its recovery is promoted in most patients who receive ART. Although different factors may interfere with the effect of ART, such as pharmacokinetics of the scheme used and its tolerability[5], one of the critical elements that can be improved is adherence to therapy[6]. Due to the rapid replication and mutation rates of HIV, discontinuation of the prescribed drug scheme reduces the benefits to patients because the risk of developing AIDS increases and life quality and expectancy are reduced. In addition, nonadherence to ART is a public health issue due to the emergence of HIV strains that are resistant to multiple drugs[7].

Patient satisfaction (i.e. perceived acceptability of health services) may be related to higher levels of adherence to the prescribed treatment[8,9]. Some qualitative studies have reported that low quality in the physician/patient relationship is one of the main barriers to adherence, and this has been reported both by patients with HIV[10,11] and by their healthcare providers[12]. Although qualitative studies may generate hypotheses for research, quantitative designs are required for verifying such hypotheses. The effect of the physician/patient relationship on adherence to ART[13] and the overall satisfaction of HIV patients with services provided by their clinics[14] have been documented in high-income countries, using quantitative designs. However, there is no evidence about the possible impact of other aspects of health services (i.e. other non-physician healthcare personnel or administrative issues) on adherence to ART. We conducted a quantitative study to analyze the relationship between patient satisfaction with the healthcare services and adherence to ART among patients with HIV from two public institutions in Mexico.

MATERIAL AND METHODS

Study population

An analytical cross-sectional survey was carried out. A convenience sample was recruited from patients with HIV attending two public healthcare institutions in Mexico City: Hospital Regional Licenciado Adolfo López Mateos of the Institute for Social Security and Services for Civil Servants (ISSSTE) and Clínica Especializada Condesa of the Health Ministry of Mexico City (GDF-SS). Using EPIDAT software[15] a sample size of 560 patients with HIV/AIDS was estimated, assuming a prevalence of dissatisfaction with the services of 40%, accuracy of 95%, and expecting an odds ratio (OR) of 1.75, and a ratio of controls to cases of 3:1.

The study was approved by the Ethics Committee of the Universidad Autónoma Metropolitana. Participants signed an informed consent in which the confidentiality of data was guaranteed. Fieldwork was conducted from October 2011 to November 2012. Inclusion criteria were: being a user of one of the two clinics, being under ART, and being ≥ 18 years old, or if they were minors they should not be economically dependent on their parents nor live with them. The total sample consisted of 557 patients, they ranged in age from 16 to 80 years. Previously trained nursing interns applied the questionnaire using structured interviews.

Questionnaire

Adherence to ART and satisfaction with services provided by the clinic where the patients received care were recorded in a questionnaire. The dependent variable was adherence to ART and this was assessed with three questions inquiring whether the person had skipped ART during the month, week, and day prior to the interview; response options were “yes” and “no”. When the answer was yes, patients were asked how many times he/she had failed to take the medication. Two variables that evaluated poor adherence during the last week and month were created, with questions on how often the drug was omitted during such periods. We defined “poor adherence” when the patient had omitted 5% or more of the prescribed ART doses.

The independent variable was patient satisfaction with healthcare services and it was assessed using two inventories with Likert format. The first one contained 17 questions adapted from a validated scale for Mexican patients with chronic diseases[16]. The response options were scored from 1 to 5: not satisfied, somewhat satisfied, satisfied, very satisfied, and completely satisfied. Exploratory factor analysis was conducted to identify dimensions of perceived satisfaction. Each factor was composed of questions that had a weight of > 0.40[17]. Three factors in the first inventory and one factor in the second inventory were identified (Table 1). The first component of the first inventory evaluated satisfaction with the physician/patient relationship and it consisted

Table 1. Factor analysis* of inventories of user satisfaction with healthcare services in patients with HIV

