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Comparison of satisfaction with care between two different models of HIV care delivery in St. Petersburg, Russia

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Abstract

Prior to 2010, medical care for people living with HIV/AIDS was provided at an outpatient facility near the center of St. Petersburg. Since then, HIV specialty clinics have been established in more outlying regions of the city. The study examined the effect of this decentralization of HIV care on patients' satisfaction with care in clinics of St. Petersburg, Russia. We conducted a cross-sectional study with 418 HIV-positive patients receiving care at the St. Petersburg AIDS Center or at District Infectious Disease Departments (centralized and decentralized models, respectively).

Face-to-face interviews included questions about psychosocial characteristics, patient's satisfaction with care, and clinic-related patient experience. Abstraction of medical records provided information on patients' viral load. To compare centralized and decentralized models of care delivery we performed bivariate and multivariate analysis. Clients of District Infectious Disease Departments spent less time in lines and traveling to reach the clinic, and they had stronger relationships with their doctor. The overall satisfaction with care was high, with 86% of the sample reporting high level of satisfaction. Nevertheless, satisfaction with care was strongly and positively associated with the decentralized model of care and Patient-Doctor Relationship Score. Patient experience elements such as waiting time, travel time, and number of services used were not significant factors related to satisfaction. Given the positive association of satisfaction with decentralized service delivery, it is worth exploring decentralization as one way of improving health care services for people living with HIV/AIDS.

Keywords

satisfaction with care; HIV/AIDS; decentralization; patient experience; models of care

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Introduction

The current HIV epidemic in Russia represents a serious public health concern (*UNAIDS*, 2009). As of December 2013, 798,866 HIV infections have been officially recorded in Russia (*Federal Scientific Methodic Center*, 2013). This, however, is felt to underestimate actual prevalence as the HIV epidemic continues to expand, presenting serious problems for Russia's healthcare system.

The Russian HIV/AIDS healthcare system has been based on a centralized model of health care delivery, in other words, it is vertically organized system of federal, regional, and local AIDS Centers. In August 1995, in response to the rapid rise in HIV prevalence in Russia after the break-up of the Soviet Union, the legislature passed a Federal Anti-AIDS law (1995) that provides current federal guidelines for HIV/AIDS prevention, care, and support. It concentrated almost all activity relating to HIV/AIDS under the authority and supervision of the federal government (Twigg & Skolnik, 2005). The government has established a Federal AIDS Center, 86 Regional AIDS Centers, and six Territorial AIDS centers and a Federal Clinical AIDS Center in St. Petersburg. According to Decree of the Government the AIDS Centers provide to citizens the wide range of services including medical care and social support for people living with HIV/AIDS for free. In other words, this model of HIV care delivery centers all the services (basic care, social support, specialized care such as dermatology, venereology, gynecology, paediatrics) for people living with HIV/AIDS in one place for a whole city or region. But the problems of stigma, addiction and legislative restrictions on addiction treatment, HAART medication shortage, and the lack of HIV/AIDS related information in Russia were the reasons that only a small percentage of those infected avail themselves of care and fewer have received ARV treatment.

St. Petersburg, with the prevalence 1017.5 people living with HIV/AIDS per 100,000 population, is one the cities most affected by the epidemic (*Federal Scientific Methodic Center*, 2013). In addition to problems countrywide, there are additional HIV care related problems in St. Petersburg including its size: St. Petersburg is a large city that often requires long travel times to get places, whether using public transport or private car. It can take as much as two hours to get from an outlying district to the city center where the AIDS Center is located. Also large and growing number of patients raises the problem of queues to obtain services in the AIDS Center (Rakhmanova, Belyakov, Vinogradova, & Volkova, 2010). Like Russia as a whole, use of available services in St. Petersburg has been low. By the end of 2011, the cumulative number of registered HIV cases in St. Petersburg was 47560 but only 59.8% were in care (*HIV Infection in St. Petersburg*, 2012).