	Factor 1 Physician/ patient relationship	Factor 2 Service performance	Factor 3 Administrative aspects
Eigen Value	6.4	3.3	3.1
% Variance	37.7	19.5	18.3
Adapted scale (16)			
– Hospital organization	0.15	0.14	**0.85**
– Schedules of appointments assigned	0.15	0.16	**0.87**
– Resolution of administrative problems	0.22	0.15	**0.85**
– Waiting time for medical consultation	0.13	0.29	**0.69**
– How often the prescription is fully supplied at the pharmacy	0.25	**0.70**	0.26
– Comfort at hospital or clinic	0.29	**0.84**	0.25
– Cleanliness of hospital or clinic	0.28	**0.88**	0.15
– Trust in hospital or clinic	0.33	**0.85**	0.16
– Physician kindness	**0.62**	0.52	0.22
– Physical examination performed by physician	**0.66**	0.44	0.25
– Treatment offered by physician for illness	**0.68**	0.43	0.27
– Information given by physician on the side effects that may arise from drug therapy	**0.83**	0.27	0.20
– Patient being able to give his/her opinion to physician about the treatment	**0.87**	0.28	0.16
– Physician clarifying doubts about treatment	**0.90**	0.25	0.12
– How well the patient understands the information provided by physician	**0.89**	0.23	0.15
– Time that doctor spent with patient at consultation	**0.91**	0.19	0.14
– Overall satisfaction with physician	**0.88**	0.17	0.11
Developed scale	Factor 1: Performance of specific areas		
– Laboratory service	0.82		
– Pharmacy service	0.88		
– Nursing service	0.89		
– Hospital or clinic reception service	0.88		
– Social work service	0.83		

*Varimax rotation.

of nine items: physician kindness; physical examination, treatment, and information from physician; if physician allowed patients to give their opinion about treatment; clarification of patient doubts; whether the patient understood the information provided by the physician; consultation time; and overall satisfaction with the medical staff. The second factor assessed satisfaction with performance of the clinic´s services and included four items: how often all prescribed medications were provided, comfort and cleanliness of clinic or hospital, and trust in the service. The third factor assessed the administrative aspects of the service and included four items: hospital organization, schedules of appointments, resolution of administrative problems, and waiting time before medical consultation.

For the second inventory, only one component emerged that assessed satisfaction with different services of the

clinic or hospital: laboratory, pharmacy, nursing, reception, and social work offices. An average score was calculated adding the assigned values to the answers to the questions included in each factor; the product was divided by the number of questions included in the factor. The average score of each factor was then divided into two categories: satisfaction and dissatisfaction. A participant was considered "satisfied" when the average score for the factor was ≥ 3.0, and "dissatisfied" when the average score was < 3.0. These cutoffs correspond to the values assigned to the response options (i.e. the response options "satisfied", "very satisfied" and "completely satisfied" had scores of 3, 4, and 5, respectively).

Another factor that may condition the adherence to ART is the timely and adequate supply of drugs. Therefore the questionnaire included the question, "When you came to fill your prescription at the pharmacy were there no HIV medications?", which indirectly assessed this situation. Responses were grouped into three categories: 1) "never" and "almost never", 2) "sometimes" and "often", and 3) "almost always" and "always".

Statistical analysis

For the descriptive analysis, we estimated the prevalence of failure to take the medication and poor adherence in the total population and in each institution. To determine whether adherence to ART was associated with satisfaction with health services and drug supply, bivariate analysis was performed using the chi square test. A level of $p < 0.050$ was considered statistically significant. Logistic regression models were estimated, using as independent variables the dimensions of user satisfaction that in the previous analysis had shown significant association with adherence to ART. Statistical analysis was performed using SPSS software version 19.0.

RESULTS

The mean age of patients was 36 years in the total population and was higher among patients from the ISSSTE clinic. In both institutions the majority were men and most were single (62.3%), followed by those who were married or in cohabitation (26.2%) (Table 2). Regarding the education level of the household head, the majority (38.7%) had finished high school, followed by those with secondary education (25.5%). Among men, 57.1% reported being homosexual, 24.8% heterosexual, and 17.9% bisexual.

Rates of missed medication doses varied according to the time period that we were assessing (Table 3). The rate of failure to take medication was 5.2% on the previous day, 12.2% for the previous week, and 23.5% for the previous month, while the rate of poor adherence was 5.2 and 5.9% for the previous week and month, respectively. The higher rate of missed medications and low adherence (i.e. missing ≥ 5% doses) was during the previous month. The rates of omission and poor adherence were similar in both clinics. There were no differences according to drug availability (results not shown in tables). For example, poor adherence in the last month was 24.2% among those who reported that "almost always" and "always" there was medication shortage, 25.2% among those who reported "sometimes" and "often", and 22.8% among those who reported "never" and "almost never" (chi square: 0.311; $p = 0.856$).

Among subjects dissatisfied with the physician/patient relationship, there was a higher rate of omission in taking some of the ART medications during the previous month compared with those who were satisfied (36.7 vs. 21.9%; $p = 0.011$; Table 4). Among those who were dissatisfied with the care provided in specific areas of the clinic, there was also a higher rate of dose omission during the previous month compared with those who were satisfied (32.1 vs. 21.8%; $p = 0.036$).