In response to the increasing number of patients, including those with severe forms of HIV infection, and considerable spatial distances between some of districts and the AIDS Center, the St. Petersburg Committee of Public Health has introduced the position of infectionist into the Offices of Infectious Diseases (OID) in the district outpatient clinics (instruction No. 529-r, 10/09/2007 "Improvement of the organization of medical services for HIV-infected patients in out-patient-polyclinic establishments of St. Petersburg"). Despite this new order, these steps have not led to reducing overload in the AIDS Center. All patients continue to be referred to the AIDS Center. The reason for this appears to be the unfortunate

reality that the algorithm of prophylactic medical examination and treatment of HIV-infected people who attended OID was complicated and led to loss in patients.

Due to the above reasons another new model of health care for people living with HIV/AIDS was introduced in the Frunzenskiy district of St. Petersburg in 2010. The new model includes the organization of the district infection disease department (DIDD) at existing public outpatient health facilities that provides a range of health care services to the neighbourhood. District infectious diseases departments provide the universal access to preventive services and HIV-infection treatment. These services include such activities as outpatient examinations, rendering of the advisory-diagnostic and medical services for HIV-positive people, compilation of electronic register of HIV-infected people in the district, providing the HAART prescription commission in the AIDS Center with medical records, medical samples gathering (CD4, viral load, etc.), distribution of HAART, social work for people living with HIV/AIDS and their relatives. DIDDs do not provide the same range of services that are available in the AIDS Center (e.g. dermatologist, venereologist, phthisiatrician, gynecologist, pediatrician) but personnel assist patients with their interactions with other medical specialists for solving patients' problems and refer them to other facilities (e.g. at local specialty clinics or at the AIDS Center). All these services are provided for free as AIDS Center's ones. Currently this model of health care delivery is employed in 6 districts of 18 of the city (Vasiliostrovsky, Kalininsky, Kolpinsky, Moscovsky, Frunzensky and Krasnogvardeysky) based on public outpatient health facilities of St. Petersburg, so the DIDDs located in different districts of the city and there is no need to go to the one center to get basic HIV care. In other words, this model decentralizes health care delivery. While DIDD provides basic HIV care with easier access and less stigmatization (DIDD is situated in district outpatient clinic, there is no "HIV/AIDS"-related labels), the AIDS Center continues to provide the widest range of services to HIV-positive people.

We sought to explore the impact of the establishment of the DIDDs in two districts: Frunzenskiy and Kolpinski, focusing on differences between centralized (AIDS Center) and decentralized (DIDDs) models and on the influence of the model on patients' outcomes. Patient satisfaction is one of the most commonly measured outcomes of patient care (Sood et al., 2013). It is an important element of patient-centered care, and it can be considered a measure of improving health-care delivery (Zgierska, Rabago, & Miller, 2014) including such elements as access to care, quality of the relationship between provider and patient, and affordability of care (Burke-Miller et al., 2006). Satisfaction is necessary for effective care and, at the same time, it is an outcome of effective care (Burke-Miller et al., 2006). We hypothesized that patients involved in decentralized model of HIV care delivery in St. Petersburg would be more satisfied with care.

Methods

Participants and procedure

We conducted a cross-sectional study with 242 HIV-positive patients in St. Petersburg AIDS Center and 176 HIV-positive patients in Kolpinskiy and Frunzenskiy DIDDs in spring – summer, 2013. These two DIDDs were included because they were the first established and

had been operational for at least two years. Patient inclusion criteria were the following: (1) age over 18 years old, (2) HIV-positive, and (3) registered at one of the clinics (AIDS Center, Kolpinskiy or Frunzenskiy DIDD). Patient recruitment was conducted by the Research team and the support staff of the AIDS Center and DIDD (nurses, social workers, psychologists). Participation in this study was strictly voluntary, confidential, and non-discriminatory. The recruitment at the AIDS Center was performed by inviting potential participants at the reception desk of the center, waiting in a queue, or during their examination by their infectionist. The invitations briefly described the target audience, the purposes of the research, the duration of the interview, and compensation. The study was approved by Yale University Human Investigation Committee, Yale University, USA and the St. Petersburg AIDS Center Ethics Committee, St. Petersburg, Russia.