Considering the entire population, in the logistic regression models (Table 5) we observed that patients dissatisfied with the physician/patient relationship were more likely to skip taking some medication during the previous month (OR: 2.06; 95% CI: 1.17-3.63; $p = 0.012$). The probability of omission in taking medication during the previous month among those who were dissatisfied with the care provided in specific areas of the clinic was also higher, but the differences were only marginally significant (OR: 1.67; 95% CI: 0.99-2.79; $p = 0.051$). In the adjusted models, the probability of skipping medication remained higher among those dissatisfied with the physician/patient relationship (OR: 1.90; 95% CI: 1.01-3.57; $p = 0.046$). When the population was stratified by institution, we found that users of SS-GDF dissatisfied with the physician/patient relationship also were more likely to omit any medication during the previous month, although the differences were marginally significant after adjusting

Table 2. Sociodemographic characteristics of patients with HIV that received healthcare from two public institutions in Mexico City, 2011-2012

	Total		ISSSTE		SS-GDF	
Number	557		100		457	
Age (mean, years)	36.6		48.2		34.0	
	n	%	n	%	n	%
Sex						
– Male	448	80.4	83	83.0	365	79.9
– Female	109	19.6	17	17.0	92	20.1
Marital status						
– Single	347	62.3	50	50.0	297	65.0
– Married or cohabitating	146	26.2	33	33.0	113	24.7
– Divorced or widowed	64	11.5	17	17.0	47	10.3
Sexual orientation*						
– Heterosexual	111	24.8	46	55.4	65	17.8
– Bisexual	80	17.9	4	4.8	76	20.8
– Homosexual	256	57.1	33	39.8	223	61.0
– Unknown	1	0.2			1	0.3
Education of household head						
– Elementary or less	74	13.3	6	6.1	68	14.9
– Junior high school	142	25.5	6	6.1	136	29.8
– High school	215	38.7	33	33.3	182	39.8
– Degree or more	125	22.5	54	54.5	71	15.5

*Only asked of men.
ISSSTE: Institute for Social Security and Services for Civil Servants; GDF-SS: Health Ministry of Federal District.

Table 3. Prevalence of omission in taking medications and low adherence in the previous day, week, and month among patients with HIV from Mexico City

	TOTAL		ISSSTE		SS-GDF	
	n	%	n	%	n	%
Previous day						
Omission	29	5.2	4	4.0	25	5.5
Previous week						
Omission	68	12.2	12	12.0	56	12.3
Low adherence	29	5.2	4	4.0	25	5.5
Previous month						
Omission	131	23.5	26	26.0	105	23.0
Low adherence	33	5.9	3	3.0	30	6.6

ISSSTE: Institute for Social Security and Services for Civil Servants; GDF-SS: Health Ministry of Federal District.

for other variables (OR: 1.90; 95% CI: 0.95-3.79; p = 0.068). Those who were dissatisfied with the care provided in specific areas of their clinic also were more likely to skip doses; however, the difference was not significant after controlling for other variables (OR: 1.46; 95% CI: 0.74-2.90; p = 0.273). Although the same trends were observed among the ISSSTE patients, differences in skipping doses between satisfied and dissatisfied patients did not reach statistical significance.

DISCUSSION

In this study on the effect of the satisfaction with healthcare services on adherence to ART in HIV patients, we found that the highest rates of omission and lowest rates of adherence (i.e. omitting 5% of the doses) occurred during the previous month (23.5 and 5.9%, respectively). Other authors[18] have also reported that adherence is lower in a longer time period.

Table 4. Association between patient satisfaction and failure to take medication during the previous day, week and month among patients with HIV from Mexico City

		Adapted inventory of Doubova, et al.[16]						Developed scale	
	Total	Physician/patient relationship		Service performance		Administrative issues		Performance of specific areas	
		Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied	Satisfied	Dissatisfied
Total		%	%	%	%	%	%	%	%
Previous day									
– Dose omission	5.2	5.0	6.7	4.9	7.0	5.6	4.4	5.0	6.2
Previous week									
– Dose omission	12.2	11.7	16.7	11.3	16.9	12.8	11.0	11.1	18.5
– Low adherence	5.2	5.2	5.0	4.9	7.0	5.3	5.0	5.0	6.2
Previous month									
– Dose omission	23.3	21.9	36.7*	23.1	23.9	23.1	23.8	21.8	32.1*
– Low adherence	5.9	5.8	6.7	6.6	1.4	5.9	6.1	6.3	3.7

*p < 0.050, differences between satisfied and dissatisfied groups.