After obtaining oral consent from those willing to participate, we conducted a face-to-face interview that included questions about psychosocial characteristics, patient's satisfaction with care, patient-provider relationship, sexual risk behavior, HIV status disclosure, and receiving antiviral medications. The questionnaire was tested prior to starting actual data collection by interviewing 11 patients who were recruited by a physician or through flyers posted in public areas in the AIDS Center. Based on the result of piloting, repetitive questions were removed and phrasing was clarified. The interviews were confidential but not anonymous because further data collection included review of the patient's medical chart. The interviewers recorded the identifying data on a separate form and generated a unique code for each respondent that was attached to the interview answer form and medical chart data abstraction form. The form with the identifiers was stored in the room with the limited access and then it was destroyed after all the chart review abstractions were done. No identifying personal data was stored in the database. All subjects received a gift card equivalent to US\$6 for completing the face-to-face interview.

A subsequent abstraction of medical records was undertaken for each respondent. At the AIDS Center and DIDD the social worker involved in the study as an interviewer completed a standardized abstraction form, which contained the following data elements retrieved from the medical charts and the pharmacy: CD4 count and viral load, regularity of service utilization, comorbid conditions, and medication refill information.

Measures

Factors that were assessed for their association with models of HIV care delivery included patient sociodemographic characteristics, satisfaction with care, patient experiences, patient doctor relationship, and clinical measures. To address the differences between HIV care delivery models we explored the recent experience, and asked DIDDs patients specifically about DIDD-related experience, not about their previous visits to AIDS Center.

Respondents reported their gender, age, education, marital status, monthly income, work status, and time since HIV diagnosed (in months). *Satisfaction* was measured in 5-level Likert scale ranged from "very dissatisfied" to "very satisfied". The resulting variable was transformed to a binary measure with "high" and "low" levels. "High" level includes "very satisfied" and "all in all satisfied" levels of original variable and "low" corresponds to "very dissatisfied", "all in all dissatisfied" or "cannot determine". Measures associated with

patient experience of care include an indicator of clinic (AIDS Center or DIDD), average time in line (4-level Likert scale with 20 min steps), time to get to the clinic (travel time in minutes), time since last visit, and number of visits during last 6 months, number of services used by the patient from the list of services provided at the AIDS Center and at the District Infection Disease Dispensaries (e.g. social worker, dermatologist, pediatrician, infectionist, lawyer). To address the effect of relations between patient and doctor on satisfaction score we include *Patient-Doctor Depth-of-Relationship Scale* that evaluates the value of “personal continuity” which is often defined as ‘the interpersonal aspects of ongoing patient-doctor relationships’. (Ridd, Lewis, Peters, & Salisbury, 2011) This scale ranges from 0 points (no relationship) to 32 points (very strong relationship) and includes 8 statements with 5 response options (from “totally disagree scored 0” to “totally agree scored 4”).

We include two clinical indicators: *viral load* suppression and the *regularity* of patient’s visits to the doctor. The two last measures are based on the data from charts review where we consider viral load suppressed if it is not detectable or <50. The regularity measure was taken from the doctors’ comments in medical chart.

Statistical analyses

First, we assessed the relationship of dichotomized factors to the type of clinic (AIDS Center or DIDD). We used chi-square tests for independence and Fisher’s exact test (for small sample sizes in contingency tables). Continuous variables were analyzed using Student’s t-test. The level of significance was set at p-value less than 0.05. Next, we assessed associations between correlates and the outcome of satisfaction with care using multivariate analysis. In the modelling strategy, the best subset of variables for including in the model was chosen employing backward/forward stepwise model selection according to Akaike’s Information Criterion (AIC), Bayesian information criterion (BIC), and Mallow’s Cp. Using logistic multivariate regression models, odds ratios (OR) with 95% confidence intervals (95% CI) were calculated to estimate the effect the variables from best subsets on the satisfaction. The full model for multivariate analysis included socio-economic variables, patient experiences, clinical measures, patient-doctor relations, and type of clinic. To address possible relationships between them we included interaction terms that corresponded to the potential confounders found through initial pairwise comparisons (for example, interaction between waiting time and type of clinic). All statistical analyses were performed using R version 3.0.2 (*R Core Team*, 2013) with RStudio IDE (*RStudio*, 2013).

Results

The sample description is provided in Table 1. The sample is almost equally divided between males (58%) and females (42%). The mean age is 34.3 (SD = 7.2) years. On average, participants were HIV diagnosed 6.3 (SD = 4.1) years before the interview. Nearly half (44%) of the sample was unemployed. The monthly income was lower than 25,000 rubles for 56% of the sample. The cut-off was close to the average income in St. Petersburg in 2011 (*St. Petersburg Government*, 2013) when the study was conducted. Half of the sample (52%) reported living with a partner. Comparison of the patients of AIDS Center and DIDD using t-test and chi-squared test indicates (Table 1) significant differences on age

(slightly higher in AIDS Center), time since diagnosed (higher in AIDS Center), income (higher in AIDS Center), and education level (higher education in AIDS Center).

Significant statistical differences were observed for DIDD patients comparing to AIDS Center patients regarding general satisfaction with care, shorter lines, shorter travel time, more services used during last 6 months, and stronger relationship with one's primary physician (Table 1).

Table 2 showed the results of unadjusted analyses for the satisfaction of care outcome. There were no statistically significant differences between the groups in level of satisfaction and socio-economical characteristics, except for employment status: a higher proportion of those employed were in the satisfied group. As a result, we did not consider socio-economic characteristics as potential confounders for association between the satisfaction and the type of clinic. Patients who were more satisfied spent less time in lines, used more services, and had higher Patient-Doctor Relationship scores. There were no statistically significant differences in having experience with both AIDS Center and DIDD between satisfied and not satisfied patients (34% vs 28%, $\chi^2 = 0.43$, $p = 0.511$). Among DIDD patients, those who experienced AIDS Center care reported significantly lower overall satisfaction with DIDD compared to those who did not have such experience (88% vs 100%, Fisher exact test $p = 0.01$).

In multivariate logistic regression, a set of significant predictors (Table 3) for the regression model with satisfaction as response included Patient-Doctor-Relationship score (positive relation, aOR = 1.09, CI (1.04, 1.14)) and visiting a DIDD clinic (aOR = 5.7, CI (1.95, 16.53)). The full set of variable included in multivariate analysis included socio-demographic predictors as age, sex, education, income, and patient experience-associated predictors as clinic (AIDS Center or DIDD), patient-doctor-relationship score, time since diagnosed, time since last visit, number of visits, travel time, time in lines, regularity of visits, number of services used during last 6 months, and viral load. To address the effect of such potential confounders as waiting time, travel time, number of services used, and patient-doctor relationship on association between the satisfaction with care and the type of clinic we included corresponding interaction terms into the full model. No single interaction term was significant in the final model, so the association between the satisfaction with care and patient experiences did not differ by the type of clinic.