Table 5. Logistic regression models in which the independent variables were two satisfaction dimensions, and the dependent variable was the failure to take ART in the previous month

	Physician/patient relationship			Performance of specific areas		
	OR	95% CI	p	OR	95% CI	p
Total						
Unadjusted models						
– Satisfied	1.00			1.00		
– Dissatisfied	2.06	1.17-3.63	0.012	1.67	0.99-2.79	0.051
Adjusted model*						
– Satisfied	1.00			1.00		
– Dissatisfied	1.90	1.01-3.57	0.046	1.26	0.70-2.25	0.443
ISSSTE						
Unadjusted models						
– Satisfied	1.00			1.00		
– Dissatisfied	1.80	0.39-8.12	0.445	1.06	0.38-2.93	0.901
Adjusted model*						
– Satisfied	1.00			1.00		
– Dissatisfied	2.50	0.40-15.5	0.323	0.71	0.21-2.33	0.575
SS-GDF						
Unadjusted models						
– Satisfied	1.00			1.00		
– Dissatisfied	2.13	1.15-3.94	0.015	1.93	1.05-3.55	0.032
Adjusted model*						
– Satisfied	1.00			1.00		
– Dissatisfied	1.90	0.95-3.79	0.068	1.46	0.74-2.90	0.273

*Model adjusted for sex, age, marital status, education, satisfaction with care in specific areas, and satisfaction with the physician/patient relationship.
ISSSTE: Institute for Social Security and Services for Civil Servants; GDF-SS: Health Ministry of Federal District; OR: odds ratio; 95% CI: confidence interval at 95% level.

However, unlike other studies, we found lower poor adherence rates. In a study conducted in the USA[19], 37% of the participants did not adhere to ART during the previous month, considering adherence as taking ≥ 80% of the prescribed medication. In the present study, we observed a 12.2% omission in taking medications during the previous week and 5.2% for poor adherence in the same period. In a study in Spain[20], non-adherence during the previous week was also higher (42.4%) than in the Mexican sample. Other authors assessing adherence by self-report of missed doses during the previous four days found a prevalence of omitted doses of 26%[6]. Some of these studies were conducted before the establishment of programs to ensure universal access to ART. Therefore, some of the differences in results may be explained by the fact that in the past decade patients had to buy their medication, which caused lower adherence to treatment due to the high costs of ART.

One of the most important findings of this study in HIV patients in Mexico City was the observed association between satisfaction with the physician/patient relationship and adherence to ART. We found that those who were dissatisfied with the physician/patient relationship were more likely to miss some doses of ART during the past month compared to those who were satisfied. When stratified by institution, the same trend was observed in both groups of patients (OR: 2.50 in the ISSSTE sample and OR: 1.90 in the SS-GDF sample), although differences among ISSSTE patients did not reach statistical significance. This may be due to the small sample size (n = 100). These results are consistent with those reported in other studies conducted in high-income countries. Patients with HIV in the USA who reported having better communication with medical staff were more likely to adhere to their treatment[18]. In patients with HIV attending several clinics in Boston it was found that six of the seven variables that were evaluated for the quality of the physician/patient relationship were associated with an increased probability of adherence to ART[21]. The associated variables in this study were related with communication and the information that medical staff gave the patients, as well as overall satisfaction and trust.

Others authors have used different methods to assess the perception of individuals regarding the treatment of medical staff towards patients; however, the results are consistent with our findings: patients who perceive a better treatment from physicians have greater adherence to ART. For example, in a study conducted in North Carolina there was a higher prevalence of adherence to ART among HIV patients who felt their doctor recognized them "as a person" (76 vs. 67%; p = 0.007), which was reflected in lower serum viral RNA levels[22]. Likewise, when patients perceived that the medical staff recognized them as persons, they missed fewer appointments (0.12 vs. 0.14, $p < 0.001$)[22]. In another group of patients, attendance to appointments and checkups was better when they perceived that their doctors treated them with dignity, listened carefully, and gave them information in a way they could understand[13]. This is important because both adherence and attendance to medical appointments are key issues in the management of a chronic disease.