Discussion

This study reveals differences between centralized and decentralized models of care in measures associated with patient experiences. As expected, DIDD clients on average spent less time in lines and less time to reach the clinic. In addition, we found they had stronger relationships with their doctor, and in general they were more satisfied with care. Nevertheless, the overwhelming majority of the HIV/AIDS patients in St. Petersburg reported high levels of overall satisfaction with care regardless of where they obtained that care. The overall high level of satisfaction is consistent with other studies of patient satisfaction studies (Dang, Westbrook, Rodriguez-Barradas, & Giordano, 2012; Crow, Gage, Hampson, Hart, & Kimber, 2002; Préau et al., 2012; Devnani, Gupta, Wanchu, & Sharma,

2012; Sood et al., 2013). In multivariate analysis, satisfaction with care was strongly associated only with the type of clinic and with Patient-Doctor Relationship scores. This suggests that elements of doctors' attitude in treating patients in a stigmatized group including their empathy and communication skills in developing trusting relationship may be important in keeping patients in care. So, the odds of being more satisfied is higher for DIDD patients comparing to AIDS Center patients with the same value of Patient-Doctor Relationship score.

Several studies have suggested that patients' satisfaction with providers affects their behavior, including adherence to therapy and intention to return to the clinic (Dang, Westbrook, Black, Rodriguez-Barradas, & Giordano, 2013; Beach, Keruly, & Moore, 2006; Préau et al., 2012). However, it is unclear which aspect of providing health care most strongly influences patients' evaluation. Interpersonal dimensions such as doctors' trust and communication skills have been associated with higher patient evaluations (Crow et al., 2002, Sitzia & Wood, 1997). The patient-provider relationship exceeds other components of the care experience in the strength of its association with overall satisfaction (Dang et al., 2013; Roberts, 2002). A meta-analysis of 19 of the 22 systematically reviewed studies detected significantly higher patient satisfaction with medical care linked to the personal doctor-patient relationship characterized by loyalty and trust. (Saultz & Albedaiwi, 2004).

However, studies consistently show that these factors only explain a small amount of variance in overall satisfaction scores (Dang et al., 2012). Some organizational factors that are beyond the provider's control may also affect patients' evaluation of the clinic. Our findings suggest that the clinic itself is a significant factor of satisfaction, but specific patient experience-associated measures such as the waiting time, the travel time, the number of visits, the number of services used, and the viral load were not among best model reached through our multivariate analysis. This finding provides evidence that some other unmeasured characteristics of the health care model influence the satisfaction level. Although we did not find the waiting time, the travel time, the number of visits, the number of services used significant factors associated with satisfaction, several studies in different countries have shown that service utilization, including waiting time and administrative procedures are important factors of patients' evaluation of clinic (Tran & Nguyen, 2012; Devnani et al., 2012; Chow, Li, & Quine, 2012; Wouters, Heunis, Rensburg, & Meulemans, 2008).

This study has some limitations worth noting. First, interviews were conducted by AIDS Center and DIDDs staff, which may have resulted in social desirability bias leading to overestimation of satisfaction. Second, we assembled a convenience sample that can cause sampling bias: for example, less satisfied patients could probably be less motivated to participate in interview or may be less frequent visitors to the clinics. Third, interviewing only patients who attended the clinics and only those who agreed to participate, we were unable to capture the experiences of those who might have avoided the clinic or who might have refused to participate, potentially introducing bias. As a result, we could overestimate the satisfaction although it might not influence the comparison of different clinics. Fourth, some patients used both the AIDS Center and DIDDs: 74% of DIDDs' patients experienced AIDS Center care and 3% of AIDS Center patients had ever visited DIDDs. As a

consequence, previous experience could potentially influence patients' estimations of satisfaction and other subjective treatment-related variables. However, DIDD patients, who experienced AIDS Center care before, were less satisfied with DIDD compared to those who did not have such experience; thus, we can't conclude that previous experience had a strong impact on our findings. Note, the described experience pattern corresponds to the natural experience of the patients.

To conclude, in St. Petersburg satisfaction with HIV care, an important patient outcome (along with other patient experiences), is higher in district infectious disease departments compared with AIDS Center. Given the potential positive aspects, it is worth exploring decentralization as one way of improving health care services for people living with HIV/AIDS.

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Table 1

Clinical care parameters and sociodemographic characteristics of patients enrolled at the AIDS Center and at the District Infection Disease Dispensaries (DIDD).

	AIDS Center (n = 242)	DIDD (n = 176)	Total (n = 418)	<i>t</i> or χ^2	p-value
Sociodemographic Characteristics					
Sex: female, n (%)	104 (43%)	73 (41%)	177 (42%)	0.04	0.837
Education: less than university, n (%)	184 (76%)	146 (83%)	330 (79%)	4.34	0.037
Diagnosis time in months, mean (SD)	82.2 (51.4)	65.7 (44.6)	75.5 (49.3)	3.44	<0.001
Age, mean (SD)	34.9 (7.7)	33.3 (5.9)	34.3 (7.2)	2.28	0.023
Marital status: no partner, n (%)	120 (50%)	81 (46%)	201 (48%)	0.19	0.659
Employment: yes, n (%)	143 (59%)	91 (52%)	234 (56%)	1.18	0.278
Employment status: official, n (%) *	105 (73%)	55 (60%)	160 (68%)	3.76	0.053
Income (in rubles): <25000, n (%)	121 (50%)	114 (65%)	235 (56%)	21.14	<0.001
Position, n (%) *				8.86	0.114
worker	73 (51%)	53 (58%)	126 (54%)		
office employee	25 (17%)	21 (23%)	46 (20%)		
professional staff	28 (20%)	6 (7%)	34 (15%)		
middle manager	10 (7%)	6 (7%)	16 (7%)		
CEO	4 (3%)	1 (1%)	5 (2%)		
other	2 (1%)	2 (2%)	4 (1%)		
missing values	1 (1%)	2 (2%)	3 (1%)		
Patient Satisfaction and Clinical Care Parameters					
Satisfaction (overall): yes, n (%)	197 (81%)	157 (89%)	354 (85%)	5.89	0.015
Satisfaction (infectionist): yes, n (%)	216 (89%)	142 (81%)	358 (86%)	0.08	0.775
Satisfaction (psychiatrist): yes, n (%)	145 (60%)	61 (35%)	206 (49%)	0.59	0.442
missing values	83 (34%)	112 (64%)	195 (47%)		
Time in lines (minutes), n (%)				116.44	<0.001
<20	42 (17%)	96 (55%)	138 (33%)		
20-40	87 (36%)	69 (39%)	156 (37%)		
>40	111 (46%)	3 (2%)	114 (27%)		
missing values	2 (1%)	8 (4%)	10 (3%)		
Travel time (minutes), n (%)	48.5 (28.3)	23.3 (12.9)	38.0 (26.3)	12.17	<0.001
Number of days since last visit, mean (SD)	87.6 (321.8)	61.9 (192.8)	77.9 (280.0)	0.98	0.326
Number of visits, mean (SD), median	4.8 (3.6), 4	5.1 (3.2), 4	4.9 (3.4), 4	-0.86	0.389
Number of services used (total), mean (SD), median	5.1 (2.7), 5	4.4 (2.5), 4	4.9 (2.7), 5	2.52	0.012
Number of services used (last 6 months), mean (SD), median	3.1 (2.1), 3	3.9 (2.6), 3	3.3 (2.3), 3	-3.03	0.003
Patient-Doctor Relationship (0 low, 32 high), mean (SD)	18.3 (8.3)	20.0 (6.7)	19.0 (7.7)	-2.28	0.023

	AIDS Center (n = 242)	DIDD (n = 176)	Total (n = 418)	<i>t</i> or χ^2	p-value
Regular visits: yes, n (%)	138 (57%)	108 (61%)	246 (59%)	3.29	0.069
missing values	73 (30%)	27 (15%)	100 (24%)		
Both clinics experience: yes, n (%)	8 (3%)	130 (74%)	138 (33%)	226.2	<0.001
Viral load suppression: yes, n (%)	71 (29%)	87 (49%)	158 (38%)	13.7	<0.001

Note: "Number of services used" represents the number of services used by the patient from the list of services provided at the AIDS Center and at the District Infection Disease Dispensaries (e.g. social worker, dermatologist, pediatrician, infectionist, lawyer).