In this study, patients who were dissatisfied with the care provided in specific areas had a higher probability of dose omission during the last month; however, in the regression model the differences were marginally significant. In addition, differences were observed only among users of the SS-GDF clinic. It should be noted that at the ISSSTE hospital there are medical and nursing services that serve exclusively HIV patients, the rest of the services being used by all patients of the hospital; meanwhile, the SS-GDF clinic has more services such as psychology and dentistry. This difference in the organizational structure of services may partly explain the differences observed in the stratified analysis. From these results, it seems that there is a need to ensure optimal communication and interaction of health workers with HIV patients receiving care at the clinics; and although results indicate that physician behavior is the most important factor in ART adherence, the treatment and attitudes from other health workers should not be disregarded.

In Mexico, as in other countries, it has been documented that users of medical facilities perceived negative experiences in care from providers and the services´ organization[23]. However, in the present study, user dissatisfaction with administrative aspects was not a predictor of adherence. It is possible that although patients are dissatisfied with various administrative issues (e.g. long waiting times or difficulties in administrative procedures), these negatives aspects can be tolerated and do not affect adherence as long as the relationship with healthcare staff is perceived in positive terms. Perception of disease severity and

the importance of adherence to ART by patients can be promoted by healthcare providers who maintain an effective communication; this may lessen the potential influence of other aspects of healthcare services on the adherence to ART.

Our results show that communication between healthcare providers and HIV patients needs to be improved. However, it has been observed that medical personnel tend to underestimate the number of patients who are nonadherent and therefore taking action to promote adherence to ART may be inhibited[24]. This is an important issue because, as shown in this study and reported by other authors[13,18,21,24], behavior of healthcare staff has a key role in promoting adherence to ART. Physicians and other healthcare providers can be trained in counseling techniques[25] to encourage the following practices: (i) create positive environments to generate empathy through active listening without prejudice; (ii) investigate and understand the barriers of patients to adhere to ART; (iii) establish an active collaboration where medical staff invite patients to detect possible solutions to the barriers and to identify strategies to increase adherence; (iv) use plain language, with a minimum of technical terms, so that it is understandable and meaningful to patients; (v) provide information and recommendations in "small quantities" and appropriate to each patient and situation, making sure that there is a full understanding of what was said; and (vi) do not take for granted that patients are being adherent to their treatment, therefore in each consultation it is recommended to evaluate adherence. The aim of these strategies is to establish relationships centered in patients, in a way that they feel heard and actively involved in their own treatment.

One limitation of this study is that it was not possible to estimate the participation rate since we used incidental sampling, i.e. patients were invited in the waiting rooms as they arrived to the clinics. Therefore, it is unknown whether there were differences in participation according to relevant variables such as adherence to ART. Anecdotally, interviewers indicated that about two out of 10 patients who were invited to participate did not accept, and women also rejected the invitation more often. The representativeness of the sample is also limited because only institutions from Mexico City were included, and patients who receive healthcare in services for affiliated workers of private companies (i.e. Mexican Social Security Institute, IMSS) were not included. In addition, the studied institutions are located in Mexico City, where there is a greater capability of healthcare services since infrastructure is more available and the number of personnel is higher than in the states, which may explain the relatively high rates of adherence observed. Therefore, results reported here cannot be extrapolated to all services and institutions around the country. More studies are needed to investigate this problem in the states of Mexico, especially in those with lesser resources.

To measure adherence to ART, different procedures have been used such as electronic monitoring devices, pill count, or monitoring pharmacies for filled prescriptions; however, their cost and logistical requirements make them inaccessible in settings with scarce resources. In this regard, another limitation of the study is that questions applied to measure adherence to ART have not been validated for their use in patients with HIV. However, it has been observed[26] that there is a correlation between the patients´ report (through questionnaires or interviews) and viral load levels, which indirectly reflects that patients respond truthfully, especially if they rely on confidential data handling. Recently, validated instruments developed in the USA[27] were used to assess ART adherence in Mexican population[28]. Unfortunately, at the time when our study was planned and carried out, such evidence was not available.

In summary, the highest prevalence of omission in taking medication occurred during the previous month. Among patients dissatisfied with the physician/patient relationship and with the service provided in specific areas of the clinic, there was a higher probability of low adherence to ART in the last month. After adjusting for other covariates, the statistically significant difference in the probability of ART omission between patients dissatisfied and those satisfied with the physician/patient relationship remained. These results are consistent with results of other studies and show that communication and treatment given by physicians to patients are key aspects that may impact on adherence, even more than other characteristics or qualities of healthcare services such as administrative procedures. The promotion of a better interaction, particularly an effective communication, of healthcare staff with HIV patients is needed. The improvement of adherence to ART will possibly generate greater benefits for the patients, the healthcare system, and public health.

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