Proportions of missing values were less than 3% for each binary variable (except regularity of visits and satisfaction with psychiatrist) and did not significantly differ between models, so they were not shown in the table.

* proportions were counted with respect to the number of employed

Table 2

Clinical care parameters and sociodemographic characteristics of patients based on their level of overall satisfaction with the care they received.

	Not Satisfied (n = 60)	Satisfied (n = 354)	<i>t or χ^2</i>	p-value
<i>Sociodemographic Characteristics</i>				
Sex: female, n (%)	28 (47%)	148 (42%)	0.32	0.574
Education: less than university, n (%)	47 (75%)	282 (80%)	0.07	0.789
Diagnosis time in months, mean (SD)	81.3 (54.9)	74.5 (48.3)	0.87	0.387
Age , mean (SD)	35.0 (7.5)	34.2 (7.2)	0.73	0.469
Marital status: no partner, n (%)	35 (58%)	162 (46%)	2.93	0.087
Employment: yes, n (%)	24 (40%)	208 (59%)	5.77	0.016
Employment status: official, n (%) [*]	18 (75%)	140 (67%)	0.29	0.593
Income (in rubles): <25000, n (%)	32 (53%)	202 (57%)	0.02	0.889
Position , n (%) [*]			5.29	0.382
worker	12 (50%)	113 (54%)		
office employee	4 (17%)	41 (20%)		
professional staff	7 (29%)	27 (13%)		
middle manager	1 (4%)	15 (7%)		
CEO	0 (0%)	5 (3%)		
other	0 (0%)	4 (2%)		
missing values	0 (0%)	3 (1%)		
<i>Patient Satisfaction and Clinical Care Parameters</i>				
Time in lines (minutes), n (%)			10.64	0.005
<20	14 (23%)	123 (35%)		
20-40	18 (30%)	135 (38%)		
>40	27 (45%)	87 (25%)		
missing values	1 (2%)	9 (2%)		
Travel time (minutes), mean (SD)	46.1 (35.5)	36.6 (24.2)	1.96	0.054
Number of days since last visit , mean (SD)	93.6 (244.2)	75.3 (287.2)	0.51	0.611
Number of visits , mean (SD), median	4.4 (2.7), 4	5.0 (3.6), 4	-1.69	0.094
Number of services used (total), mean (SD), median	4.6 (2.6), 5	5.0 (2.7), 5	-1.04	0.304
Number of services used (last 6 months), mean (SD), median	2.9 (1.8), 2	3.5 (2.4), 3	-2.17	0.035
Patient-Doctor Relationship (0 low, 32 high), mean (SD)	14.7 (8.1)	19.8 (7.4)	-4.48	<0.001
Regular visits: yes, n (%)	33 (55%)	212 (60%)	0.36	0.547
missing values	20 (33%)	78 (22%)		
Both clinics experience: yes, n (%)	17 (28%)	119 (34%)	0.43	0.511

	Not Satisfied (n = 60)	Satisfied (n = 354)	<i>t or χ^2</i>	p-value
Viral load suppression: yes, n (%)	20 (33%)	138 (39%)	0.33	0.563

Note: "Number of services used" represents the number of services used by the patient from the list of services provided at the AIDS Center and at the District Infection Disease Dispensaries (e.g. social worker, dermatologist, pediatrician, infectionist, lawyer).

Proportions of missing values were less than 3% for each binary variable (except regularity of visits) and did not significantly differ between groups, so they were not shown in the table.

* proportions were counted with respect to the number of employed

Table 3

Variables associated with patient satisfaction in multivariate modelling

Variable	aOR (95% CI)
Patient-Doctor Relationship Score	1.09 (1.04, 1.14)
District Infectious Disease Dispensaries	5.7 (1.95, 16.53)

Note: aOR, adjusted odds ratio; CI, confidence interval